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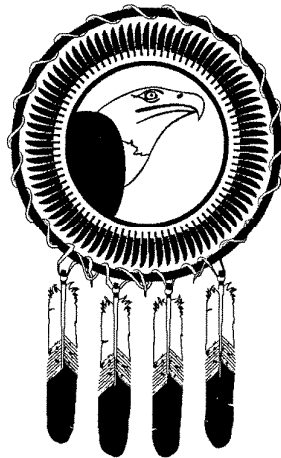
*The Feasibility Study of Commercially Marketing Elk Meat
A Report Prepared for the White Mountain Apache Tribe*

by

Cyril Chu and Ken Haig

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HARVARD PROJECT ON
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GOVERNMENT, HARVARD UNIVERSITY

FOR WHITE MOUNTAIN APACHE RESERVATION:
“THE FEASIBILITY STUDY OF COMMERCIALY MARKETING
ELK MEAT”

Cyril Chu and Ken Haig
Native American in the Twenty-First Century:
Nation-Building II
January -- May, 1998

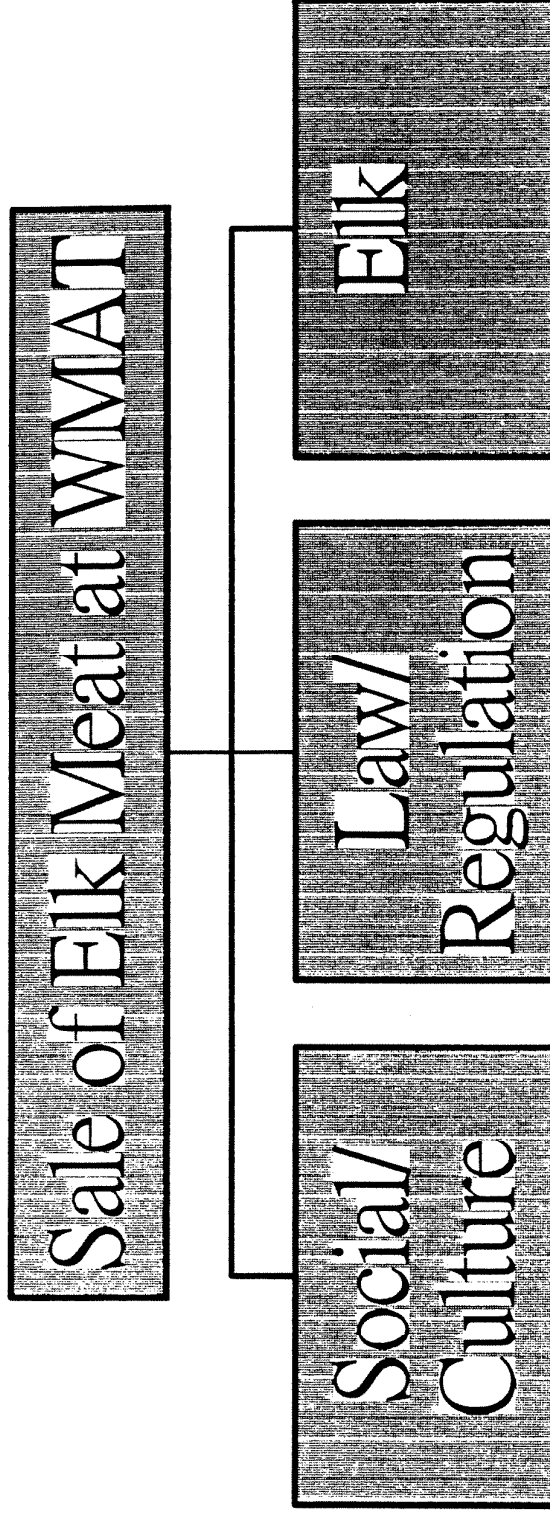
WMAT Goal

- Bring down the number of elk on reservation while maximizing return on an already existant abundant resource. A number of criteria will be used to analyze this as a commercial possibility including, but not limited to, law/regulation, economic /logistical feasibility, culture concerns, and impacts on elk herds.

Key Findings

- Sale of elk meat may have a cultural impact
- While there is long term potential for elk meat supply, might not as long as we had once thought
- More feasible for the short-term than the long-term
- There are differences between regulations for sale on-reservation and off-reservation
- The objective of the Project can be maintained potentially better in other ventures

Main Issues



Culture: Buy-in

- first thing to do: communication with tribal opinion leaders before any engagement
- promoting local entrepreneurship: empowerment for younger generation
- education: overpopulated elk causing problems to the environment
- cultural taboo: translate “take as much as you need and no more” into capitalist marketing term

Legal/Regulation

- Sovereignty Issue: no legal precedent for sale of elk, but the framework itself is there
- AZ State Government: sale of local elk banned
- Federal Government: new 1997 FDA Regulations

Facts about Elk in WMAT

- total: 10,000-12,000(post-winter)
- elk population at sustainable level: 10,000
- 1,500-2,000 calves expected per year
- harvesting 10% of total population per year will maintain sustainable level

Sale of Elk Meat:

General Concerns

- Phase I:
 - On-reservation
 - starting up
 - processing plant
 - training program
 - game management
 - served by local hotels/restaurants/
grocery store
- Phase II:
 - Off-reservation
 - Goal is for FDA and states to agree on appropriate national and international market sale
 - limited partnership
 - in stores and mail order

Phase I: On-reservation

- (+)
- tribal sovereignty
- skillful employees
- surplus elk
- employment/training opportunity
- revenues and income
- existing sales channel
- existing infrastructure
- by-products
- (--)
- start-up costs
- difficulty in monitoring/regulating wild harvest
- difficulty in quality control/standardizing products
- culture concerns
- antagonism on State level
- home processing tradition

Phase II: Off-reservation

- (+)
- competitive price
- international market potential
- promoting apache image
- valuable by-products
- (--)
- competition from off-reservation established private plants with better location
- unstable/unpredictable supply
- anti-hunting trends
- unpredictable demand
- quality control difficulty
- sewage

Start-up Costs

- **Initial Machinery Investment: \$154,623.00**
- **Packaging Supplies** (vary with types of products)
- **Seasoning and Curing Costs**
- **Clothing Costs** (vary with number of employees and equipment quality)
- **Maintenance Costs** (vary with volume and efficiency)
- **Transportation/Distribution Costs**

Valuable By-products

- Lifesize Mounts: \$4,180 to \$4,950
- Elk Hide Rugs: \$20.35 sq. ft.
- Shoulder Mounts: \$935 to \$1,045
- Horns on Shield: \$181.50
- Skulls: \$165
- Tanning Leather: \$10.45 sq. ft.

All Price is 110% of Trappers Den Tazidermy's Processing Price

Revenues and Income

(Minimum Scenario)

- Total Elk Meat
 $100 \text{ Elk} \times 250 \text{ lbs} = 25,000 \text{ lbs}$
- Income From Meat (jerky reduced weight by 9/10)
 $25,000 \text{ lbs} \times \$30/\text{lb} \times 1/10 = \$75,000$
- Income From By-products (35% of all elk)
 $35 \text{ Elk} \times \$500 = \$17,500$
- Total Income From Elk
 $\$75,000 + \$17,500 = \$92,500$

Not profitable. Does not cover start-up costs

Revenues and Income

(Medium Scenario)

- Total Elk Meat
 $500 \text{ Elk} \times 250 \text{ lbs} = 125,000 \text{ lbs}$
- Income From Meat
 $125,000 \text{ lbs} \times \$30/\text{lb} \times 1/10 = \$375,000$
- Income From By-products
 $175 \times \$500 = \$87,500$
- Total Income From Elk
 $\$375,000 + \$87,500 = \$462,500$

Negligible profits. Most likely to cover start-up cost only

Revenues and Income

(Maximum Scenario)

- Total Elk Meat
 $1,000 \text{ Elks} \times 250 \text{ lbs} = 250,000 \text{ lbs}$
- Income From Meat
 $250,000 \text{ lbs} \times \$30/\text{lb} \times 1/10 = \$750,000$
- Income From By-products
 $350 \times \$500 = \$175,000$
- Total Income From Elk
 $\$750,000 + \$175,000 = \$925,000$

Profitable, but gambling with many hidden costs

Remaining Issue of Elk:

I: Supply Side

- health risk?
- quality control
- frozen/fresh/jerky?
- seasonal business? (meat quality)
- Mexican wolves (beyond game and fish management)

Remaining Issue of Elk:

II: Demand Side

- maintain price at high level?
- popularity? --need more marketing studies
- seasonal business? (off-season facility maintenance costs)
- other sources of elk (ie. poaching)

Processing Site

- existing building available
- location
- logistics.distribution:
sewage/licensing/insurance/infrastructure/
advertising/off-season maintenance/
packaging/chemicals/equipment/utilities/
transportation/refridgeration

Processing Costs:

Material Handling

shelving. carts. tables. desks. scoops. trays.
shovels. buckets. totes. dollies. platters.
chilltotes. brutes. trash bags. pallets. freezer
spacers. wheels & casters. trucks. bins.
buggies. drums. food containers. combo
bins & containers

Processing Costs:

Sanitation

- nozzles. hoses & accessories. hose stations.
washdown stations. pressure washers &
nozzles. brushes. sponges. scrubbers &
pads. lavs & accessories. sanitation
chemicals. mops, brooms & squeegees

Processing Costs:

Plant Maintenance

- wall coatings. aerosols. lubricants. drum pumps. lockers. ladders. blowers. flash lights. extension cords. power block

Processing Costs:

Plant Remodeling

- fly control. lighting. door hardware. strip doors. cold storage doors. personnel doors. traffic doors. air doors. wall coverings. ceiling systems

Processing Costs:

Safety

- first aid kits. extinguishers. lock-out/tag-out.
cut resistant gloves & sleeves. mesh gloves.
protective aprons. head, eye & ear
protection. eye wash stations. respirators &
disposable masks

Processing Costs:

Ergonomics

- wrist, hand & back supports
- floor mats
- cooling products

Processing Costs:

Clothing

- boots. work shoes. galoshes. insulated clothing. cotton work clothing. frocks. raingear. disposable & reusable aprons. waterproof & disposable gloves. disposable clothing. insulated boots & gloves. knit gloves. sleeves. laundry bags. hairnets

Processing Costs:

Cutlery

- knives. poultry knives. sharpeners. steels.
scabbards. shears. speciality knives. knife &
tool holders. hooks. hand saws

Processing Costs:

Thermometers

- waterproof thermometers. hand held digital thermometers. pocket digital thermometers. long stem thermometers. gas actuated. in-line thermometers. calibration thermometers. wall mount. hot water thermometers. high-low thermometers

Processing Costs:

Scales

- food. hanging. bench. digital platform. price computing scales. dial scale. portion scales. checkweigh

Processing Costs:

Quality Control

- Ph kits
- clipboards
- timers
- stopwatches
- counters
- calculators
- AC voltage sensor

Processing Costs:

Seasonings & Curing

- curing pumps. pumping tables. brine pumps.
- needles. tabletop stuffers.
- sugar cures. seasonings. marinades

Processing Costs:

Processing Supplies

- wire presses. stainless steel hooks.
- smoking nets. smokesticks. grinder plates & knives. bandsaw blades. wellsaws.
- ink & tattoo paste. tags. stamps

Processing Costs:

Packaging Supplies

- bone guards. printed pouches. pouch sealers. poly meat bags. bag sealers. tape & dispensers. markers. zip, deli & boil-in bags. vacuum pouches. casings

Processing Costs:

Packaging Equipment

- vacuum packaging machines
- packaging equipment
- labeling equipment

Processing Costs:

Processing Equipment

- bowl cutters
- mixers
- tumblers
- injectors
- stuffers
- smokehouses

Inspection

- USDA requirement (Processing Inspectors' Calculations Handbook)
- inspector certification requirements

Alternatives: I

Increase Number of Non-member Permits

- Expected Income from Elk Hunt Permits
 $\$300 \times 1,000 \text{ Elk} = \$300,000$ (early season)
- Expected Income from Production of By-products
 $\$500 \times 350 = \$175,000$
- Total Expected Income from Elk Hunt
 $\$300,000 + \$175,000 = \$475,000$

More profits with easier management

Alternatives: II

Game Ranch

- (+)
- game ranch provides better quality control and easier to meet State/Federal standards
- (--)
- high start-up costs
- time-consuming
- does not meet tribe's original goals

Alternatives: III

Hunting Camp for Beginner

- Can use the existing framework for guided game hunt
- minimum start-up costs
- meets tribe's original goals with long-term benefits

An Explanation of Our Findings:

Originally Commissioned by Jonathan Long, Watershed Planner for the White Mountain Apache Tribe, the original objectives of this project were to find a way:

- 1) To decrease the elk population within the reservation to an ecologically sustainable level.
- 2) To promote the tribal economy both directly through sale of valuable product and indirectly through the positive image of the tribe marketing game.
- 3) To promote individual tribal member economic activity, with a cottage industry approach if possible.
- 4) Make the economic value of elk more apparent to individual tribal members.
- 5) Increase availability of elk meat for local (on-Reservation) consumption to promote healthier diets.

Additional project objectives we added during our site visit: To decrease the number of elk on-reservation while maximizing return on an already abundant on-reservation resource, and creating income, jobs, and facilities for the benefit of tribal members.

The proposed model to follow was that of wild elk harvesting. We researched and considered why or why not to go through with the proposed model as a solution to the project, and came up with a list of advantages and disadvantages to the wild game harvesting model:

Advantages/positive aspects of the proposed project:

----Right now, elk are an overly-abundant resource on the White Mountain Apache reservation; increasing harvest will help stabilize the population

Currently, the number of elk on reservation is estimated at close to 12,000 (with a minimum estimate at 10,000, and a maximum estimate at 13,000).¹ A lack of natural competitors for food or space, a lack of natural predators, careful management and monitoring of the herds by tribal fish and game employees, and displacement due to increased pressure from hunters in off-reservation lands have all contributed to the large numbers of elk. Concerns about the potential effects of elk overpopulation raised by tribal Fish and Game officials and the office of land-use management can be divided into two areas: 1) effects on the continued health and livelihood of the herds on-reservation, and 2) the effects on the environment. Continued elk overpopulation will lead to a increased competition for and general depletion of the plants that make up the elks' diet, as well as increased competition for space/territory, both of which will affect future generations in much more sweeping numbers than careful management and thinning of elk numbers in the immediate future will. Current large numbers of elk are having effects on the erosion of riparian areas (the banks of water sources, like streams or creeks), displacement of deer, highway accidents, and depletion of livestock grazing areas and tribal members' crops, in the Cibique area, for example.² A solution to these problems is to thin the number of elk currently on-reservation, and maintain the population at a sustainable and healthy number (Fish and Game officials have suggested 10,000 as a target population), both of which can be accomplished by the proposed project.

---Skills for processing elk meat already exist on-reservation

Many tribal members are already skilled in skinning, butchering, and smoking their own meat. Their expertise could provide skilled employees for elk meat production. Tribal members would also be able to contribute their own recipes for preparing jerky.

---Tribal sovereignty makes the proposal possible, or at least legally conceivable

Harvesting of wild game and the selling the meat and/or by-products of an animal taken for sport is illegal in Arizona state, as it is in most other states.³ While there is no legal precedent for any private group or individual acquiring the right under federal law to sell meat products from wild game, the federal government has, in the past, condoned the sale of meat

¹ Interview with Jon Cooley, Director of WMAT Wildlife & Outdoor Recreation Division, and Joe Jojola, Chief Biologist. 4/13/98

² Interview with Jonathan Long, Watershed Planner. 4/10/98

³ Arizona statute 17 307

from "surplus game" in national parks (see 16 USCS 141a--*Wind Cave National Game Preserve*). With its historical sovereignty over resource management rights (see *White Mountain Apache Tribe vs. State of Arizona*), it might be possible for the tribe to declare its elk "surplus," and go ahead with the selling of the meat and put the profits in the tribal treasury, using the protection of the federal government's trust responsibilities.

For any off-reservation sales, the meat would have to meet FDA regulations for the packaging and sale of food (see *U.S. Code of Laws Title 21* and *USDA Processing Inspectors' Calculations Handbook*), though the legal precedent for this is sketchy (see *Inspection and Handling of Livestock for Exportation* and *U.S. v. Articles of Food... Buffalo Jerky*).

---Competitive price: elk jerky is extremely expensive due to scarcity of supply

The going rate for elk jerky is currently estimated at about \$45/pound, compared with \$25/pound for beef or turkey jerky.⁴ There are very few elk meat distributors in the United States (most of the elk meat sold in the U.S. is imported from New Zealand), and since the supply is so low, much of the elk jerky produced in the U.S. today is cut with beef, because elk meat alone would be too expensive. None of the meat currently sold in the U.S. is from wild game--all of it is from game ranches. The harvesting of free-range, or non-confined animals has lots of market appeal in the poultry market, for example--the tribe may be able to exploit this "eco-friendly" image in selling its elk meat. These facts suggest that if the tribe was able to produce a large, steady volume of jerky, and market the fact that the meat was from wild game, there is a potential for profit. Potential markets to consider are 1) on-reservation, 2) off-reservation domestic (within the U.S.), and 3) off-reservation international (Asia, for example) markets.

---Additional profits from elk by-products

Even if they are not of trophy-mounting quality, antlers can still fetch between \$35 and \$110 a pound in Asia, where elk antlers are used for medicinal purposes (most notably as an aphrodisiac, but also for liver trouble, diabetes, arthritis, and fatigue--Korea alone consumed 143 metric tons of elk antlers in 1996).⁵ Elk skins can be made into leather, for clothing or accessories, to be sold on or off-reservation.

⁴ Interview with sales representatives from Oregon Trail Jerky. 4/11/98

⁵ *The Spokesman-Review*, Spokane, Washington, November 10, 1997.

----Potential for more on-reservation employment and income for tribal members

Though work is likely to be seasonal in nature, the harvesting, production, marketing, and transportation of elk meat all provide potential opportunities for employment and/or extra income for a limited number of tribal members.

----Tribal enterprises like Hon Dah and Sunrise are already a significant draw for tourists

The market for the sale of elk meat on-reservation is already exists at HonDah and Sunrise. Elk meat was served at the opening of the Sunrise Express Lift two winters ago and met with positive feedback. Serving elk meat on-reservation at the Hon Dah restaurant or the Sunrise lodges as an item on the menu or selling the meat wholesale at these places fits in with already existing marketing outlets and avoids federal licensing and inspection issues (the Indian Health Service's Environmental Health Services already does periodic inspections of the casino and ski resort restaurants).⁶

----"White Mountain Apache" image is a plus in marketing

The White Mountain Apache have cultivated a positive ecological image with their careful game and resource management programs. This could be used in marketing elk meat as an "eco-friendly" product. Also, "Wild West" theme restaurants in Asia promise to pay top dollar for meat harvested by an "authentic" American Indian tribe.

----Meat processing facilities could be shared with cattle interests; facilities could be used for the processing of other overly-abundant game as well

Conflict between pro-cattle and pro-elk factions has marred politics on the reservation before. Facilities that process both elk and cattle meat might go a long way toward repairing relations between these two parties, as well as provide a center of business that could then be used year-round. The same facilities and smokehouse could be used to process wild horse meat, turkey meat, or other animals that the tribe has too many of on-reservation (the growing number of wild horses has also been determined by Fish and Game officials to be hazardous to

⁶ Interview with Robert Brauchli, tribal law advisor. 4/10/98

the riparian areas, especially in the lower ranges of the reservation).

----Meat processing facilities for tribal members

Tribal members that currently take their kills off-reservation to be processed for fee, or members that do their own butchering at home could use the tribes' facilities communally. Non-members that do their hunting on-reservation could get their meat processed on-reservation as well.

----There are sites on-reservation that are not currently being used that might be suitable for use as a processing plant

For example, the old shopping mall in Cibique, the airport building in Whiteriver, the old bakery in Fort Apache, and the old sawmills in McNary.

Disadvantages/negatives aspects of the proposed project:

----Start-up costs are inhibiting

The start-up costs include, but are not limited to: machinery and equipment, insurance, infrastructure, advertising, salaries, off-season maintenance, packaging, chemicals (sanitation and preservation), utilities, transportation, and refrigeration (see *Equipment Estimation from Koch*). Since the tribe does not have any of these set-up currently, or any experience investing in them, there is potential for over-spending.

----Difficult to regulate from a game-management perspective

If there is a good market for the meat from tribal members' kills, regulating hunting could become difficult. Even if special tags are issued, it would be difficult to keep profit-hungry individuals from going over the allotted limit. Seasonal restrictions would be hard to enforce as

well, and hunting pressure during the mating season (in the summer) could drastically affect birth-rates and habitats, and cause damage to the on-reservation elk populations.

Implementation of the project would require more manpower and man-hours from Tribal Fish and Game, whose resources and manpower are already stretched thin as it is.

Poaching for antler market is already a severe problem. The antler market is extremely profitable, and Fish and Game believes pressure from this hunting has already forced the elk into higher elevations. Poaching is dangerous because its effects go un-noticed in the short term, but has drastic effects in the long-term.

----Difficult to regulate from sanitation management/ quality control perspective

The quality and taste of the meat taken from a wild harvest depends on many factors, including whether the kill was made before or after mating season, whether it was a young or old animal, whether the animal was killed in a way that was non-damaging to the meat or not, whether the animal was properly skinned and preserved immediately after being killed or not, and how long a time span passed between the animal's death and the processing of its carcass. Tests have shown the tribe's elk to be disease-free for the moment, but wide-spread diseases among elk herds have been detected farther north, in Colorado and Wyoming. All of these factors make the quality control of a wild harvest extremely difficult.

----Unpredictable long-term supply

There are many variables that make a wild game harvest difficult to predict. Weather, disease, and drought are all beyond human control. The recent reintroduction of the Mexican wolf to the area could have affect the elk populations as well, but what that effect will be cannot be determined. The elk will not continue to expand indefinitely: over the past ten years the overall number of elk has increased dramatically, but in recent years the actual number of births has gone down. Since the profit from an enterprise like the sale of elk meat is directly dependent on the supply, an unpredictable supply is problematic.

----Cultural concerns: can the commercialization of elk meat happen without offending Apache traditions?

Despite recent negative perceptions of the elk, prompted by the effects of their

overpopulation, it was not all that long ago when the mounting elk parts was considered culturally inappropriate by many tribal members.⁷ Traditionally, tribal members have generally taken only as much elk as their own family's needs required. Many tribal hunters today will give their excess meat to needy families on-reservation, for sustenance through the winter.⁸ The marketing of elk meat as a commercial product could be considered offensive by some tribal members today, especially the elders. There are traditions and rites involved in butchering an animal that could be overlooked during large-volume processing as well. A questionnaire put to the tribe might be useful in determining current tribal members' attitudes about elk meat production.

----Potential for a negative public image off-reservation

While the legal framework may potentially be in place for the tribe to engage in a commercial elk meat operation, there is no way to predict what kind of antagonism with the state and federal governments (the traditional authorities in the regulation and inspection of food products) the tribe could create in trying to push this project through the legal loophole that exists.

The public outcry in Arizona over the shooting of coyotes and the use of baits and dogs in bear hunting are two examples of the growing public anti-hunting sentiments in that state. The harvest and sale of wild elk meat might provoke similar reactions, damaging the tribe's reputation.

----Competition from off-reservation processing plants, and at-home processing on-reservation makes for a small market for use of the processing facilities

Since many tribal members who hunt are already adept at butchering their own meat, without non-tribal income, processing services alone are not lucrative. Places like Buckhorn, Snowflake, and Malapai Meats are already well established markets for processing for off-reservation hunters.

----Cannot predict the market for elk meat accurately

While the scarcity of elk meat currently on the market is a potential window of

⁷ Interview with Louis Zospah, Tribal Fish and Game 4/11/98

⁸ Interview with Derald DeClay, Tribal Fish and Game. 4/11/98

opportunity for the tribe, it could also be a potential indicator of how difficult to market elk meat is. The market for elk meat is too small and too young to make accurate market predictions.

----Seasonal harvest

Elk hunting season only runs through the fall and winter months. Depending on the market, a sustainable, year-round supply would be necessary for continued sales.

----Location of processing plant is problematic

Every minute counts in preserving elk meat, and in order for a wild harvest to work, the animal's carcass would have to be kept cool and processed as quickly as possible. The processing plant would therefore need to be as close to the hunt as possible, and close to the roads. The McNary/Hon Dah region is a natural choice, and provides a colder environment for better preservation of the meat, but the smell and public nuisance of a slaughtering facility could hurt tourist activities there. Cibique could probably use the employment and income opportunities most of all, but it is too remote to be practical as a processing site. Since it is so far from the hunting areas, off-reservation hunters probably will not come as far on-reservation as Whiteriver, but that town makes the most sense logistically. Sewage will be a problem as well: none of the available facilities in any of these areas have adequate sewage capacities.

Alternatives:

The same objectives of decreasing the number of elk on-reservation while maximizing return on an already abundant on-reservation resource, creating income, jobs, and facilities for the benefit of tribal members in process, can all be met under other potential models as well.

1) Increase the number of non-member tag sales

The non-member cow hunt has proven to be the most effective means of bringing down

the elk population thus far.⁹ 500 tags are currently sold to non-members, and Tribal Fish and Game has just asked to double that.

2) Game ranch

Game ranching ensures quality control and has economical precedent (the Jicarilla Apache are an example of one tribe currently working with this model). However, game ranching lacks the "eco-friendly" appeal of wild game harvesting, requires starting costs for fencing and confinement in addition to those of the meat processing facility, and close confinement increases the risk of transmission of diseases between the animals.

3) Beginning hunting camp

Currently the tribe appeals to big-game hunters only. A beginning hunting camp, for people from potentially urban environments who have never hunted before could be a lucrative model to look into. Branch operations could be started around the elk hunt itself, by offering small game hunting sessions or nature hikes for the hunters' family and children.

Continuation of cultural knowledge might be facilitated by elder members teaching hunting skills and about the Apache environment to younger tribal members, who might use this knowledge to guide the smaller hunts as an outgrowth of the current "Apache Scout" program.

This model meets all the goals of the project, and fits well within the already existing hunting program's framework and infrastructure.

⁹ Cooley, 4/13/98

SUBCHAPTER D—EXPORTATION AND IMPORTATION OF ANIMALS (INCLUDING POULTRY) AND ANIMAL PRODUCTS

PART 91—INSPECTION AND HANDLING OF LIVESTOCK FOR EXPORTATION

Subpart A—General Provisions

- Sec. 91.1 Definitions.
- 91.2 Animals to be handled in compliance with regulations.
- 91.3 General export requirements.
- 91.4 Other movements and conditions.

Subpart B—Diagnostic Tests, Treatments

- 91.5 Cattle.
- 91.6 Goats.
- 91.7 [Reserved]
- 91.8 Sheep.
- 91.9 Swine.

Subpart C—Ports of Embarkation, Facilities, Health Certification

- 91.14 Ports of embarkation and export inspection facilities.
- 91.15 Inspection of animals for export.
- 91.16 Certification of animals for export.

Subpart D—Inspection of Vessels and Accommodations

- 91.17 Accommodations for humane treatment of animals on ocean vessels.
- 91.18 Cleaning and disinfection of transport carriers for export.
- 91.19 Inspection of ocean vessels prior to loading.
- 91.20 General construction.
- 91.21 Ventilation.
- 91.22 Protection from heat of boilers and engines.
- 91.23 Loading ramps and doors.
- 91.24 Attendants.
- 91.25 Space requirements for animals on ocean vessels.
- 91.26 Concrete flooring.
- 91.27 Troughs and hayracks.
- 91.28 Stanchions and rails.
- 91.29 Hatches.
- 91.30 Defective fittings.

Subpart E—Cleaning and Disinfecting of Aircraft

- 91.41 Cleaning and disinfecting of aircraft.
- AUTHORITY: 21 U.S.C. 105, 112, 113, 114a, 120, 121, 134b, 134f, 136, 136a, 612, 613, 614, and 618; 46 U.S.C. 466a and 466b; 49 U.S.C. 1509(d); 7 CFR 2.22, 2.80, and 371.2(d).

SOURCE: 42 FR 28990, June 7, 1977, unless otherwise noted.

Subpart A—General Provisions

§ 91.1 Definitions.

Whenever in the regulations in this part the following terms are used, they shall be construed as follows:

Accredited veterinarian. A veterinarian approved by the Administrator in accordance with the provisions of part 161 of this title to perform functions specified in parts 1, 2, 3, and 11 of chapter A, and subchapters B, C, and F of this chapter, and to perform functions required by cooperative State Federal disease control and eradication programs.

Administrator. The Administrator of Animal and Plant Health Inspection Service, or any person authorized to act for the Administrator.

Animal and Plant Health Inspection Service. The Animal and Plant Health Inspection Service of the United States Department of Agriculture (APHIS Service).

Animals. Horses, cattle (including American bison), sheep, swine, and goats.

APHIS representative. An individual employed by APHIS who is authorized to perform the function involved.

Department. The United States Department of Agriculture.

Horses, Horses, mules, and asses Inspector. An inspector of the Animal and Plant Health Inspection Service.

Miniature swine. Swine bred and raised as pets or for laboratory purposes that do not weigh more than 100 pounds at maturity.

Official brucellosis vaccine. A formalin bovine animal vaccinated against brucellosis in accordance with the provisions prescribed in the Recommendations for brucellosis Eradication Uniform Methods and Rules, chapter 1, part 1, E, and J. The provisions of the Uniform Methods and Rules are hereby incorporated by reference.

Origin health certificate. An official document issued by an APHIS representative or an accredited veterinarian at the point of origin of a shipment of animals to be moved under this part, which shows the identification tag, tattoo, or registration number or similar identification of each animal to be moved, the number, breed, sex, and approximate age of the animals covered by the document, the date and place of issuance, the points of origin and destination, the consignor, and the consignee, and which states that the animal or animals identified on the certificate meet the export health requirements.

Premises of origin. The farm or other premises where the animals intended for export are being raised or assembled, or both, immediately before movement for export.

Roofing paper. Any saturated roofing paper of a grade known to the trade as 30-pound roofing paper.

State of origin. The State in which the premises of origin is located.

Veterinary Services. The Veterinary Services, Animal and Plant Health Inspection Service of the Department.

(2) FR 28990, June 7, 1977, as amended at 53 FR 51746, Dec. 23, 1988; 57 FR 23047, June 1, 1992; 57 FR 38353, Aug. 31, 1992

§ 91.2 Animals to be handled in compliance with regulations.

No animals covered by the regulations in this part shall be exported to a foreign country except in compliance with the provisions in this part.

§ 91.3 General export requirements.

(a) All animals intended for exportation to a foreign country, except animals intended for exportation by land to Mexico or Canada, shall be accompanied from the State of origin of export movement to the port of embarkation by an origin health certificate. All animals intended for exportation by land to Mexico or Canada shall be accompanied from the State of origin of the export movement to the border of the United States by an origin health certificate. The origin health certificate shall certify that the animals were inspected within the 30 days prior to the date of the movement of the animals for export, and were found

to be healthy and free from evidence of communicable disease and exposure thereto. The origin health certificate shall be endorsed by an authorized APHIS veterinarian in the State of origin, and shall include any test results added by such authorized APHIS veterinarian pursuant to § 161.3(k) of this chapter (any added test results shall be initiated by such authorized APHIS veterinarian). The origin health certificate shall individually identify the animals in the shipment as to species, breed, sex, and age, and, if applicable, shall also show registration name and number, tattoo markings, or other natural or acquired markings. The origin health certificate shall include all test results, certifications, or other statements required by the foreign country of destination.

(b) **Inspection.** All animals in each export shipment, except animals intended for export by land to Mexico or Canada shall have been inspected, tested, or treated in the manner prescribed in this part prior to the movement of the export shipment to the export inspection facility. All animals in each export shipment intended for export by land to Mexico or Canada shall have been inspected, tested, or treated in the manner prescribed in this part prior to the movement of the animals from the State of origin. The Administrator may, upon request of the appropriate animal health official of the country of destination, waive the tuberculosis and brucellosis tests referred to in §§ 91.5(a) and (b), 91.6(a)(1) and (2), and 91.9(a) of this part when he finds such tests are not necessary to prevent the exportation of diseased animals from the United States.

(c) **Testing.** All samples for tests referred to by §§ 91.5 through 91.13 for exportation of animals under this section shall be taken by an inspector or an accredited veterinarian in the State of origin of the export movement. Such samples shall be taken and tests made within the 30 days prior to the date of movement of the animals for export from the premises of origin, except that the Administrator may permit such sampling or tests to be made more than 30 days prior to the date of export, if required by the receiving country

is or parts thereof

Historical and Statutory Notes

Source:

Laws 1949, Ch. 43, § 5.
Code 1939, Supp. 1952, § 57-109b.
A.R.S. former § 17-314.

watering facility containing water in such a place that" for "water hole or in an area posted prohibiting camping therein, in such a manner that".

The 1976 amendment substituted "natural water hole containing water or a man-made

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§ 57-113.

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§ 17-309. Violations; classification

A. Unless otherwise prescribed by this title, it is unlawful for a person to:

1. Violate any provision of this title or a rule prescribed under the provisions of this title.
2. Take, possess, transport, buy, sell or offer or expose for sale wildlife except as expressly permitted by this title.
3. Destroy, injure or molest livestock, growing crops, personal property, notices or signboards, or other improvements while hunting, trapping or fishing.
4. Discharge a firearm while taking wildlife within one-fourth mile of an occupied farmhouse or other residence, cabin, lodge or building without permission of the owner or resident.
5. Take a game bird, game mammal or game fish and knowingly permit an edible portion thereof to go to waste, except as provided in § 17-302.
6. Take big game, except bear or mountain lion, with the aid of dogs.
7. Make more than one use of a shipping permit or coupon issued by the commission.
8. Obtain a license or take wildlife during the period for which the person's license has been revoked or suspended or the person has been denied a license.
9. Litter hunting and fishing areas while taking wildlife.
10. Possess while hunting any contrivance designed to silence, muffle or minimize the report of a firearm.
11. Take wildlife during the closed season.
12. Take wildlife in an area closed to the taking of that wildlife.
13. Take wildlife with an unlawful device.
14. Take wildlife by an unlawful method.
15. Take wildlife in excess of the bag limit.
16. Possess wildlife in excess of the possession limit.
17. Possess or transport any wildlife or parts of the wildlife which was unlawfully taken.
18. Possess or transport the carcass of big game without a valid tag being attached.
19. Use the edible parts of any game mammal or any part of any game bird or nongame bird as bait.

§ 17-309

GAME AND FISH
Title 17

20. Possess or transport the carcass or parts of a carcass of any wildlife which cannot be identified as to species and legality.

21. Take game animals, game birds, and game fish with an explosive compound, poison or any other deleterious substances.

22. Import into this state or export from this state the carcass or parts of a carcass of any wildlife unlawfully taken or possessed.

23. Conduct a fishing event or contest on public waters that requires an entrant to register and that awards prizes, points or money unless the person first obtains a permit from the department.

B. Unless a different or other penalty or punishment is specifically prescribed a person who violates any provision of this title, or who violates or fails to comply with a lawful order or rule of the commission, is guilty of a class 2 misdemeanor.

C. A person who knowingly takes any big game during a closed season or who knowingly possesses, transports or buys any big game which was unlawfully taken during a closed season is guilty of a class 1 misdemeanor.

D. A person is guilty of a class 6 felony if he knowingly:

1. Barters, sells or offers for sale any big game or parts of big game taken unlawfully.

2. Barters, sells or offers for sale any wildlife or parts of wildlife unlawfully taken during a closed season.

3. Barters, sells or offers for sale any wildlife or parts of wildlife imported or purchased in violation of this title or a lawful rule of the commission.

4. Assists another person for monetary gain with the unlawful taking of big game.

E. A peace officer who knowingly fails to enforce a lawful rule of the commission or this title is guilty of a class 2 misdemeanor.

Added by Laws 1958, Ch. 80, § 2. Amended by Laws 1968, Ch. 101, § 2; Laws 1971, Ch. 31, § 4; Laws 1978, Ch. 201, § 299, eff. Oct. 1, 1978; Laws 1979, Ch. 107, § 1; Laws 1986, Ch. 228, § 2; Laws 1989, Ch. 41, § 1; Laws 1990, Ch. 196, § 1.

Historical and Statutory Notes

Source:

Laws 1929, Ch. 84, §§ 28, 46.

Laws 1931, Ch. 97, § 7.

Code 1939, §§ 57-128, 57-146.

Laws 1945, Ch. 52, §§ 10, 23.

Code 1939, Supp. 1952, §§ 57-111, 57-126.

Laws 1955, Ch. 97, § 1.

A.R.S. former §§ 17-303, 17-315.

Prior to the 1968 amendment, subsec. C read:

"C. A person who takes, possesses, transports, buys, sells or offers for sale big game species or any part thereof in violation of this title or a lawful rule or regulation of the commission, or who detaches or removes from the

carcass of a big game animal a portion thereof and thereby conceals evidence of legality, or who uses an explosive compound or a corrosive, narcotic poison or other deleterious substance for the purpose of taking, stunning or killing fish or birds is guilty of a misdemeanor, punishable by a fine of not more than three hundred dollars, by imprisonment in the county jail for not more than six months, or by both such fine and imprisonment."

The 1968 amendment inserted "except bear" in par. 6 of subsec. A; inserted "less than one hundred nor" following "by a fine of not" and "or" following "three hundred dollars", and added an exception at the end of subsec. C.

GAME AND FISH
Title 17

TAKING AND HANDLING OF WILDLIFE
Ch. 3

§ 17-309

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Ch. 101, § 2; Laws 1971,
Laws 1979, Ch. 107, § 1,
Ch. 196, § 1.

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The 1971 amendment added the exception in par. 5, and inserted "or mountain lion" in par. 6 of subsec. A.

The 1978 amendment inserted "class 2" preceding "misdemeanor" in subsec. B and the first sentence of subsec. C; inserted "knowingly" preceding "takes, possesses, transports" in the first sentence of subsec. C and "fails" in subsec. D; deleted "or attempt to shoot" following "Shoot" in par. 4, and substituted "knowingly" for "wilfully" in par. 5 of subsec. A; deleted "punishable by a fine of not more than three hundred dollars, by imprisonment in a county jail for not more than six months, or by both such fine and imprisonment," following "misdemeanor" in subsec. B; deleted, "punishable by a fine of not less than one hundred nor more than three hundred dollars, by imprisonment in the county jail for not more than six months, or by both such fine and imprisonment, except that" following "misdemeanor" in subsec. C, and divided subsec. C into two sentences (see the 1979 amendment note, post).

For application and effective date provision of Laws 1978, Ch. 201, see Historical and Statutory Notes following § 1-215.

The 1979 amendment inserted "Unless otherwise prescribed by this title." in the introductory clause, substituted "Discharge a firearm" for "Shoot any wildlife" and "lodge or building while taking wildlife without permission" for "lodge or building, without permission" in par. 4, inserted "or take wildlife", and substituted "the person's license" for "his license" in par. 8, substituted "Possess" for "Have in possession" in par. 10, and added pars. 11 to 22 in subsec. A; rewrote subsec. C, which had read:

"C. A person who knowingly takes, possesses, transports, buys, sells or offers for sale big game species or any part thereof in violation of this title or a lawful rule or regulation of the commission, or who detaches or removes from the carcass of a big game animal a portion thereof and thereby conceals evidence of legality, or who uses an explosive compound or a corrosive, narcotic poison or other deleterious substance for the purpose of taking, stunning or killing fish or birds is guilty of a class 2 misdemeanor. Failure to attach the tag to a big game animal as prescribed by commission order shall be punishable as prescribed in subsection B."; and substituted "peace officer" for "public officer" in subsec. D.

The 1986 amendment deleted, in subsec. C, references to bartering, selling, or offering for sale, big game or parts thereof; added a new subsec. D; and redesignated former subsec. D as E.

The 1989 amendment deleted "or regulation" following "rule" in subsec. A, par. 1, and in subssecs. B and E; and added subsec. A, par. 23.

The 1990 amendment added the provisions relating to suspension or denial of license in par. 8 of subsec. A.

1979 Reviser's Note:

In subsection A, paragraph 4, the words "while taking wildlife" following the word "building" were transposed to follow the word "firearm" pursuant to authority of § 41-1304.02.

Cross References

Classification of offenses, see § 13-601 et seq.
Culpable mental state, see § 13-105.
Fines, see § 13-801 et seq.
Sentences of imprisonment, see § 13-701 et seq.

Administrative Code References

Indian reservations, see A.A.C. R12-4-117.

Library References

Fish ⇨ 13.
Game ⇨ 7.
WESTLAW Topic Nos. 176, 187.

C.J.S. Fish § 28 et seq.
C.J.S. Game § 10 et seq.

§ 17-309

GAME AND FISH
Title 17

Notes of Decisions

Construction and application 1
 Indian permit 2
 Presumptions 3

1. Construction and application

The liability under this section for penalty for unlawful possession of game animal or bird is liability to the state. *Frazier v. Terrill* (1946) 65 Ariz. 131, 175 P.2d 438.

In an action authorized by Pen.Code 1913, § 668, as amended by Laws 1919, Ch. 169 (repealed), to recover a penalty for unlawfully wounding or killing certain animals or unlawfully having them or parts thereof in possession, a cause of action for having such unlawful possession could only arise where there had been an unlawful taking, killing, or injuring of such animals, making consequent possession thereof unlawful. *State v. Smith* (1922) 24 Ariz. 151, 207 P. 357.

Arizona Department of Game and Fish complies with all applicable statutes when it gives a public institution or charitable organization "edible" wildlife seized by the Department. *Op. Atty.Gen. No. 189-047.*

2. Indian permit

State game and fish commission had authority to require an Indian permit and, where applicable, a federal migratory water fowl stamp, even though state did not receive any revenue either for sale of permit or from sale of stamps. *Op. Atty.Gen. No. 59-68.*

3. Presumptions

In an action brought under Pen.Code 1913, § 668, as amended by Laws 1919, Ch. 169 (repealed), which authorized an action to recover a penalty for having possession of certain animals or parts thereof unlawfully by reason of having unlawfully taken, killed, or injured such animals, mere possession of such animals or parts thereof was presumed lawful. *State v. Smith* (1922) 24 Ariz. 151, 207 P. 357.

In an action brought under Pen.Code 1913, § 668, as amended by Laws 1919, Ch. 169 (repealed), which authorized an action to recover a penalty for having possession of certain animals, mere possession of deer antlers was not sufficient to prove that defendant had unlawfully taken or injured deer, especially where the only evidence adduced supported the presumption that such possession was lawful. *State v. Smith* (1922) 24 Ariz. 151, 207 P. 357.

§ 17-310. Agreement to appear in court

Game rangers, wildlife managers, and other peace officers may take any person before a magistrate within the county in which an offense is committed for a violation of any provision of this title, but any person apprehended for violating any provision of this title punishable as a misdemeanor may be issued a notice to appear before such magistrate bearing the date, time and place for such appearance, the offense charged, and the location or approximate location where the violation was committed. The notice shall be signed by the person notified to appear, and he shall be given a copy thereof and thereupon may be released from custody. Failure of such person to appear at the time and place specified shall be cause for issuance of a warrant for his arrest for failure to appear.

Added by Laws 1958, Ch. 80, § 2.

Historical and Statutory Notes

Source:
Laws 1955, Ch. 97, § 2.

Code 1939, Supp.1955, § 57-126a.
A.R.S. former § 17-316.

Library References

Criminal Law ⇨216, 218. 52

In summary, the shipyard's purposeful interjection into Alaska was at most minimal. The burden on the shipyard in defending the case in Alaska would be unusually high. The fact that the shipyard is in a foreign country and belongs to an agency of a foreign nation bears on the sovereignty concerns underlying limitations on jurisdiction and militates against the reasonableness of jurisdiction in this case. Considerations of judicial efficiency also bear negatively on the reasonableness of jurisdiction in Alaska. These negative factors are not outweighed by the interests of the forum or those of CBC and the insurance company in having the case tried in an Alaskan court. We conclude that it would not be reasonable for an Alaskan court to exercise jurisdiction over the shipyard and therefore that there is no jurisdiction under the *International Shoe—Data Disc* standard.²

REVERSED.

SCHROEDER, Circuit Judge, specially concurring:

There were no minimum contacts with Alaska as required by the Supreme Court's decision in *International Shoe Co. v. Washington*, 326 U.S. 310, 66 S.Ct. 154, 90 L.Ed. 95 (1945) and as recently discussed in *World-Wide Volkswagen Corp. v. Woodson*, 444 U.S. 286, 100 S.Ct. 559, 62 L.Ed.2d 490 (1980). The district court found that after plaintiffs brought the ship to the defendant for repairs in Mexico, the plaintiffs must have "mentioned" the eventual Alaskan destination of the ship to personnel of the defendant. There was no deliberate effort on the part of the defendant to serve an Alaskan market nor did the defendant make any use of a distributive scheme designed to place any goods or services in Alaska or any other part of the United States. See *DeJames v. Magnificence Carriers, Inc.*, 491 F.Supp. 1276 (D.N.J.1980)

2. We need not decide whether the FSIA applies retroactively to supply jurisdiction, because the FSIA's long arm section is subject to the same due process, minimum contacts, limitations as is Alaska's long arm statute. *Tios. P. Gonzales Corp. v. Consejo Nacional de Produccion*

holding there was no jurisdiction in New Jersey over a Japanese defendant which had done repair work allegedly responsible for injuries suffered in a New Jersey port. I therefore concur in the result reached by the majority.



WHITE MOUNTAIN APACHE TRIBE,
Plaintiff-Appellant,

v.

STATE OF ARIZONA, DEPARTMENT
OF GAME AND FISH, et al.,
Defendants-Appellees.

CONFEDERATED TRIBES OF the COL-
VILLE INDIAN RESERVATION,
Plaintiff-Appellees,

v.

STATE OF WASHINGTON and Ralph
Larson, individually and as Director of
the State of Washington Department of
Game, Defendants-Appellants.

Nos. 78-3427, 79-4294.

United States Court of Appeals,
Ninth Circuit.

Argued Feb. 13, 1980.*

Submitted June 19, 1980.

Decided April 6, 1981.

As Amended on Denial of Rehearing and
Rehearing En Banc June 22, 1981.

Indian tribes brought actions to prevent states from enforcing their hunting and fishing license requirements and substantive regulations against non-Indians

de Costa Rica, 614 F.2d 1247, 1255 (9th Cir. 1980).

*Although these cases were argued separately, we have combined them for disposition because they raise similar legal issues.

jurisdiction in New
 defendant which
 allegedly responsible
 a New Jersey port.
 result reached by

SYSTEM

APACHE TRIBE,
 Plaintiff,

DEPARTMENT
 OF FISH, et al.,
 Defendants.

RESERVATION OF THE COL-
 ORADO, et al.,
 Defendants.

TON and Ralph
 as Director of
 on Department of
 Plaintiffs.
 79-4294.

of Appeals,
 Plaintiff.

, 1980.*

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 June 22, 1981.

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 regulations and sub-
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247, 1255 (9th Cir.

argued separately,
 for disposition be-
 cause of issues.

hunting and fishing on Indian reservations with tribes' permission. The United States District Court for the District of Arizona, William P. Coppel, J., granted summary judgment against tribe, and the District Court for the Eastern District of Washington granted preliminary injunction in favor of tribe, and appeals were taken. The Court of Appeals, Choy, Circuit Judge, held that: (1) Indian tribe was entitled to preliminary injunction preventing state from enforcing its hunting and fishing license requirements against non-Indians on reservations, since tribe's suit raised serious questions, and, in view of disparity in size and revenue sources between the tribe and the state, the balance of hardships tipped in tribe's favor, and (2) suit brought by other Indian tribe would be remanded to district court for further consideration in light of Supreme Court's opinion laying down a specific rule for analyzing preemption claims in such cases; district court would be directed to consider and make factual findings concerning the conflict between state license requirements and regulations and federal and tribal policies and interests, extent to which state license fee damaged tribal economic interest and related federal policy, state's interest in conservation, migratory nature of wildlife in issue, and the benefits, if any, to non-Indians hunting on reservation of state services and state revenue interests.

Vacated and remanded.

1. Judgment ⇐ 715(3)

Where Court of Appeals reversed district court's ruling that Indian tribe's promulgation of its own fishing regulations preempted state regulations and found that even if federal grant of power had been delegated to tribe, it had not used that power, tribe thereafter obtained dismissal without prejudice of remanded case and formally exercised preempted power it possessed, the tribe's subsequent action to enjoin enforcement of state regulations and license requirements was not precluded by res judicata.

2. Indians ⇐ 32

In actions involving preemption claims with respect to activities of non-Indians on reservations, weight must be given to the tradition of Indian sovereignty over reservation and tribal matters and the firm federal policy of promoting tribal self-sufficiency and economic development; unlike normal preemption cases, ambiguities in federal law are resolved in favor of preemption, and an express congressional statement of preemption is unnecessary.

3. Indians ⇐ 32

In Indian cases, preemption questions are to be settled not so much by divining the actual intent of Congress, but rather by weighing in the judicial scales the present-day state, federal and tribal interests involved.

4. Indians ⇐ 32

Enabling Acts forced states to disclaim only their proprietary interest in Indian land, not the state's governmental or regulatory authority over that land.

5. Indians ⇐ 32

Arizona's disclaimer of any right and title to the land of Indian tribes did not preclude it from imposing a license fee on non-Indians hunting and fishing on the reservation, even though such a fee is related to reservation realty.

6. Indians ⇐ 32

Federal policy toward Indians now favors self-determination rather than assimilation, but that policy does not necessarily preclude state regulation of non-Indian activity on Indian reservations.

7. Indians ⇐ 32

In absence of a congressional delegation to Indian tribe of the far-reaching authority to preempt state fees and regulations otherwise applicable to non-Indians, Indian tribes assert only tribal interests when they attempt to exercise preemptive power over state law, and those interests can represent no more than their own weight in the Indian law preemption scales, even if federal interests generally favor or are advanced by such a tribal assertion.

8. Indians ⇌ 2

Federal government has a policy, expressed in treaties, statutes and administrative practice, of encouraging tribal political autonomy and economic self-sufficiency.

9. Indians ⇌ 32

Indian tribes cannot claim to "own" fish and game on reservation so as to deprive the state of any interest in them.

10. Indians ⇌ 32

State's special interest in regulating and preserving wildlife for the benefit of its citizens is shared with, not displaced by, the similar tribal interest when fish and game are within boundaries of both the state and the Indian reservation.

11. Indians ⇌ 32

The right of tribal self-government extends only to intratribal relations and to concurrent civil authority over visitors to reservations.

12. Indians ⇌ 32

Nondiscriminatory state hunting and fishing license requirements may be imposed on non-Indians on reservations without violating the right of tribal self-government where the state has a substantial conservation interest.

13. Indians ⇌ 32

Where valid state and tribal substantive regulations differ, both are enforceable; the applicability of state law in no case prevents a tribe from exercising its right to adopt and enforce ordinances regulating visitors' hunting and fishing.

14. Indians ⇌ 32

Congress' power to regulate commerce with foreign nations and among the several states and with the Indian tribes did not preclude state's application of its non-discriminatory license requirements and regulations to non-Indians on reservations. U.S. C.A.Const. Art. 1, § 8, cl. 3.

15. Injunction ⇌ 136(3), 137(4)

Indian tribe was entitled to preliminary injunction preventing state from enforcing its hunting and fishing license requirements against non-Indians on reservations, since

tribe's suit raised serious questions, and, in view of disparity in size and revenue sources between the tribe and the state, the balance of hardships tipped in tribe's favor.

16. Federal Courts ⇌ 924

Court of Appeals may remand case to district court for further consideration when new cases or laws that are likely to influence the decision have become effective after the initial consideration.

17. Federal Courts ⇌ 924

Suit brought by Indian tribe to prevent state from enforcing its hunting and fishing license requirements and substantive regulations against non-Indians hunting and fishing on the reservation with tribe's permission would be remanded to district court for further consideration in light of Supreme Court's opinion laying down specific rule for analyzing preemption claims in such cases; district court would be directed to consider and make factual findings concerning conflict between state license requirements and regulations and federal and tribal policies and interests, extent to which state license fee damaged tribal economic interest and related federal policy, state's interest in conservation, migratory nature of wildlife in issue, and the benefits, if any, to non-Indians hunting on reservation of state services and state revenue interests.

Kathleen A. Rihr, Whitewater, Ariz., argued for Apache Tribe, Daniel H. Israel, Boulder, Colo., on brief.

James M. Johnson, Asst. Atty. Gen., Olympia, Wash., argued for State of Wash., Dennis D. Reynolds, Asst. Atty. Gen., Olympia, Wash., on brief.

Steven J. Silver, Asst. Atty. Gen., Phoenix, Ariz., Joshua I. Schwartz, Washington, D. C., for State of Ariz. et al.

Barry Ernstoff, Ziontz, Pirtle, Morisset, Ernstoff & Chestnut, Seattle, Wash., argued for Colville Indian Reservation; Steven S. Anderson, Seattle, Wash., on brief.

Appeal from the United States District Courts for the District of Arizona and for the Eastern District of Washington.

Before MERRILL and CHOY, Circuit Judges, and EAST,** District Judge.

CHOY, Circuit Judge:

These cases present the question whether an Indian tribe can prevent a state from enforcing state hunting and fishing license requirements and substantive regulations against non-Indians who hunt and fish on a reservation with the tribe's permission. We vacate the summary judgment entered against the White Mountain Apache Tribe (Apaches) and affirm the preliminary injunction granted in favor of the Confederated Tribes of the Colville Indian Reservation (Colvilles).

I. Facts

The Apaches and Colvilles market to non-Indian sportsmen the opportunity to hunt and fish on their large reservations in Arizona and Washington, respectively. The tribes sell these sportsmen tribal hunting and fishing licenses, and the tribes and their members also profit from sales of food, lodging and tourist goods and services. The tribes have enacted detailed hunting and fishing codes, which purport to make state law inapplicable to non-Indian sportsmen on the reservation.

The United States Fish and Wildlife Service stocks tribal waters with fish for the sportsmen to catch; federal money and manpower also aid tribal fish and wildlife management activities. The respective states provided comparable services on the reservations in the past, but not at the present.

Natural and artificial barriers allegedly prevent all or some of the fish and wildlife from migrating onto or off of the reservations.

The laws of the states license and regulate hunting and fishing. The states concede that they cannot precondition or restrict in any way tribal members' own hunt-

** The Honorable William G. East, Senior United States District Judge for the District of Oregon, sitting by designation.

1. This has been their position here and below.

ing and fishing within the reservations; that the tribes can bar non-Indian tourist sportsmen from the reservations completely or, if they choose to admit them, subject them to tribal license requirements and substantive regulations; and that a state cannot authorize a non-Indian to engage in any hunting or fishing within the reservation that the tribe prohibits.

The two cases differ in the following respects:

(1) The Apache case involves both hunting and fishing, the Colville case only fishing.

(2) The Apaches attack only the state license requirement; the Colvilles also attack the state substantive regulations.

(3) The Apaches rely only on the right of tribal self-government;¹ the Colvilles also raise several other issues.

(4) Arizona concedes that at this time its agents do not enter the Apache reservation without Apache permission, and proposes to accost non-Indian violators of state laws only after such violators leave the reservation; Washington asserts the right of its agents to enter the reservation as well.

(5) Arizona has not taken civil and criminal jurisdiction over the Apaches and their reservation under the Act of August 15, 1953, §§ 6-7, Pub. L. No. 83-280, 67 Stat. 588 (Public Law 280); Washington has taken such jurisdiction over the Colvilles and their reservation.

(6) The Apaches elected to accept, and are organized under, the Indian Reorganization Act of 1934; the Colvilles did not and are not. (The Colvilles are, however, a federally-recognized Indian tribe.)

[1] (7) A district court entered a summary judgment against the Apaches; a district court entered a preliminary injunction in favor of the Colvilles, stating that they enjoyed a high probability of success on the merits.²

2. In the Apaches' action for injunctive and declaratory relief, the district court entered a summary judgment on the merits in Arizona's

questions, and, in the state and revenue and the state, the tribe's favor.

remand case to consider that are likely to become effective.

tribe to prevent hunting and fishing substantive regulations hunting and with tribe's petitioned to district court in light of Suing down specific exemption claims in would be directed actual findings concerning state license requirements and federal and states, extent to which tribal economic policy, state's migratory nature the benefits, if any, on reservation of revenue interests.

hitewater, Ariz., and Daniel H. Israel,

Asst. Atty. Gen., for State of Wash., Atty. Gen., Olym-

Atty. Gen., Phoe-hwartz, Washington, et al.

ntz, Pirtle, Morisset, Seattle, Wash., ar-an Reservation; Ste-ttle, Wash., on brief.

nited States District t of Arizona and for f Washington.

(8) A district court found that the Apaches had demonstrated no financial harm; a district court found that the Colvilles would suffer "great harm," quite possibly including loss of income, absent an injunction.

II. Preemption

A. *The Rule in Indian Cases*

After the district court decisions in the cases before us, the Supreme Court laid down a specific rule for analyzing preemption claims in Indian cases generally and in cases involving non-Indians on reservations particularly. The Supreme Court stated where "a State asserts authority over the conduct of non-Indians engaging in activities on the reservation," the court must make "a particularized inquiry into the nature of the State, Federal, and tribal interests at stake, an inquiry designed to determine whether, in the specific context, the exercise of state authority would violate federal law." *White Mountain Apache Tribe v. Bracker*, 448 U.S. 136, 100 S.Ct. 2578, 65 L.Ed.2d 665 (1980) (*Apache Logging Case*).

[2] The Court emphasized that this rule, rather than the normal rules of federal-state preemption, must be applied in Indian cases. *Id.* at 144, 100 S.Ct. 2584.

The unique historical origins of tribal sovereignty make it generally unhelpful to apply to federal enactments regulating Indian tribes those standards of pre-emption that have emerged in other areas of the law. Tribal reservations are not States, and the differences in the form and nature of their sovereignty make it

favor, even though Arizona had requested summary judgment only on a jurisdictional ground. The Apaches appealed on the merits.

In the Colvilles' initial action for injunctive and declaratory relief, the district court agreed that the promulgation of the tribal fishing regulations was an exercise of delegated federal preemptive authority, which preempted state regulations and license requirements. 412 F.Supp. 651 (E.D.Wash.1976). We reversed, finding that even if federal preemptive power had been delegated to the Colvilles, they had not yet used that power. 591 F.2d 89 (9th Cir. 1979). After obtaining a dismissal without

treacherous to import to one notions of pre-emption that are properly applied to the other.

Id. at 143, 100 S.Ct. at 2583. For example, in Indian cases weight must be given to the tradition of "Indian sovereignty over the reservation and tribal members" and the "firm federal policy of promoting tribal self-sufficiency and economic development." *Id.* Thus, unlike in normal preemption cases, ambiguities in federal law are resolved in favor of preemption, and an "express congressional statement" of preemption is unnecessary. *Id.* at 140, 100 S.Ct. at 2582-2585.

[3] We interpret the substance of this rule to be that in Indian cases preemption questions are to be settled not so much by divining the actual intent of Congress, but rather by weighing in the judicial scales the present-day state, federal and tribal interests involved.³ We are also mindful of the framework of analysis used in the *Apache Logging Case* itself, where the Supreme Court held Arizona was preempted from imposing certain taxes on a non-Indian logging contractor working for an on-reservation tribal enterprise because of three factors:

(1) the comprehensive and pervasive federal regulatory scheme for harvesting and marketing Indian timber left no room for additional state taxes or burdens;

(2) "the assessment of state taxes would obstruct federal policies [relating to the profitability and management of the Indian logging enterprise]"; and

(3) there was no "regulatory function or service performed by the State that would

prejudice of the remanded case, the Colvilles formally exercised every bit of preemptive power they possessed. They then filed the present action and obtained from the district court a preliminary injunction against enforcement of the state regulations and license requirements. The state appealed.

We hold that, given this history, no issue in the Colvilles' present action is precluded by *res judicata*.

3. Compare *Colville Cigarettes Case*, 100 S.Ct. at 2093 (Rehnquist, J., concurring and dissenting).

Cite as 649 F.2d 1274 (1981)

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justify the assessment of taxes," the "general desire to raise revenue" alone being an insufficient justification for taxation here in light of the "significant geographical component to tribal sovereignty," a factor which (although "not absolute") is "important" and "highly relevant" in preemption analysis. *Id.* at 147, 100 S.Ct. at 2586.

We will utilize the same framework of analysis in these cases.

B. Pervasive Regulatory Scheme

1. Statutes Specifically Relating to Hunting and Fishing

Congress has consistently and explicitly preserved state fish and game regulation in areas under potentially exclusive federal control. See, e. g., 16 U.S.C. § 528 (national forests); *id.* § 668dd(c) (National Wildlife Refuge System); *id.* §§ 670h(b) & (c)(4), 670i(b)(4), 670k(6) (other public lands). Federal statutes specifically dealing with non-reservation hunting and fishing by non-Indians reveal a total lack of intent to preempt state law by direct federal fish and game regulation.⁴

2. Public Law 280 and the Enabling Acts

Public Law 280 extended state civil and criminal jurisdiction over actions to which Indians are parties in five states. See 18 U.S.C. § 1162; 28 U.S.C. § 1360. Public Law 280, as amended, also allows for the assumption of civil and criminal jurisdiction over Indian country by other states if certain conditions are satisfied. See 25 U.S.C.

4. For example, 18 U.S.C. § 1165, which prohibits going upon Indian land, without lawful authority or permission, for the purpose of hunting or fishing, does not "mak[e] illegal the unauthorized killing of wildlife on Indian reservations"; it prohibits trespass, not acts done while trespassing. *United States v. Sanford*, 547 F.2d 1085, 1088-89 (9th Cir. 1976). Section 1165 "does not represent an attempt by the federal government to enter the arena of fish and game regulation on Indian reservations," *id.* at 1089; it merely supplies a federal forum for vindication of the tribal right to admit non-Indian sportsmen only at the tribe's pleasure.

Similarly, the provisos of 18 U.S.C. § 1162(b) and 25 U.S.C. § 1321(b) that nothing in Public

§ 1321. The general grant of jurisdiction in Public Law 280 is subject to certain exclusions:

Nothing in this section . . . shall deprive any Indian or any Indian tribe, band, or community of any right, privilege, or immunity afforded under Federal treaty, agreement, or statute with respect to hunting, trapping, or fishing or the control, licensing, or regulation thereof.

18 U.S.C. § 1162(b); 25 U.S.C. § 1321(b).

Although Public Law 280 was not a grant of general civil regulatory control over Indians, see *Bryan v. Itasca County*, 426 U.S. 373, 385, 390, 96 S.Ct. 2102, 2109, 2111, 48 L.Ed.2d 710 (1976), under Public Law 280, states retain the regulatory jurisdiction over the on-reservation activities of non-Indians that they enjoyed prior to that Law (and absent the effect of the Enabling Acts, see *infra*). *Fort Mojave Tribe v. County of San Bernardino*, 543 F.2d 1253, 1257 (9th Cir. 1976).

When Washington took jurisdiction over the Colville reservation, Congress released the state from its obligation, embodied in the Washington Enabling Act, 25 Stat. 676, 677 (1889), and Wash.Const. Art. XXVI, para. 2, to "forever disclaim all right and title" to the land of Indian tribes and concede that that land shall remain "under the absolute jurisdiction and control of the Congress of the United States." See *Washington v. Confederated Bands and Tribes of the Yakima Indian Nation*, 439 U.S. 463, 479-88, 99 S.Ct. 740, 750, 58 L.Ed.2d 740

Law 280 shall "deprive . . . any Indian tribe . . . of any right, privilege, or immunity afforded under Federal treaty, agreement, or statute with respect to hunting . . . or fishing or the control, licensing, or regulation thereof" create no new Indian rights. They merely provide that Public Law 280 does not deprive affected Indian tribes of any previously-granted federal rights regarding, *inter alia*, the licensing of hunting and fishing. See *Metlakatla Indian Community v. Egan*, 369 U.S. 45, 57, 82 S.Ct. 552, 560, 7 L.Ed.2d 562 (1962) (purpose of § 1162(b) was "to preserve federally granted fishing rights," not to grant new rights or to preserve fishing-related rights of a nonfederal origin).

(1979). Arizona has not taken advantage of the opportunity to relieve itself from the essentially identical obligation that Congress imposed upon it, see Arizona Enabling Act, 36 Stat. 557, 569 (1910); Ariz.Const. Art. XX, para. 4. Thus we must examine the federal interest and intent manifested in the Arizona Enabling Act.

When Arizona entered the Union, it expressly conditioned its entry on the premise that it would:

[F]orever disclaim all right and title to . . . all lands lying within said boundaries owned or held by any Indian or Indian tribes, the right or title to which shall have been acquired through or from the United States or any prior sovereignty, and that until the title of such Indian or Indian tribes shall have been extinguished the same shall be and remain subject to the disposition and under the absolute jurisdiction and control of the Congress of the United States.

Arizona Enabling Act, 36 Stat. 557, 569.

[4] But Enabling Acts themselves forced states to disclaim only their proprietary interest in Indian land, not the states' governmental or regulatory authority over that land. *Organized Village of Kake v. Egan*, 369 U.S. 60, 67-69, 82 S.Ct. 562, 566, 7 L.Ed.2d 573 (1962); see *id.* at 67-68, 76, 82 S.Ct. at 566, 571 (pointing out that *Williams v. Lee*, 358 U.S. 217, 79 S.Ct. 269, 3 L.Ed.2d 251 (1959), was decided on the basis of interference with the right of tribal self-government and not on the basis of the Arizona Enabling Act disclaimer); *Jicarilla Apache Tribe v. United States*, 601 F.2d 1116, 1135 (10th Cir.), *cert. denied*, 444 U.S. 995, 100 S.Ct. 530, 62 L.Ed.2d 426 (1979); *Francisco v. State*, 113 Ariz. 427, 430, 556 P.2d 1, 4 (1976). But see *McClanahan v. Arizona State Tax Commission*, 411 U.S. 164, 176 n. 15, 93 S.Ct. 1257, 1264 n. 15, 36 L.Ed.2d 129 (1973) (certain treaty language, in conjunction with Enabling Act language, can preclude state jurisdiction over on-reservation Indians).

[5] In *Washington v. Confederated Tribes of the Colville Indian Reservation*, 447 U.S. 134, 100 S.Ct. 2069, 65 L.Ed.2d 10

(1980), the *Colville Cigarettes Case*, the Supreme Court said that the Enabling Act disclaimers reflect "an intent that the State not tax reservation lands or income derived therefrom." 100 S.Ct. at 2082. The cigarette taxes involved there, however, were "assessed against nonmembers of the Tribes and concern transactions in personalty with no substantial connection to reservation lands," and therefore were permissible. *Id.* Similarly, Arizona's disclaimer does not preclude it from imposing a license fee on non-Indians hunting and fishing on a reservation, even though such a fee is related to reservation realty. A state license fee is not a property tax or a tax on a tribe's own license income; the fee is paid by "nonmembers of the Tribes," *id.*, and has only an indirect effect on the tribal treasury. Therefore the federal interest, as expressed in the Arizona Enabling Act disclaimer, in ousting state jurisdiction over non-Indians' activities on reservation land is not entitled to much weight.

3. Federal Policy of Indian Self-Determination

[6] Federal policy toward Indians now favors self-determination, rather than assimilation. See, e. g., Indian Reorganization Act of 1934, 25 U.S.C. §§ 461-479; Indian Self-Determination and Education Assistance Act of 1975, §§ 2(a), 3(a)-(b), 25 U.S.C. §§ 450(a), 450a(a)-(b). This policy is furthered by increasing tribal authority over reservations and by helping tribes to become economically self-sufficient. This federal policy does not necessarily preclude state regulation of non-Indian activity, however; in the *Colville Cigarettes Case* the Supreme Court reviewed several federal statutes embodying the policy but concluded that Washington's cigarette and sales taxes were not preempted as to non-Indians' purchases of cigarettes on reservations. Accordingly the policy and the corresponding tribal interests are entitled to weight in the preemption scales here only to the extent that concurrent state licensing and regulation of non-Indian hunting and fishing on reservations actually impede tribal authority and self-determination.

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4. Delegation Under the Indian Reorga- nization Act

Both tribes here have adopted codes which regulate hunting and fishing in comprehensive detail, impose tribal license fees, and purport to nullify state law. If such codes had been enacted by Congress, we would instantly find preemption. See, e. g., *Apache Logging Case*, 448 U.S. 136, 100 S.Ct. 2578, 65 L.Ed.2d 665. The tribal preemptive interests created by these codes, however, are not as weighty as would be comparable federal interests. Thus, we have held that where a state has a valid conservation interest, comprehensive tribal hunting and fishing regulations (absent a delegation of federal preemptive power) would not preempt state law in the way that comprehensive federal regulations might. *United States v. Montana*, 604 F.2d 1162, 1172 (9th Cir. 1979), cert. granted, 445 U.S. 960, 100 S.Ct. 1645, 64 L.Ed.2d 234 (1980).⁵

Ordinarily, federal and tribal preemptive interests do not merge; courts must undertake a tricorn "particularized inquiry into the nature of the State, Federal, and tribal interests at stake" in preemption disputes. *Apache Logging Case*, 448 U.S. at 145, 100 S.Ct. at 2584. Congress has manifested no intent whatsoever to delegate to tribes the "far-reaching authority" to preempt state fees and regulations otherwise applicable to non-Indians, nor would the opposite be inferred even from "federal approval of the Indian taxing ordinances, or from the fact that the Tribes exercise congressionally sanctioned powers of self-government."⁶ See *Colville Cigarettes Case*, 100 S.Ct. at 2082-83.

5. The *Montana* decision was reversed by the Supreme Court on another ground after this opinion was originally filed. *United States v. Montana*, — U.S. —, 101 S.Ct. 1245, 67 L.Ed.2d 493 (1981). We consider this court's holding in *Montana* on this issue valid.

6. This passage disproves the contention that *Fisher v. District Court*, 424 U.S. 382, 96 S.Ct. 943, 47 L.Ed.2d 106 (1976), can be construed to hold that Congress, by authorizing tribal constitutions and councils in § 16 of the Indian

[7] In the absence of such delegation, we consider that the tribes asserted only tribal interests when they attempted to exercise preemptive power over state law. These interests can represent no more than their own weight in the Indian-law preemption scales, even if federal interests (which are entitled to separate weight in the balance) generally favor or are advanced by such a tribal assertion. We now consider whether state licensing and regulation conflict with these federal and tribal interests which in fact tend to coincide.

C. Conflict with Federal and Tribal Policies

[8] The federal government has a policy, expressed in treaties, statutes and administrative practice, of encouraging tribal political autonomy and economic self-sufficiency. The tribes also have an interest in attaining these goals. Moreover, for historical and cultural reasons Indians have a special interest in preserving and exploiting the fish and game within reservation boundaries, and the federal government has a corresponding policy to advance that interest. Since these policies and interests do not of themselves preempt concurrent state licensing and regulation of non-Indian activities on reservations, we must examine the extent to which such state licensing and regulation conflict with the federal and tribal policies and interests.

The United States, recognizing that tribes enjoy only a limited sovereignty, does not treat them as independent states. Therefore, for purposes of state jurisdiction over non-Indians, the federal interest in tribal political autonomy does not itself negate the fact that Indian reservations are

Reorganization Act of 1934, 25 U.S.C. § 476, delegated its preemptive power to such councils, exercisable in any ordinance authorized by such a constitution. In any event, just as the Supreme Court in the *Colville Cigarettes Case* found that the ordinances of the Makah Tribe, an Indian Reorganization Act tribe, did not preempt state cigarette and sales taxes by delegated federal authority, we find that § 476 delegates no authority to preempt the state laws here.

parts of the states. Whether the federal interest in tribal autonomy, combined with the tribe's own interest, is sufficient to preclude the operation of state law upon non-Indians on Indian land depends upon a careful weighing of those interests and that of the state in the particular situation under review.

Therefore, we turn our attention to the policies and interests favoring tribal economic self-sufficiency. State taxes that directly or indirectly take reservation-based wealth from Indians are usually preempted, see *McClanahan v. Arizona State Tax Commission*, 411 U.S. 164, 93 S.Ct. 1257, 36 L.Ed.2d 129 (income tax on Indians); *Central Machinery Co. v. Arizona State Tax Commission*, 448 U.S. 160, 100 S.Ct. 2599, 65 L.Ed.2d 684 (1980) (sales tax on non-Indian seller, passed on to Indians). But many cases have held that nondiscriminatory state taxes on the activities of non-Indians on reservations are valid⁷ even though the taxes have the indirect effect of reducing revenues that Indians might otherwise receive, see *Colville Cigarettes Case*, 100 S.Ct. at 2080-84 (tax on cigarette purchases); *Thomas v. Gay*, 169 U.S. 264, 273, 18 S.Ct. 340, 343, 42 L.Ed. 740 (1898) (tax on lessees' cattle); *Fort Mojave Tribe v. County of San Bernardino*, 543 F.2d 1253, 1256 (9th Cir. 1976) (tax on leaseholds). Compare *Moe v. Confederated Salish & Kootenai Tribes*, 425 U.S. 463, 480-81, 96 S.Ct. 1634, 1644, 48 L.Ed.2d 96 (1976) (taxation of Indian activities invalid), with *id.* at 483, 96 S.Ct. at 1646 (tax on non-Indian purchasers of cigarettes on reservations upheld). The tribal interest in obtaining such revenues weighs only lightly in the preemption scales, for "the Tribes have no vested right to a certain volume of sales to non-Indians, or indeed to any such sales at all." *Colville Cigarettes Case*, 100 S.Ct. at 2080 n.27. Moreover, when both state and tribe license the same activity "[t]here is no direct con-

flict between the state and tribal schemes, since each government is free to impose its taxes without ousting the other." *Id.* at 2084. Nonetheless, the federal and tribal interests in maximizing tribal revenue still exist.

Although the extent to which the state license fee damages the tribal economic interest (and related federal policy) will not receive great weight in the preemption scales, that extent must be properly ascertained at the district court level. The tribal interest in raising revenues for essential governmental programs does gain strength when the revenues are derived from value generated on the reservation by activities involving the tribes and when the taxpayer is the recipient of tribal services. *Colville Cigarettes Case*, 100 S.Ct. at 2083.

The applicability of the state's substantive regulations to non-Indians hunting and fishing on reservations presents a slightly different problem. "Enactments of the Federal Government passed to protect and guard its Indian wards only affect the operation, within the [reservation] of such state laws as conflict with the federal enactments. [Citation omitted]." *Moe v. Confederated Salish & Kootenai Tribes*, 425 U.S. at 483, 96 S.Ct. at 1646. State season, size, and other substantive limits that coincide with or are more lenient than applicable tribal regulations do not conflict with them. Non-Indian sportsmen who obey tribal regulations are *ipso facto* in compliance with such state laws; and if a non-Indian violates tribal regulations then state law enforcement merely reinforces the authority of the tribal code.

When state regulations are more restrictive than their tribal counterparts, on the other hand, the state is in the position of prohibiting certain on-reservation activities

7. One month after the Supreme Court held in *McClanahan* that Arizona could not tax the reservation income of a Navajo Indian, it dismissed for want of a substantial federal question an appeal arguing that Arizona could not tax the reservation income of a non-Indian tribal employee living on the Navajo reservation.

Kahn v. Arizona State Tax Commission, 411 U.S. 941, 93 S.Ct. 1917, 36 L.Ed.2d 404 (1973). A dismissal for want of a substantial federal question has the effect of a holding that the proffered ground is meritless. *Hawaiian Telephone Co. v. Hawaii Dept. of Labor & Indus. Relations*, 614 F.2d 1197, 1198 (9th Cir. 1980).

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which the tribe would license. This creates a direct conflict between the state regulations and the tribe's ability to raise money, if non-Indians will not risk the violation of state law. Since the effect of such regulations would merely be to decrease the revenues otherwise flowing into tribal coffers, as in the dual-taxation situation, the tribal interest is not overly weighty. Although the indignity to the tribe of revenue lost by direct state prohibition, rather than by indirect economic forces, itself carries a certain weight, we have held that where a state substantive regulation is based on conservation and is more restrictive than a conflicting tribal regulation, the state's regulation may be applied to non-Indians hunting or fishing on a reservation. *United States v. Montana*, 604 F.2d at 1171.

D. State Interests

1. Conservation

[9,10] The fact that fish and game are presently upon an Indian reservation does not negate the state interest in conserving them, along with all other fish and game within the boundaries of the state. A tribe cannot claim to "own" the fish and game on the reservation so as to deprive the state of any interest in them. See *Douglas v. Seacoast Products, Inc.*, 431 U.S. 265, 284, 97 S.Ct. 1740, 1751, 52 L.Ed.2d 304 (1977). The state has a "special interest in regulating and preserving wildlife for the benefit of its citizens." *Baldwin v. Montana Fish & Game Commission*, 436 U.S. 371, 392, 98 S.Ct. 1852, 1864, 56 L.Ed.2d 354 (1978) (Burger, C. J., concurring); see *id.* at 386, 98 S.Ct. at 1861 (majority opinion). This state interest is shared with, not displaced by, the similar tribal interest when the fish

8. The states assert that their police power extends, unless positively barred by federal law, to the regulation of all taking of wildlife by non-Indians anywhere within the geographical limits of the state. We agree. On the other hand, whether a federal barrier exists depends on a weighing of federal, tribal, and state interests, and apparent state authority or power to

and game are within the boundaries of both the state and the reservation.⁸

The weight of the state conservation interest depends in large part, however, on the extent to which fish and game migrate across reservation boundaries. We were not presented with district court findings on the extent of such migration. If the fish and game are migratory, the state interest becomes quite powerful. States have an obvious interest in conserving animals which, if protected, would move off reservations onto state lands; moreover, states have an interest in animals that migrate from state lands, where they survive by virtue of the states' conservation efforts, onto reservations. Thus, we held in *United States v. Montana*, 604 F.2d at 1171-72, that state hunting and fishing regulations and license requirements, if their purpose is to further conservation and proper fish and game management, may be enforced against non-Indians on reservations.⁹

2. Revenue

The states might also claim a revenue interest to support their license fee requirements. The Supreme Court has noted that a state's revenue interest in taxing non-Indian activity on reservations is "strongest when the tax is directed at off-reservation value and when the taxpayer is the recipient of state services." *Colville Cigarettes Case*, 100 S.Ct. at 2083.

As to the non-Indians' receipt of state services, the tribes discount the states' revenue interest on this ground by arguing that the states no longer perform any fish-and-game-related stocking, enforcement or management services on the reservations that might justify an interest in compensa-

enforce state law is not itself a state interest in enforcing that law.

9. In *United States v. Montana*, *id.* at 1171-72 n.15, we distinguished the Fourth Circuit's *Cherokee Fishing Case*, 588 F.2d 75 (4th Cir. 1978), on the ground that Montana had a weighty conservation interest in the migratory

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tory revenue.¹⁰ District court findings are also required on this issue.

III. Right of Tribal Self-Government

[11] Preemption analysis focuses on the extent to which federal law has removed from states power, which they otherwise would have possessed, over Indians and reservations. Analysis of the right of tribal self-government, on the other hand, focuses on whether pre-existing Indian immunities from regulation of themselves and their land have been withdrawn by federal statute, surrendered by treaty, or lost as a necessary result of a tribe's present dependent status.¹¹ See *United States v. Wheeler*, 435 U.S. 313, 323, 98 S.Ct. 1079, 1086, 55 L.Ed.2d 303 (1978). We hold that the right of tribal self-government extends only to intratribal relations and to concurrent civil authority over visitors to reservations.

When a state has proposed to tax non-Indians for their on-reservation activities, the courts have almost uniformly found the tax permissible, even if the tribe was laying its

game, whereas North Carolina had none in the nonmigratory fish.

10. If the states succeed in demonstrating a conservation interest, then their expenditures for off-reservation enforcement of state law against on-reservation violators immediately create a valid revenue interest.

In *Warren Trading Post Co. v. Arizona Tax Commission*, 380 U.S. 685, 85 S.Ct. 1242, 14 L.Ed.2d 165 (1965), the Supreme Court mentioned as a reason for concluding that Congress had intended to preempt state taxation of federally-licensed Indian traders that

Congress has, since the creation of the Navajo Reservation nearly a century ago, left the Indians on it largely free to run the reservation and its affairs without state control, a policy which has automatically relieved Arizona of all burdens for carrying on those same responsibilities.

Id. at 690, 85 S.Ct. at 1245. On the other hand, taxation of reservation Indians has been found to be preempted even where the state was making substantial governmental expenditures on the reservation, *McClanahan v. Arizona State Tax Commission*, 411 U.S. at 173 & n.12, 93 S.Ct. at 1262 & n.12 (Navajo reservation); *Moe v. Confederated Salish & Kootenai Tribes*, 425 U.S. at 476, 96 S.Ct. at 1642, and no compensating-expenditures analysis can be found in *United States v. Montana* or the cases involving double taxation of non-Indians on res-

own tax on the same activities; the consequent reduction of Indian tax and business revenues does not violate the right of tribal self-government. *Colville Cigarettes Case*, 100 S.Ct. at 2082-83; *Fort Mojave Tribe v. County of San Bernardino*, 543 F.2d at 1258. Double taxation does not diminish a tribe's authority to tax non-Indians or otherwise regulate them,¹² *Colville Cigarettes Case*, 100 S.Ct. at 2084, and a tribe has "no vested right to a certain volume of sales to non-Indians, or indeed to any such sales at all," *id.* 100 S.Ct. at 2080 n.27.

[12] We therefore adhere to our holding in *United States v. Montana*, 604 F.2d at 1171-72, that nondiscriminatory state hunting and fishing license requirements may be imposed on non-Indians on reservations without violating the right of tribal self-government where the state has a substantial conservation interest.

[13] Where valid state and tribal substantive regulations differ, both are enforceable, *id.* at 1171; the applicability of state law in no case prevents a tribe from

ervations. *But see Apache Logging Case*, 448 U.S. at 148, 100 S.Ct. at 2586.

11. The limited, present-day right of tribal self-government has devolved from the broad tribal sovereignty principle of *Worcester v. Georgia*, 31 U.S. (6 Pet.) 515, 557, 561, 8 L.Ed. 483 (1832), as "notions of Indian sovereignty have been adjusted to take account of the State's legitimate interests in regulating the affairs of non-Indians," *McClanahan v. Arizona State Tax Commission*, 411 U.S. at 171, 93 S.Ct. at 1261, and Indian military power has been extinguished. The leading expression of the present-day right is that reservation Indians enjoy the right "to make their own laws and be ruled by them," *Williams v. Lee*, 358 U.S. at 220, 79 S.Ct. at 270; state regulation of on-reservation affairs is forbidden if it infringes this "right of tribal self-government," *Apache Logging Case*, 448 U.S. at 143, 100 S.Ct. at 2583.

12. By contrast, it would violate the right of tribal self-government for a state court to take jurisdiction over a suit against an Indian arising on a reservation, for the state court's judgment might be utterly irreconcilable with any parallel tribal-court jurisdiction and judgment. See *Fisher v. District Court*, 424 U.S. 382, 96 S.Ct. 943, 47 L.Ed.2d 106; *Williams v. Lee*, 358 U.S. 217, 79 S.Ct. 269, 3 L.Ed.2d 251.

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 U.S. at 171, 93 S.Ct. at
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 . 143, 100 S.Ct. at 2583.

uld violate the right of
 for a state court to take
 t against an Indian aris-
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 / irreconcilable with any
 risdiction and judgment.
 Court, 424 U.S. 382, 96
 106; *Williams v. Lee*, 358
 , 3 L.Ed.2d 251.

exercising its right to adopt and enforce
 ordinances regulating visitors' hunting and
 fishing. Accordingly, we also adhere to our
 holdings that nondiscriminatory state sub-
 stantive hunting and fishing regulations
 may be applied to non-Indians on reserva-
 tions without violating the right of tribal
 self-government. *Id.* at 1171-72; *United*
States v. Sanford, 547 F.2d at 1089.¹³

IV. Commerce Clause

[14] The Colvilles argue that Congress's
 power "To regulate Commerce with foreign
 Nations, and among the several States, and
 with the Indian Tribes" precludes the
 state's application of its nondiscriminatory
 license requirements and regulations to
 non-Indians on reservations. U.S.Const.
 Art. I, § 8, cl. 3. We find their argument
 meritless.

V. Conclusion

A. The Colvilles

[15] The Colvilles were granted a pre-
 liminary injunction by the district court.
 The Ninth Circuit standard for granting
 and reviewing a preliminary injunction was
 recently stated in *Los Angeles Memorial*
Coliseum Commission v. National Football
League, 634 F.2d 1197, 1200 (9th Cir. 1980).
 The court said:

We start with the general principle that
 an order issuing or denying a preliminary
 injunction will normally be reversed only
 if the lower court abused its discretion or
 based its decision upon erroneous legal

13. Thus, we disagree with the *Cherokee Fish-*
ing Case, 588 F.2d 75, in which the Fourth
 Circuit found that by indirectly reducing the
 revenues of the tribe and individual Indians, a
 state fishing license fee violated the right of
 tribal self-government by impeding tribal finan-
 cial self-sufficiency, a "goal" of self-govern-
 ment. The court found that no state law could
 be permitted to "frustrate the Indians' gover-
 nance of themselves or any commercial, con-
 servationist or other program administered by
 the Indians for their own advantage." *Id.* at 78,
 79.

However, it was established in the *Colville*
Cigarettes Case that a nondiscriminatory state

premise. The reviewing court must de-
 termine whether the district court em-
 ployed the proper legal standard in issu-
 ing the injunction and whether it abused
 its discretion in applying that standard.
 An injunction may so be set aside if the
 court relied on erroneous legal premises
 in its application of the standard, such as
 in its preliminary review of the merits.

... The traditional equitable criteria for
 granting preliminary injunctive relief are
 (1) a strong likelihood of success on the
 merits, (2) the possibility of irreparable
 injury to plaintiff if the preliminary re-
 lief is not granted, (3) a balance of hard-
 ships favoring the plaintiff, and (4) ad-
 vancement of the public interest, (in cer-
 tain cases). In this circuit, the moving
 party may meet its burden by demon-
 strating either (1) a combination of prob-
 able success on the merits and the possi-
 bility of irreparable injury or (2) that
 serious questions are raised and the bal-
 ance of hardships tips sharply in its favor.
 (Citations omitted.)

The Colvilles have met the latter test by
 demonstrating as our discussion has indi-
 cated that their case raises serious questions
 and that, in view of the disparity in size and
 revenue sources between the tribe and the
 state, the balance of hardships does tip in
 the Colvilles' favor. The district court's
 grant of a preliminary injunction in their
 favor is AFFIRMED.

B. The Apaches

[16, 17] This court may remand a case to
 the district court for further consideration

tax on non-Indians does not violate the right of
 tribal self-government even if it has the indirect
 effect of crippling a tribal commercial program;
 that much of the *Cherokee Fishing Case* surely
 cannot stand. We do not now decide whether
 a state tax or fee which, although otherwise
 valid, renders a tribe so destitute that it cannot
 finance even the barest essentials of self-
 government (*e. g.* the tribal council, court and
 police) would violate the right. *Cf. Santa Clara*
Pueblo v. Martinez, 436 U.S. 49 at 64, 98 S.Ct.
 1670 at 1680, 56 L.Ed.2d 106 (construing stat-
 ute not to impose financial burden on tribes).

when new cases or laws that are likely to influence the decision have become effective after the initial consideration. We feel that such a remand is proper in the Apaches' case due to the important United States Supreme Court decision in *White Mountain Apache Tribe v. Bracker*, 448 U.S. 136; 100 S.Ct. 2578, 65 L.Ed. 2d, 665 (1980). On remand the district court should consider and make factual findings as to the factors mentioned above, including but not limited to the conflict between the state license requirements and regulations and the federal and tribal policies and interests, the extent to which the state license fee damages the tribal economic interest and related federal policy, the state's interest in conservation, the migratory nature of the wildlife in issue, and the benefits, if any, to non-Indians hunting on the reservation of state services and the state revenue interests.

The summary judgment against the Apaches is VACATED and the case REMANDED for further proceedings.¹⁴



14. We note the Tenth Circuit's recent decision in a case quite similar to our cases here. *Mescalero Apache Tribe v. New Mexico*, 630 F.2d 724 (10th Cir. 1980). The Tenth Circuit there affirmed the district court's judgment and held that New Mexico could not impose its hunting and fishing regulations on the activities of non-

UNITED STATES of America,
Plaintiff-Appellant,
and
Pyramid Lake Paiute Tribe of Indians,
Plaintiff-Intervenor-Appellant,
v.

TRUCKEE-CARSON IRRIGATION DISTRICT, STATE OF NEVADA, Sierra Pacific Power Company, City of Reno, City of Sparks, County of Washoe, and Washoe County Treasurer, Trustee, Albert A. Alcorn, and Approximately 17,000 Other Individually Named Persons, Firms, Partnerships, and Corporations, Defendants-Appellees.

Nos. 78-1115, 78-1493.

United States Court of Appeals,
Ninth Circuit.

Argued and Submitted April 15, 1980.

Decided June 15, 1981.

As Modified July 10, 1981.

The United States and Indian tribe brought action to quiet title to water right to sustain lake fishery. The United States District Court for the District of Nevada, J. Blaine Anderson, Circuit Judge,* entered judgment, and appeal was taken. The Court of Appeals, Skopil, Circuit Judge, held that: (1) neither Reclamation Act of 1902 nor Appropriations Act of 1904 conferred on Secretary of Interior authority to extinguish water rights of Indians living on executive order reservation; (2) cause of action asserted by United States seeking decree quieting title to water rights of all users of river's water was same cause of action as that asserted in subsequent action brought by United States and tribe to quiet title to water right to sustain lake fishery,

Indians on the Mescalero Apache reservation. This conclusion rested independently on both the federal preemption and the right of tribal self-government grounds.

* Circuit Judge, U.S. Court of Appeals, Ninth Circuit, sitting by designation.

CHAPTER 53. CONTROL OF ILLEGALLY TAKEN FISH
AND WILDLIFE

Section

- 3371. Definitions
- 3372. Prohibited acts
 - (a) Offenses other than marking offenses
 - (b) Marking offenses
- 3373. Penalties and sanctions
 - (a) Civil penalties
 - (b) Hearings
 - (c) Review
 - (d) Criminal penalties
 - (e) Permit sanctions
- 3374. Forfeiture
 - (a) In general
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 - (b) Powers
 - (c) Jurisdiction of district courts
 - (d) Rewards and certain incidental expenses
- 3376. Administration
 - (a) Regulations
 - (b) Contract authority
- 3377. Exceptions
 - (a) Activities regulated by plan under Magnuson Fishery Conservation and Management Act
 - (b) Activities regulated by 16 USCS §§ 951 et seq., 971 et seq.; harvesting of highly migratory species taken on high seas
 - (c) Interstate shipment or transshipment through Indian country of fish, wildlife, or plants for legal purposes
- 3378. Miscellaneous provisions
 - (a) Effect on powers of States
 - (b) Repeals
 - (c) Disclaimers
 - [(d)](g) Travel and transportation expenses
 - [(e)](h) Interior appropriations budget proposal

Auto-Cite®: Any case citation herein can be checked for form, parallel references, later history, and annotation references through the Auto-Cite computer research system.

§ 3371. Definitions

For the purposes of this Act:

ILLEGALLY TAKEN FISH

(a) The term "fish or wildlife" means any wild animal, whether alive or dead, including without limitation any wild mammal, bird, reptile, amphibian, fish, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, whether or not bred, hatched, or born in captivity, and includes any part, product, egg, or offspring thereof.

(b) The term "import" means to land on, bring into, or introduce into, any place subject to the jurisdiction of the United States, whether or not such landing, bringing, or introduction constitutes an importation within the meaning of the customs laws of the United States.

(c) The term "Indian tribal law" means any regulation of, or other rule of conduct enforceable by, any Indian tribe, band, or group but only to the extent that the regulation or rule applies within Indian country as defined in section 1151 of title 18, United States Code [18 USCS § 1151].

(d) The terms "law," "treaty," "regulation," and "Indian tribal law" mean laws, treaties, regulations or Indian tribal laws which regulate the taking, possession, importation, exportation, transportation, or sale of fish or wildlife or plants.

(e) The term "person" includes any individual, partnership, association, corporation, trust, or any officer, employee, agent, department, or instrumentality of the Federal Government or of any State or political subdivision thereof, or any other entity subject to the jurisdiction of the United States.

(f) The terms "plant" and "plants" mean any wild member of the plant kingdom, including roots, seeds, and other parts thereof (but excluding common food crops and cultivars) which is indigenous to any State and which is either (A) listed on an appendix to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, or (B) listed pursuant to any State law that provides for the conservation of species threatened with extinction.

(g) The term "Secretary" means, except as otherwise provided in the Act, the Secretary of the Interior or the Secretary of Commerce, as program responsibilities are vested pursuant to the provisions of Reorganization Plan Numbered 4 of 1970 (84 Stat. 2090) [5 USCS § 903 note]; except that with respect to the provisions of this Act which pertain to the importation or exportation of plants the term means the Secretary of Agriculture.

(h) The term "State" means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, Northern Mariana Islands, American Samoa, and any other territory, commonwealth, or possession of the United States.

(i) The term "taken" means captured, killed, or collected.

(j) The term "transport" means to move, convey, carry, or ship by any means, or to deliver or receive for the purpose of movement, conveyance, carriage, or shipment.

(Nov. 16, 1981, P. L. 97-79, § 2, 95 Stat. 1073.)

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HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act" and "the Act", referred to in this section, is Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1073, which appears generally as 16 USCS §§ 3371 et seq. For full classification of this Act, consult USCS Tables volumes.

Short titles:

Act Nov. 16, 1981, P. L. 97-79, § 1, 95 Stat. 1073, provided: "This Act may be cited as the 'Lacey Act Amendments of 1981'.". For full classification of this Act, consult USCS Tables volumes.

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.
Seizure and forfeiture procedures, 50 CFR Part 12.

§ 3372. Prohibited acts

- (a) Offenses other than marking offenses. It is unlawful for any person—
- (1) to import, export, transport, sell, receive, acquire, or purchase any fish or wildlife or plant taken or possessed in violation of any law, treaty, or regulation of the United States or in violation of any Indian tribal law;
 - (2) to import, export, transport, sell, receive, acquire, or purchase in interstate or foreign commerce—
 - (A) any fish or wildlife taken, possessed, transported, or sold in violation of any law or regulation of any State or in violation of any foreign law, or
 - (B) any plant taken, possessed, transported, or sold in violation of any law or regulation of any State;
 - (3) within the special maritime and territorial jurisdiction of the United States (as defined in section 7 of title 18, United States Code [18 USCS § 7])—
 - (A) to possess any fish or wildlife taken, possessed, transported, or sold in violation of any law or regulation of any State or in violation of any foreign law or Indian tribal law, or
 - (B) to possess any plant taken, possessed, transported, or sold in violation of any law or regulation of any State;
 - (4) having imported, exported, transported, sold, purchased, or received any fish or wildlife or plant imported from any foreign country or transported in interstate or foreign commerce, to make or submit any false record, account, label, or identification thereof; or
 - (5) to attempt to commit any act described in paragraphs (1) through (4).

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ILLEGALLY TAKEN FISH & WILDLIFE

16 USCS § 3372, n 3

(b) **Marking offenses.** It is unlawful for any person to import, export, or transport in interstate commerce any container or package containing any fish or wildlife unless the container or package has previously been plainly marked, labeled, or tagged in accordance with the regulations issued pursuant to paragraph (2) of subsection 7(a) of this Act [16 USCS § 3376(a)(2)].

(Nov. 16, 1981, P. L. 97-79, § 3, 95 Stat. 1074.)

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.

Seizure and forfeiture procedures, 50 CFR Part 12.

CROSS REFERENCES

Preservation of game and wild birds; duties and powers of Secretary of the Interior; regulations as to hunting, 16 USCS §§ 701 et seq.

Unlawful transportation or importation of migratory birds, 16 USCS §§ 705, 707.

Arrests, 16 USCS § 706; 18 USCS § 3054.

Search warrants and seizures, 16 USCS § 706; 18 USCS § 3112.

This section is referred to in 16 USCS §§ 3373, 3374, 3376, 3377.

RESEARCH GUIDE

Federal Procedure L Ed:

Criminal Procedure, Fed Proc, L Ed 2d, §§ 22:138, 22:305.

Annotations:

Validity, construction, and application of Endangered Species Act of 1973 (16 USCS §§ 1531-1543). 32 ALR Fed 332.

INTERPRETIVE NOTES AND DECISIONS

- 1 Constitutionality
- 2 Construction
- 3 Applicability to foreign laws
- 4 Relation to other federal laws
- 5 Relation to state law
- 6 What constitutes violation, generally
- 7 Indictment

1. Constitutionality

Predecessor to 16 USCS § 3372 did not unconstitutionally delegate legislative power to foreign countries; rather, it simply limited exclusion from stream of foreign commerce wildlife unlawfully taken abroad. *United States v Molt* (1979, CA3 Pa) 599 F2d 1217.

16 USCS § 3372(a)(2)(A) is not unconstitutionally vague and does not unconstitutionally delegate to states legislative power reserved to

Congress. *United States v Bryant* (1983, CA6 Tenn) 716 F2d 1091.

2. Construction

Phrase "wildlife" found in predecessor to 16 USCS § 3372 covered harvesting of clams. *United States v Long Cove Seafood, Inc.* (1978, CA2 NY) 582 F2d 159.

"Any law or regulation of any State or foreign country" as used in predecessor to 16 USCS § 3372 was not limited to state criminal sanctions. *United States v Plott* (1972, SD NY) 345 F Supp 1229.

3. Applicability to foreign laws

Predecessor to 16 USCS § 3372 only applied to foreign laws designed to protect wildlife; it did not apply where law was merely revenue statute;

provisions of predecessor statute, which prohibited transportation of wildlife taken in violation of foreign laws, assimilated only foreign laws which involved, or purpose of which were, protection of wildlife; where government failed to prove beyond reasonable doubt that foreign laws allegedly violated by defendants were designed for protection of wildlife, counts of indictment based solely upon such violations would be dismissed. *United States v Molt* (1978, ED Pa) 452 F Supp 1200 revd, in part on other grounds (CA3 Pa) 599 F2d 1217.

4. Relation to other federal laws

Provisions of 42 USCS §§ 264, 271 making importation of certain fish and animals misdemeanor did not prevent sentence for felony for same acts which also were violations of predecessor to 16 USCS § 3372. *Steiner v United States* (1956, CA9 Cal) 229 F2d 745.

5. Relation to state law

Rules and regulations of Florida Game and Fresh Water Fish Commission prohibiting transportation of certain freshwater fish outside Florida constituted "law" of Florida within meaning of predecessor to 16 USCS § 3372. *United States v Howard* (1957) 352 US 212, 1 L Ed 2d 261, 77 S Ct 303.

Predecessor to 16 USCS § 3372 prohibited transportation of fish in interstate commerce contrary to law of state from which fish was transported. *United States v Sharpnack* (1958) 355 US 286, 2 L Ed 2d 282, 78 S Ct 291.

Exclusive system of regulation established by federal law for dealing with endangered species, including predecessor to USCS § 3372, did not preempt state laws dealing with importation of wild animals. *Palladio, Inc. v Diamond* (1970, SD NY) 321 F Supp 630, affd (CA2 NY) 440 F2d 1319, cert den 404 US 983, 30 L Ed 2d 367, 92 S Ct 446.

Predecessor to 16 USCS § 3372 was intended to aid states in enforcement of their game laws by rendering them equally applicable to game imported into state as to game killed within state. *Wells Fargo Express Co. v State* (1906) 79 Ark 349, 96 SW 189.

State act imposing tax on skins of fur-bearing animals and alligators before they were shipped from that state was not in violation of federal laws, including predecessor to 16 USCS § 3372. *Lacoste v Department of Conservation* (1922) 151 La 909, 92 So 381, affd 263 US 545, 68 L Ed 437, 44 S Ct 186.

State prohibition of selling of game, taken within or without state was not repugnant to interstate commerce. *State v Heger* (1906) 194 Mo 707, 93 SW 252.

Predecessor to 16 USCS § 3372 empowered any state to prohibit possession of game birds, taken within or without that state, during closed season. *People ex rel. Hill v Hesterberg* (1906) 184 NY 126, 76 NE 1032, affd 211 US 31, 53 L Ed 75, 29 S Ct 10.

State law prohibiting possession of game animals during certain periods did not attach to shipment of foreign game while in transit, in possession of common carrier until its arrival at point of destination and delivery there to consignee. *People v Fargo* (1910) 137 App Div 727, 122 NYS 553.

6. What constitutes violation, generally

If undercover agents were authorized by state to kill elk in violation of state statute in order to gather evidence against defendants, such killing was legal and could not serve as predicate for charge under predecessor to 16 USCS § 3372; it was proper to indict hunting guides for violation of predecessor statute in situation in which federal undercover agents were guided by defendants onto Indian reservation and there killed elk in violation of state game laws, so that illegal killing by agents made subsequent interstate transportation by defendants violation of predecessor statute. *United States v Sanford* (1976, CA9 Mont) 547 F2d 1085.

Defendant was properly convicted for violation of regulation of Alaska Administrative Code which prohibits purchase, sale or barter of parts of brown bear; state has power to reach beyond its borders under police power, to regulate game and fish if those regulations have sufficient nexus with protection and preservation of wildlife within state and there is sufficient relationship between regulating state and person whose conduct is regulated; there was sufficient relationship between defendant and Alaska where there was agreement for sale and partial payment made in Alaska. *United States v Sylvester* (1979, CA9 Alaska) 605 F2d 474.

Beginnings of attempt of which preparation was evidence would not amount to actual evasion in violation of predecessor to 16 USCS § 3372 standing alone, since evasion itself was prohibited. *United States v Smith* (1902, DC Pa) 115 F 423.

In view of fact that day 26 ducks were discovered in possession of defendants was not first day of season, their possession did not constitute violation of regulations issued pursuant to predecessor to 16 USCS § 3372, and, possession being legal, burden of proof did not shift to defendants. *United States v Clucas* (1943, DC Va) 50 F Supp 609.

Predecessor to 16 USCS § 3372 prohibited interstate transportation of furs of tigers, leopard

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16 USCS § 3372 empowered
in possession of game birds,
about that state, during closed
season. *Hill v Hesterberg* (1906)
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regarding possession of game ani-
mal periods did not attach to
the game while in transit, in
the carrier until its arrival at
the point and delivery there to con-
signee. (1910) 137 App Div 727.

violation, generally

Violations were authorized by state
enforcement of state statute in order to
prevent defendants, such killing
would not serve as predicate for
violation of 16 USCS § 3372; it
is not hunting guides for violation
of statute in situation in which fed-
erally regulated defendants were guided by defen-
dant reservation and there killed
state game laws, so that illegal
defendants made subsequent interstate
defendants violation of prede-
cessor to 16 USCS § 3372, 1976,
2d 1085.

Defendants properly convicted for viola-
tion of Alaska Administrative Code
purchase, sale or barter of parts
etc has power to reach beyond
police power, to regulate game
regulations have sufficient nexus
and preservation of wildlife
there is sufficient relationship
between state and person whose con-
duct there was sufficient relationship
with Alaska where there was
a fee and partial payment made in
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474.

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16 USCS § 3372 prohibited
importation of furs of tigers, leop-

ILLEGALLY TAKEN FISH & WILDLIFE

16 USCS § 3373

ards, jaguars, ocelots and of other endangered
species threatened with extinction listed in regu-
lations. *Fur Information & Fashion Council, Inc.*
v E. F. Timme & Son, Inc. (1973, SD NY) 364
F Supp 16, 180 USPQ 256, aff'd (CA2 NY) 501
F2d 1048, 183 USPQ 129, cert den 419 US 1022,
42 L Ed 2d 296, 95 S Ct 498, 183 USPQ 641.

Guilty knowledge of state hunting laws was
essential element to sustain conviction under
predecessor to 16 USCS § 3372, for taking or
transporting of wildlife in violation of state law.
United States v Jonas Bros. of Seattle, Inc.
(1974, DC Alaska) 368 F Supp 783.

Substantial evidence supported determination
that commercial operator violated 16 USCS
§ 3372(a)(1) by intentionally shipping through
interstate and foreign commerce imported and
endangered species of sea turtle in cartons which
were intentionally mislabeled. *Newell v Bal-
drige* (1982, WD Wash) 548 F Supp 39.

Predecessor to 16 USCS § 3372 referred to
animals and birds whose importation, if living,
was prohibited by 18 USCS § 42 and did not
prohibit importation of "all dead bodies of any
foreign game animals." 23 OAG 213.

7. Indictment

Indictment under predecessor to 16 USCS
§ 3372 did not have to allege months in which
game was killed. *Rupert v United States* (1910,
CA8 Okla) 181 F 87.

Indictment under predecessor to 16 USCS
§ 3372 alleging that defendant had prepared and
intended for shipment by interstate commerce
out of state certain packages of dead game was
insufficient for failure to allege delivery to car-
rier. *United States v Smith* (1902, DC Pa) 115 F
423.

§ 3373. Penalties and sanctions

(a) **Civil penalties.** (1) Any person who engages in conduct prohibited by
any provision of this Act (other than subsection 3(b) [16 USCS
§ 3372(b)]) and in the exercise of due care should know that the fish or
wildlife or plants were taken, possessed, transported, or sold in violation
of, or in a manner unlawful under, any underlying law, treaty, or
regulation, may be assessed a civil penalty by the Secretary of not more
than \$10,000 for each such violation: Provided, That when the violation
involves fish or wildlife or plants with a market value of less than \$350,
and involves only the transportation, acquisition, or receipt of fish or
wildlife or plants taken or possessed in violation of any law, treaty, or
regulation of the United States, any Indian tribal law, any foreign law,
or any law or regulation of any State, the penalty assessed shall not
exceed the maximum provided for violation of said law, treaty, or
regulation, or \$10,000, whichever is less.

(2) Any person who violates subsection 3(b) [16 USCS § 3372(b)] may
be assessed a civil penalty by the Secretary of not more than \$250.

(3) For purposes of paragraphs (1) and (2), any reference to a provision
of this Act or to a section of this Act shall be treated as including any
regulation issued to carry out any such provision or section.

(4) No civil penalty may be assessed under this subsection unless the
person accused of the violation is given notice and opportunity for a
hearing with respect to the violation. Each violation shall be a separate
offense and the offense shall be deemed to have been committed not only
in the district where the violation first occurred, but also in any district
in which a person may have taken or been in possession of the said fish
or wildlife or plants.

(5) Any civil penalty assessed under this subsection may be remitted or
mitigated by the Secretary.

(6) In determining the amount of any penalty assessed pursuant to paragraphs (1) and (2), the Secretary shall take into account the nature, circumstances, extent, and gravity of the prohibited act committed, and with respect to the violator, the degree of culpability, ability to pay, and such other matters as justice may require.

(b) **Hearings.** Hearings held during proceedings for the assessment of civil penalties shall be conducted in accordance with section 554 of title 5, United States Code [5 USCS § 554]. The administrative law judge may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, or documents, and may administer oaths. Witnesses summoned shall be paid the same fees and mileage that are paid to witnesses in the courts of the United States. In case of contumacy or refusal to obey a subpoena issued pursuant to this paragraph and served upon any person, the district court of the United States for any district in which such person is found, resides, or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the administrative law judge or to appear and produce documents before the administrative law judge, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

(c) **Review.** Any person against whom a civil penalty is assessed under this section may obtain review thereof in the appropriate district court of the United States by filing a notice of appeal in such court within thirty days from the date of such order and by simultaneously sending a copy of such notice by certified mail to the Secretary. The Secretary shall promptly file in such court a certified copy of the record upon which such violation was found or such penalty imposed, as provided in section 2112 of title 28, United States Code [28 USCS § 2112]. If any person fails to pay an assessment of a civil penalty after it has become a final and unappealable order or after the appropriate court has entered final judgment in favor of the Secretary, the Secretary may request the Attorney General of the United States to institute a civil action in an appropriate district court of the United States to collect the penalty, and such court shall have jurisdiction to hear and decide any such action. In hearing such action, the court shall have authority to review the violation and the assessment of the civil penalty de novo.

(d) **Criminal penalties.** (1) Any person who—

(A) knowingly imports or exports any fish or wildlife or plants in violation of any provision of this Act (other than subsection 3(b) [16 USCS § 3372(b)]), or

(B) violates any provision of this Act (other than subsection 3(b) [16 USCS §§ 3372(b)]) by knowingly engaging in conduct that involves the sale or purchase of, the offer of sale or purchase of, or the intent

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assessed pursuant to account the nature, act committed, and ability to pay, and

assessment of civil action 554 of title 5, active law judge may of witnesses and the and may administer fees and mileage that States. In case of ant to this paragraph United States for any nsacts business, upon ch person, shall have to appear and give appear and produce th, and any failure to h court as a contempt

is assessed under this e district court of the ert within thirty days ending a copy of such ry shall promptly file ich such violation was tion 2112 of title 28. rson fails to pay an inal and unappealable judgment in favor oforney General of the oriate district court of ch court shall have earing such action, the l the assessment of the

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an subsection 3(b) [16 conduct that involves chase of, or the intent

ILLEGALLY TAKEN FISH & WILDLIFE

16 USCS § 3373

to sell or purchase, fish or wildlife or plants with a market value in excess of \$350,

knowing that the fish or wildlife or plants were taken, possessed, transported, or sold in violation of, or in a manner unlawful under, any underlying law, treaty or regulation, shall be fined not more than \$20,000, or imprisoned for not more than five years, or both. Each violation shall be a separate offense and the offense shall be deemed to have been committed not only in the district where the violation first occurred, but also in any district in which the defendant may have taken or been in possession of the said fish or wildlife or plants.

(2) Any person who knowingly engages in conduct prohibited by any provision of this Act (other than subsection 3(b) [16 USCS § 3372(b)]) and in the exercise of due care should know that the fish or wildlife or plants were taken, possessed, transported, or sold in violation of, or in a manner unlawful under, any underlying law, treaty or regulation shall be fined not more than \$10,000, or imprisoned for not more than one year, or both. Each violation shall be a separate offense and the offense shall be deemed to have been committed not only in the district where the violation first occurred, but also in any district in which the defendant may have taken or been in possession of the said fish or wildlife or plants.

(e) **Permit sanctions.** The Secretary may also suspend, modify, or cancel any Federal hunting or fishing license, permit, or stamp, or any license or permit authorizing a person to import or export fish or wildlife or plants (other than a permit or license issued pursuant to the Fishery Conservation and Management Act of 1976), or to operate a quarantine station or rescue center for imported wildlife or plants, issued to any person who is convicted of a criminal violation of any provision of this Act or any regulation issued hereunder. The Secretary shall not be liable for the payments of any compensation, reimbursement, or damages in connection with the modification, suspension, or revocation of any licenses, permits, stamps, or other agreements pursuant to this section.
(Nov. 16, 1981, P. L. 97-79, § 4, 95 Stat. 1074.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1073, which appears generally as 16 USCS §§ 3371 et seq. For full classification of this Act, consult USCS Tables volumes.

The "Fishery Conservation and Management Act of 1976", referred to in this section, is Act Apr. 13, 1976, P. L. 94-265, 90 Stat. 331, which was redesignated the Magnuson Fishery Conservation and Management Act by Act Dec. 22, 1980, Title II, Part C, Subpart 2, § 238(a), 94 Stat. 3300. Such Act Apr. 13, 1976, appears generally as 16 USCS §§ 1801 et seq. For full classification of such Act, consult USCS Tables volumes.

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.

Seizure and forfeiture procedures, 50 CFR Part 12.

General permit procedures, 50 CFR Part 13.

CROSS REFERENCES

This section is referred to in 16 USCS §§ 3374, 3376.

INTERPRETIVE NOTES AND DECISIONS

Where commercial importer of tropical fish was found in violation of 16 USCS § 3372(a)(1) for shipping in interstate and foreign commerce imported and endangered species of sea turtles in

cartons which had been intentionally mislabeled, civil penalty of \$1,000 for each violation is warranted. *Newell v Baldrige* (1982, WD Wash) 548 F Supp 39.

§ 3374. Forfeiture

(a) **In general.** (1) All fish or wildlife or plants imported, exported, transported, sold, received, acquired, or purchased contrary to the provisions of section 3 of this Act [16 USCS § 3372] (other than subsection 3(b) [16 USCS § 3372(b)]), or any regulation issued pursuant thereto, shall be subject to forfeiture to the United States notwithstanding any culpability requirements for civil penalty assessment or criminal prosecution included in section 4 of this Act [16 USCS § 3373].

(2) All vessels, vehicles, aircraft, and other equipment used to aid in the importing, exporting, transporting, selling, receiving, acquiring, or purchasing of fish or wildlife or plants in a criminal violation of this Act for which a felony conviction is obtained shall be subject to forfeiture to the United States if (A) the owner of such vessel, vehicle, aircraft, or equipment was at the time of the alleged illegal act a consenting party or privy thereto or in the exercise of due care should have known that such vessel, vehicle, aircraft, or equipment would be used in a criminal violation of this Act, and (B) the violation involved the sale or purchase of, the offer of sale or purchase of, or the intent to sell or purchase, fish or wildlife or plants.

(b) **Application of customs laws.** All provisions of law relating to the seizure, forfeiture, and condemnation of property for violation of the customs laws, the disposition of such property or the proceeds from the sale thereof, and the remission or mitigation of such forfeiture, shall apply to the seizures and forfeitures incurred, or alleged to have been incurred, under the provisions of this Act, insofar as such provisions of law are applicable and not inconsistent with the provisions of this Act; except that all powers, rights, and duties conferred or imposed by the customs laws upon any officer or employee of the Treasury Department may, for the purposes of this Act, also be exercised or performed by the Secretary or by

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VIOLATIONS

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\$1,000 for each violation is
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imported, exported,
seized contrary to the
§ 3372] (other than
proceeds from the
seizure issued pursuant
to the laws of the United
States notwithstanding
assessment or criminal
prosecution [16 USC § 3373].
The proceeds shall be
used to aid in the
enforcement of the
law, acquiring, or pur-
chase of this Act for
the purpose of forfeiture to the
Government, vehicle, aircraft, or
other property of a
consenting party or
person who has known that such
proceeds will be used in a criminal
prosecution of the sale or purchase
of fish or sell or purchase, fish

The law relating to the
proceeds from the
forfeiture, shall apply
if the proceeds have been incurred.
The provisions of law are
not applicable to this Act; except that
the provisions of the customs laws
of the Department may, for the
purpose of the Secretary or by

ILLEGALLY TAKEN FISH & WILDLIFE

16 USCS § 3375

such persons as he may designate: Provided, That any warrant for search or seizure shall be issued in accordance with rule 41 of the Federal Rules of Criminal Procedure [USCS Rules of Criminal Procedure, Rule 41].

(c) **Storage cost.** Any person convicted of an offense, or assessed a civil penalty, under section 4 [16 USCS § 3373] shall be liable for the costs incurred in the storage, care, and maintenance of any fish or wildlife or plant seized in connection with the violation concerned.
(Nov. 16, 1981, P. L. 97-79, § 5, 95 Stat. 1076.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1073, which appears generally as 16 USCS §§ 3371 et seq. For full classification of this Act, consult USCS Tables volumes.

"The customs laws", referred to in this section, appear generally as 19 USCS §§ 1 et seq.

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.
United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.
Seizure and forfeiture procedures, 50 CFR Part 12.

CROSS REFERENCES

This section is referred to in 16 USCS §§ 3375, 3376.

§ 3375. Enforcement

(a) **In general.** The provisions of this Act and any regulations issued pursuant thereto shall be enforced by the Secretary, the Secretary of Transportation, or the Secretary of the Treasury. Such Secretary may utilize by agreement, with or without reimbursement, the personnel, services, and facilities of any other Federal agency or any State agency or Indian tribe for purposes of enforcing this Act.

(b) **Powers.** Any person authorized under subsection (a) to enforce this Act may carry firearms; may make an arrest without a warrant for any felony violation of this Act if he has reasonable grounds to believe that the person to be arrested has committed or is committing such violation: Provided, That an arrest for a felony violation of this Act that is not committed in the presence or view of any such person and that involves only the transportation, acquisition, receipt, purchase, or sale of fish or wildlife or plants taken or possessed in violation of any law or regulation of any State shall require a warrant; may make an arrest without a warrant for a misdemeanor violation of this Act if he has reasonable grounds to believe that the person to be arrested is committing a violation in his presence or view; and may execute and serve any subpoena, arrest warrant, search

warrant issued in accordance with rule 41 of the Federal Rules of Criminal Procedure [USCS Rules of Criminal Procedure, Rule 41], or other warrant of civil or criminal process issued by any officer or court of competent jurisdiction for enforcement of this Act. Any person so authorized, in coordination with the Secretary of the Treasury, may detain for inspection and inspect any vessel, vehicle, aircraft, or other conveyance or any package, crate, or other container, including its contents, upon the arrival of such conveyance or container in the United States or the customs waters of the United States from any point outside the United States or such customs waters, or, if such conveyance or container is being used for exportation purposes, prior to departure from the United States or the customs waters of the United States. Such person may also inspect and demand the production of any documents and permits required by the country of natal origin, birth, or reexport of the fish or wildlife. Any fish, wildlife, plant, property, or item seized shall be held by any person authorized by the Secretary pending disposition of civil or criminal proceedings, or the institution of an action in rem for forfeiture of such fish, wildlife, plants, property, or item pursuant to section 5 of this Act [16 USCS § 3374]; except that the Secretary may, in lieu of holding such fish, wildlife, plant, property, or item, permit the owner or consignee to post a bond or other surety satisfactory to the Secretary.

(c) **Jurisdiction of district courts.** The several district courts of the United States, including the courts enumerated in section 460 of title 28, United States Code [28 USCS § 460], shall have jurisdiction over any actions arising under this Act. The venue provisions of title 18 and title 28 of the United States Code shall apply to any actions arising under this Act. The judges of the district courts of the United States and the United States magistrates may, within their respective jurisdictions, upon proper oath or affirmation showing probable cause, issue such warrants or other process as may be required for enforcement of this Act and any regulations issued thereunder.

(d) **Rewards and certain incidental expenses.** Beginning in fiscal year 1983, the Secretary or the Secretary of the Treasury shall pay, from sums received as penalties, fines, or forfeitures of property for any violation of this Act or any regulation issued hereunder (1) a reward to any person who furnishes information which leads to an arrest, a criminal conviction, civil penalty assessment, or forfeiture of property for any violation of this Act or any regulation issued hereunder, and (2) the reasonable and necessary costs incurred by any person in providing temporary care for any fish, wildlife, or plant pending the disposition of any civil or criminal proceeding alleging a violation of this Act with respect to that fish, wildlife, or plant. The amount of the reward, if any, is to be designated by the Secretary or the Secretary of the Treasury, as appropriate. Any officer or employee of the United States or any State or local government who

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eral Rules of Criminal [41], or other warrant or court of competent son so authorized, in y detain for inspection r conveyance or any tents, upon the arrival or the customs waters United States or such ner is being used for United States or the may also inspect and rmits required by the or wildlife. Any fish, held by any person civil or criminal pro- forfeiture of such fish, tion 5 of this Act [16 ou of holding such fish, or consignee to post a

ict courts of the United 460 of title 28, United tion over any actions e 18 and title 28 of the ng under this Act. The and the United States ns, upon proper oath or ants or other process as any regulations issued

ning in fiscal year 1983. shall pay, from sums rty for any violation of a reward to any person t, a criminal conviction, for any violation of this 2) the reasonable and g temporary care for any f any civil or criminal h respect to that fish, y, is to be designated by appropriate. Any officer r local government who

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16 USCS § 3376

furnishes information or renders service in the performance of his official duties is ineligible for payment under this subsection. (Nov. 16, 1981, P. L. 97-79, § 6, 95 Stat. 1077; June 25, 1984, P. L. 98-327, § 4 in part, 98 Stat. 271.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1073, which appears generally as 16 USCS §§ 3371 et seq. For full classification of this Act, consult USCS Tables volumes.

"The venue provisions of title 18 and title 28 of the United States Code", referred to in this section, appear generally as 18 USCS §§ 3231 et seq. and 28 USCS §§ 1391 et seq.

Amendments:

1984. Act June 25, 1984, in subsec. (d), substituted a comma for "a reward" following "shall pay", inserted "(1) a reward", and inserted ", and (2) the reasonable and necessary costs incurred by any person in providing temporary care for any fish, wildlife, or plant pending the disposition of any civil or criminal proceeding alleging a violation of this Act with respect to that fish, wildlife, or plant".

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11. Seizure and forfeiture procedures, 50 CFR Part 12.

§ 3376. Administration

(a) **Regulations.** (1) The Secretary, after consultation with the Secretary of the Treasury, is authorized to issue such regulations, except as provided in paragraph (2), as may be necessary to carry out the provisions of section 4 and section 5 of this Act [16 USCS §§ 3773, 3774].

(2) The Secretaries of the Interior and Commerce shall jointly promulgate specific regulations to implement the provisions of subsection 3(b) of this Act [16 USCS § 3372(b)] for the marking and labeling of containers or packages containing fish or wildlife. These regulations shall be in accordance with existing commercial practices.

(b) **Contract authority.** Beginning in fiscal year 1983, to the extent and in the amounts provided in advance in appropriations Acts, the Secretary may enter into such contracts, leases, cooperative agreements, or other transactions with any Federal or State agency, Indian tribe, public or private institution, or other person, as may be necessary to carry out the purposes of this Act.

(Nov. 16, 1981, P. L. 97-79, § 7, 95 Stat. 1078.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**References in text:**

"This Act", referred to in this section, is Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1073, which appears generally as 16 USCS §§ 3371 et seq. For full classification of this Act, consult USCS Tables volumes.

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.

Seizure and forfeiture procedures, 50 CFR Part 12.

General permit procedures, 50 CFR Part 13.

CROSS REFERENCES

This section is referred to in 16 USCS § 3372.

§ 3377. Exceptions

(a) **Activities regulated by plan under Magnuson Fishery Conservation and Management Act.** The provisions of paragraph (1) of subsection 3(a) of this Act [16 USCS § 3372(a)(1)] shall not apply to any activity regulated by a fishery management plan in effect under the Fishery Conservation and Management Act of 1976 (16 U.S.C. 1801 et seq.).

(b) **Activities regulated by 16 USCS §§ 951 et seq., 971 et seq.; harvesting of highly migratory species taken on high seas.** The provisions of paragraphs (1), (2)(A), and (3)(A) of subsection 3(a) of this Act [16 USCS § 3372(a)(1), (2)(A), (3)(A)] shall not apply to—

(1) any activity regulated by the Tuna Conventions Act of 1950 (16 U.S.C. 951-961) [16 USCS §§ 951 et seq.] or the Atlantic Tunas Convention Act of 1975 (16 U.S.C. 971-971(h)) [16 USCS §§ 971 et seq.]; or

(2) any activity involving the harvesting of highly migratory species (as defined in paragraph (14) of section 3 of the Fishery Conservation and Management Act of 1976 [16 USCS § 1802(14)]) taken on the high seas (as defined in paragraph (13) of such section 3 [16 USCS § 1802(13)]) if such species are taken in violation of the laws of a foreign nation and the United States does not recognize the jurisdiction of the foreign nation over such species.

(c) **Interstate shipment or transshipment through Indian country of fish, wildlife, or plants for legal purposes.** The provisions of paragraph (2) of subsection 3(a) of this Act [16 USCS § 3372(a)(2)] shall not apply to the interstate shipment or transshipment through Indian country as defined in section 1151 of title 18, United States Code [18 USCS § 1151], or a State of any fish or wildlife or plant legally taken if the shipment is en route to a State in which the fish or wildlife or plant may be legally possessed. (Nov. 16, 1981, P. L. 97-79, § 8, 95 Stat. 1078.)

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ILLEGALLY TAKEN FISH & WILDLIFE

16 USCS § 3378

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

The "Fishery Conservation and Management Act of 1976", referred to in this section, is Act Apr. 13, 1976, P. L. 94-265, 90 Stat. 331, which was redesignated as the Magnuson Fishery Conservation and Management Act by Act Dec. 22, 1980, Title II, Part C, Subpart 2, § 238(a), 94 Stat. 3300. Such Act Apr. 13, 1976, appears generally as 16 USCS §§ 1801 et seq. For full classification of such Act, consult USCS Tables volumes.

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.

Seizure and forfeiture procedures, 50 CFR Part 12.

§ 3378. Miscellaneous provisions

(a) **Effect on powers of States.** Nothing in this Act shall be construed to prevent the several States or Indian tribes from making or enforcing laws or regulations not inconsistent with the provisions of this Act.

(b) **Repeals.** The following provisions of law are repealed:

(1) The Act of May 20, 1926 (commonly known as the Black Bass Act; 16 U.S.C. 851-856) [16 USCS §§ 851 et seq.].

(2) Section 5 of the Act of May 25, 1900 (16 U.S.C. 667e) [16 USCS § 667e], and sections 43 and 44 of title 18, United States Code (commonly known as provisions of the Lacey Act) [18 USCS §§ 43, 44].

(3) Sections 3054 and 3112 of title 18, United States Code [18 USCS §§ 3054, 3112].

(c) **Disclaimers.** Nothing in this Act shall be construed as—

(1) repealing, superseding, or modifying any provision of Federal law other than those specified in subsection (b);

(2) repealing, superseding, or modifying any right, privilege, or immunity granted, reserved, or established pursuant to treaty, statute, or executive order pertaining to any Indian tribe, band, or community; or

(3) enlarging or diminishing the authority of any State or Indian tribe to regulate the activities of persons within Indian reservations.

[(d)] (g) **Travel and transportation expenses.** The Secretary of the Interior is authorized to pay from agency appropriations the travel expense of newly appointed special agents of the United States Fish and Wildlife Service and the transportation expense of household goods and personal effects from place of residence at time of selection to first duty station to the extent authorized by section 5724 of title 5 [5 USCS § 5724] for all such special agents appointed after January 1, 1977.

[(e)] (h) Interior appropriations budget proposal. The Secretary shall identify the funds utilized to enforce this Act and any regulations thereto as a specific appropriations item in the Department of the Interior appropriations budget proposal to the Congress.

(Nov. 16, 1981, P. L. 97-79, § 9(a)-(c), (g), (h), 95 Stat. 1079, 1080.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1073, which appears generally as 16 USCS §§ 3371 et seq. For full classification of this Act, consult USCS Tables volumes.

Explanatory notes:

The bracketed subsec. designators "(d)" and "(e)" are inserted to maintain logical sequence since this section consists of subsecs. (a)-(c), (g) and (h) of § 9 of Act Nov. 16, 1981, P. L. 97-79, 95 Stat. 1079, 1080. Subsec. (d) of such § 9 amended 18 USCS § 42(c); subsec. (e) amended 16 USCS § 1540(d); and subsec. (f) added 16 USCS § 1540 note.

CODE OF FEDERAL REGULATIONS

National Oceanic and Atmospheric Administration, civil procedures, 15 CFR Part 904.

United States Fish, Wildlife Service, civil procedures, 50 CFR Part 11.

Seizure and forfeiture procedures, 50 CFR Part 12.

UNITED STATES of America, Plaintiff,

v.

ARTICLES OF FOOD BUF-
FALO JERKY, etc., Defendant.

Civ. No. 77-0-349.

United States District Court,
D. Nebraska.

July 12, 1978.

United States brought action seeking to condemn certain food substance pursuant to the Food, Drug and Cosmetic Act. On cross motions for summary judgment, the District Court, Schatz, J., held that: (1) where bison meat food product contained as component parts the items sodium nitrate and sodium nitrite and the use of such items in conjunction with processing bison meat was not generally recognized among experts as being safe, food substance met definition of food additive within meaning of Food, Drug and Cosmetic Act; (2) bison meat food product was not within purview of Meat Inspection Act and (3) use of food additives sodium nitrate and sodium nitrite in bison meat food product was not approved by the Secretary of Health, Education and Welfare and thus was unsafe within meaning of Food, Drug and Cosmetic Act so that food product was adulterated and subject to seizure.

Government's motion granted.

1. Food ⇐ 5

Where food substance made from bison meat contained as component parts the items sodium nitrate and sodium nitrite and use of such items in conjunction with processing bison meat was not generally recognized among experts as being safe, food substance contained a "food additive" within meaning of Food, Drug and Cosmetic Act for purpose of determining whether food substance was adulterated and should be condemned. Federal Food, Drug and Cosmetic Act, §§ 201(s), 304, 402(a)(2)(C), 409, 21 U.S.C.A. §§ 321(s), 334, 342(a)(2)(C), 348.

2. Food ⇐ 5

Meat Inspection Act is not intended to derogate from any authority conferred by the Food, Drug and Cosmetic Act but creates a separate area of concern, meat and meat by-products for human consumption, over which Department of Agriculture is given additional powers in interest of protecting public health and welfare. Federal Food, Drug and Cosmetic Act, § 1 et seq., 21 U.S.C.A. § 301 et seq.; Federal Meat Inspection Act, §§ 2, 409, 21 U.S.C.A. §§ 602, 679.

3. Food ⇐ 5

Food substance made from bison meat was not within purview of Meat Inspection Act; therefore, exemption to definition of food additive contained in Food, Drug and Cosmetic Act for substances used in accordance with sanction or approval granted pursuant to Meat Inspection Act was not applicable as to such food substance. Federal Food, Drug and Cosmetic Act, §§ 201(s), 402(a)(2)(C), 21 U.S.C.A. §§ 321(s), 342(a)(2)(C); Federal Meat Inspection Act, §§ 1 et seq., 1(j), 2, 409, 21 U.S.C.A. §§ 601 et seq., 601(j), 602, 679.

4. Food ⇐ 2

Language of section of Food, Drug and Cosmetic Act that a use is deemed to be unsafe for purposes of the Act unless an exemption is granted by the Secretary of Health, Education and Welfare upon proper application or unless use is in accordance with a regulation prescribed by the Secretary establishes a presumption that food additives are unsafe unless one of exceptions is established. Federal Food, Drug and Cosmetic Act, § 409, 21 U.S.C.A. § 348.

5. Food ⇐ 5, 24(1)

Use of food additives sodium nitrate and sodium nitrite in bison meat food product was not approved by the Secretary of Health, Education and Welfare and thus was unsafe within meaning of Food, Drug and Cosmetic Act so that food product was adulterated and subject to seizure. Federal Food, Drug and Cosmetic Act, §§ 201(s), 304, 402(a)(2)(C), 409, 21 U.S.C.A. §§ 321(s), 334, 342(a)(2)(C), 348.

present fifty-five mile and forty mile per hour limitations on the interstate be lowered significantly major traffic problems particularly during rush ing on the interstate safe for all concerned if for bicycles were built ere added to separate the automobile lanes. specifically not asked e lanes be constructed They argue only that be allowed to drive on presently exist, using their bicycle lane with width of the shoulder bridge should be in eet by decreasing the obile lane by one foot. inds that bicycle riders dges, whether in the on the shoulder lane, and unsafe condition. of this court that the c on the interstate sion of bicycles is a e police power and is ricious. See *Garneau legers-Forbes, Inc. v. Authority, supra.*³ t the defendants have establishing that the are a reasonable ex- ver for the protection and welfare of the the plaintiffs' claim ed. A separate order y in accordance with ion.

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Edward G. Warin, U. S. Atty., Robert F. Kokrda, Asst. U. S. Atty., Omaha, Neb., Stephen D. Terman, U.S. Food and Drug Admin., U. S. Dept. Health, Education and Welfare, Rockville, Md., for plaintiff.

Jeffrey A. Silver, Omaha, Neb., for defendant.

MEMORANDUM OPINION

SCHATZ, District Judge.

The United States of America brought this action seeking to condemn certain food substances pursuant to the Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 301, *et seq.* (hereafter referred to as "the Act"). The United States Marshal seized the substances identified in the complaint and the owner intervened to file a claim for return thereof. Each party filed a motion for summary judgment, the parties entered into a stipulation of facts (Filing No. 11) and the matter has been submitted for determination following a hearing.

At issue is a food substance made from the following ingredients: buffalo (bison) meat, textured vegetable protein, hydrolyzed vegetable protein, salt, spices, flavoring, sodium erythorbate, sodium nitrate, sodium nitrite, potassium sorbate, water and monosodium glutamate (stipulation at Par. 5). These ingredients are combined into dark brown patties of meat packaged in jars and labeled as set out at Paragraph 3 of the stipulation.

The government seeks to have these food substances condemned pursuant to 21 U.S.C. § 334 which provides in part:

(a)(1) Any article of food, drug, or cosmetic that is adulterated or misbranded when introduced into or while in interstate commerce or while held for sale (whether or not the first sale) after shipment in interstate commerce . . . shall be liable to be proceeded against while in interstate commerce, or at any time thereafter, on libel of information and condemned in any district court of the United States . . .

The parties have by their stipulation agreed that this court has jurisdiction over the instant action, that the food substances at

issue are "articles of food" within the purview of 21 U.S.C. § 334, and in effect, that the food substances have been shipped in interstate commerce in their present condition. The questions presented for determination on summary judgment are whether the food substances are adulterated or misbranded within the meaning of the Act.

The government contends that the food items are adulterated within the meaning of 21 U.S.C. § 342(a)(2)(C) because they contain sodium nitrate and sodium nitrite; that the food items are adulterated within the meaning of 21 U.S.C. § 342(b)(2) because certain plant proteins have been substituted in part for the principal ingredient—bison meat; and that the food items are misbranded within the meaning of 21 U.S.C. § 343(i)(1). The government must prevail on at least one of these allegations to permit the condemnation.

The government contends that the food substance at issue is adulterated within the meaning of 21 U.S.C. § 342(a)(2)(C) which provides in relevant part:

A food shall be deemed to be adulterated—if it is, or it bears or contains, any food additive which is unsafe within the meaning of section 348 of this title

"Food additive" as used in 21 U.S.C. § 342 is defined by 21 U.S.C. § 321(s) as follows:

The term "food additive" means any substance the intended use of which results or may reasonably be expected to result, directly or indirectly, in its becoming a component or otherwise affecting the characteristics of any food . . . if such substance is not generally recognized among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures (or in the case of a substance used in food prior to January 1, 1958, through either scientific procedures or experience based on common use in food) to be safe under the conditions of its intended use; except that such term does not include—

Cite as 456 F.Supp. 207 (1978)

(4) any substance used in accordance with a sanction or approval granted prior to September 6, 1958, pursuant to this chapter, the Poultry Products Inspection Act (21 U.S.C. § 451 and the following) or the Meat Inspection Act of March 4, 1907, as amended and extended;

Title 21, United States Code, Section 348, provides in relevant part as follows:

(a) A food additive shall, with respect to any particular use or intended use of such additives, be deemed to be unsafe for the purposes of the application of clause (2)(C) of section 342(a) of this title, unless—

(1) it and its use or intended use conform to the terms of an exemption which is in effect pursuant to subsection (i) of this section; or

(2) there is in effect, and it and its use or intended use are in conformity with, a regulation issued under this section prescribing the conditions under which such additive may be safely used.

[1] In determining whether the food substance at issue is adulterated within the meaning of 21 U.S.C. § 342(a)(2)(C), the court must first determine whether the food substance contained a "food additive" within the meaning of 21 U.S.C. § 321(s). The definition of "food additive" consists of two elements: (a) the substance must become a component or otherwise affect the characteristics of the food and (b) the substance must lack general recognition among experts as being safe under the conditions of its intended use. The parties have stipulated that the food substance does contain as component parts the items sodium nitrate and sodium nitrite. The affidavits submitted by the government adequately support the conclusion that the use of sodium nitrate and sodium nitrite in conjunction with processing bison meat is not generally recognized among experts as being safe. While the claimant points to other uses of sodium nitrate and sodium nitrite which have been recognized as being safe, these examples are not comparable to the use in this case and so do not refute the government's showing or raise a factual

dispute as to whether the use of these products in bison meat is generally recognized as safe. Accordingly, the court finds that both elements of the definition of food additives have been met.

The claimant contends that these substances are approved for use under the Federal Meat Inspection Act, thus exempting them from the definition of food additives contained in 21 U.S.C. § 321(s) and precluding a determination that the product is adulterated within the meaning of 21 U.S.C. § 342(a)(2)(C). The government responds that this exception is inapplicable since the Meat Inspection Act applies only to meat food products which are defined by 21 U.S.C. § 601(j), as:

any product capable of use as human food which is made wholly or in part from any meat or other portion of the carcass of any cattle, sheep, swine, or goats . . .

This term as applied to food products of equines shall have a meaning comparable to that provided in this paragraph with respect to cattle, sheep, swine, and goats.

Contrary to claimant's assertion that only added substance and not the meat to which it is added must be subject to the Meat Inspection Act, the exemption contained in 21 U.S.C. § 321(s) provides that the use must be "in accordance with a sanction or approval granted pursuant to the Meat Inspection Act." The approval relied on by claimant is found at 9 C.F.R. § 318.7(c)(1), which provides in part:

the following substances may be added to products: common salt, approved sugars . . . sodium nitrate, sodium nitrite, potassium nitrate, potassium nitrite . . .

"Products" as used in this regulation are defined at 9 C.F.R. § 301.2(w) as

Any carcass, meat, meat byproduct, or meat food product, capable of use as human food.

The terms "carcass," "meat," "meat byproduct," and "meat food product" all are defined at 9 C.F.R. § 301(a)(ss) through (vv) in terms of cattle, sheep, swine, goats and equines only. Thus, the issue is whether bison meat is within the purview of the

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Meat Inspection Act when the term is not specifically included. Only if it is, will the use of sodium nitrate and sodium nitrite here be "in accordance with a sanction or approval granted pursuant to the Meat Inspection Act."

The parties have referred the court to no reported cases regarding the applicability of the Meat Inspection Act to buffalo meat. An early Missouri case, *State v. Crenshaw*, 22 Mo. 457 (1856), does stand for the proposition that buffalo, although domesticated, are not cattle within the meaning of a statute making it a crime to "wilfully and maliciously kill, wound or maim any cattle of another." As the policies underlying the Missouri criminal statutes and the Meat Inspection Act are quite different, we do not consider this case to be controlling. We, therefore, turn to the purpose and the language of the Federal Meat Inspection Act to resolve the issue.

[2] The Meat Inspection Act is, by its very terms, designed to protect the health and welfare of consumers:

by assuring that meat and meat food products distributed to them are wholesome, not adulterated, and properly marked, labeled, and packaged.

21 U.S.C. § 602.

As such the Meat Inspection Act is not intended to derogate from any authority conferred by the Federal Food, Drug, and Cosmetic Act. See 21 U.S.C. § 679. Rather the Meat Inspection Act creates a separate area of concern—meat and meat byproducts for human consumption—over which the Department of Agriculture is given additional powers in the interest of protecting the public health and welfare.

[3] The Meat Inspection Act specifically delineates the food products subject to its provisions, listing only foods derived from cattle, sheep, swine, goats and equines. Other food products are regulated under the Food, Drug and Cosmetic Act. In view of the safeguards of testing and regulation of ingredients set forth in the comprehensive regulations promulgated pursuant to the Food, Drug and Cosmetic Act, the court finds that food products derived from bison

meat will be adequately regulated for the protection of the public health and welfare under either the Food, Drug and Cosmetic Act or the Meat Inspection Act. In the absence of a congressional determination to include bison meat within the more limited coverage of the Meat Inspection Act, this court is unwilling to judicially extend the provisions of the Meat Inspection Act to do so. Accordingly, the court finds that the government correctly seeks to apply the provisions of the Food, Drug and Cosmetic Act to the food products at issue in this case. Therefore, the exception to the definition of food additives contained in 21 U.S.C. § 321(s) for substances used in accordance with a sanction or approval granted pursuant to the Meat Inspection Act is not applicable.

[4, 5] Having determined that sodium nitrate and sodium nitrite are food additives within the meaning of 21 U.S.C. § 342(a)(2)(C), the court now turns to the question of whether or not these additives are "unsafe within the meaning of Section 348 of this Title." Under the provisions of Section 348, a use is deemed to be unsafe for purposes of the Act unless an exemption is granted by the Secretary of Health, Education and Welfare upon proper application or unless the use is in accordance with a regulation prescribed by the Secretary. The language of the statute establishes a presumption that the food additives are unsafe unless one of the exceptions is established. The court has carefully examined the regulations promulgated by the Secretary but has been unable to identify any regulations which are applicable to the instant use of the food additives sodium nitrate and sodium nitrite. The claimant has failed to demonstrate either an exemption or investigative use or a regulation permitting such use. Accordingly, the court finds that the claimant's use of the food additives sodium nitrate and sodium nitrite are not approved by the Secretary and, therefore, are unsafe within the meaning of Section 348 of Title 21, United States Code.

Having determined that the food product at issue is a food which contains a food

additive which is unsafe within the meaning of Section 348, the court now finds that this food product shall be deemed to be adulterated within the meaning of 21 U.S.C. § 342(a)(2)(C) and subject to seizure pursuant to 21 U.S.C. § 334. As a sufficient basis exists pursuant to 21 U.S.C. § 342(a)(2)(C) for the condemnation of the food products seized by the United States Marshal, this court does not address the alternative allegations of adulteration and misbranding which have been argued by the government.

A separate decree will be entered this day denying claimant's motion for summary judgment, granting summary judgment for the plaintiff, and decreeing the food products at issue to be adulterated within the meaning of the Food, Drug and Cosmetic Act and subject to condemnation. Within twenty days following entry of this order, the parties shall submit to the court for its approval a proposed method for disposition of the condemned goods. The costs of this action shall be taxed against the claimant in accordance with 21 U.S.C. § 334(e).



UNITED STATES of America

v.

William REILLY.

Crim. No. 77-476.

United States District Court,

E. D. Pennsylvania.

July 18, 1978.

Defendant found guilty by jury on two-count indictment charging attempted extortion in violation of the Hobbs Act filed motion for judgment of acquittal or, in the alternative, for arrest of judgment or for new trial. The District Court, Raymond J. Broderick, J., held that: (1) evidence sup-

ported defendant's convictions; (2) the indictment was not invalid because it was based on hearsay evidence presented to the grand jury, and (3) the trial court did not err in refusing defendant's request for production of FBI reports of interviews with the victim or transcripts of the victim's testimony before the grand jury.

Motions denied.

1. Extortion ⇌ 15

Evidence supported findings that defendant director of facilities at college violated Hobbs Act by demanding cash payment from contractor in order to be awarded bid contract and to be assured of expedited payment from state and that, in doing so, defendant acted under "color of office." 18 U.S.C.A. § 1951.

2. Extortion ⇌ 1

Threats ⇌ 1(1)

Extortion under Hobbs Act can be established either when property is obtained through use of fear or by one acting under color of official rights; "fear" within meaning of Hobbs Act embraces fear of economic loss as well as fear of physical violence. 18 U.S.C.A. § 1951.

See publication Words and Phrases for other judicial constructions and definitions.

3. Threats ⇌ 7

Evidence, in Hobbs Act prosecution, supported finding that victim was placed in fear of economic loss by defendant's actions. 18 U.S.C.A. § 1951.

4. Extortion ⇌ 6

In order to find that defendant director of facilities at college, in Hobbs Act prosecution, acted "under color of official right" in extorting money from contractors who wished to be awarded bid contracts, ultimate question was not whether defendant in his official capacity had power to control selection of bidders on projects at college, but rather whether it was reasonable for victim to believe that defendant's position gave him such power. 18 U.S.C.A. § 1951.

section 25, east half of section 33, township 5 south, range 5 east, and south half section 30, township 5 south, range 6 east, Black Hills meridian, South Dakota, comprising in part a part of the Harney National Forest. Such lands are hereby made a part of Wind Cave National Park, and shall hereafter be subject to all laws and regulations applicable to such park."

RESEARCH GUIDE

Am Jur:

59 Am Jur 2d, Parks, Squares, and Playgrounds § 4.

§ 141b. Wind Cave National Game Preserve transferred to park

Effective July 1, 1935, the Wind Cave National Game Preserve in the State of South Dakota, be, and the same is hereby, abolished, and all the property, real or personal, comprising the same is hereby transferred to and made a part of the Wind Cave National Park and the same shall hereafter be administered by the Secretary of the Interior as a part of said park, subject to all laws and regulations applicable thereto, for the purposes expressed in the Act of August 10, 1912 (37 Stat. 268-293) [16 USCS § 672], establishing said game preserve.
(June 15, 1935, ch 261, Title VI, § 601, 49 Stat. 383.)

CROSS REFERENCES

This section is referred to in 16 USCS § 715k-1.

RESEARCH GUIDE

Am Jur:

59 Am Jur 2d, Parks, Squares, and Playgrounds § 4

§ 141c. Disposal of surplus buffalo and elk

(a) The Secretary of the Interior is authorized, in his discretion and under regulations to be prescribed by him, to sell or otherwise dispose of the surplus buffalo and elk of the Wind Cave National Park herd.

(b) All moneys received from the sale of any such surplus animals, or products thereof, shall be deposited in the Treasury of the United States as miscellaneous receipts.

(June 16, 1938, ch 459, §§ 1, 2, 52 Stat. 708.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:

Subsecs. (a) and (b) of this section are §§ 1 and 2, respectively, of Act June 16, 1938.

CODE OF FEDERAL REGULATIONS

Disposal of certain wild animals, 36 CFR Part 10.

CONSERVATION

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WIND CAVE NATIONAL PARK

16 USCS § 144

CROSS REFERENCES

Revenues of national parks covered into Treasury, 16 USCS § 452.

RESEARCH GUIDE

Am Jur:
59 Am Jur 2d, Parks, Squares, and Playgrounds § 4.

§ 142. Control; regulations

Wind Cave National Park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be to prescribe such rules and regulations and establish such service as he may deem necessary for the care and management of the same.
(Jan. 9, 1903, ch 63, § 2, 32 Stat. 765.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:
This section is a part of § 2 of Act Jan. 9, 1903. The other part of § 2 of said Act is classified to 16 USCS § 141. See 16 USCS § 141 note.

RESEARCH GUIDE

Am Jur:
59 Am Jur 2d, Parks, Squares, and Playgrounds § 4.

INTERPRETIVE NOTES AND DECISIONS

Land for Wind Cave Park was withdrawn in 1900 and Park was established in 1903. United States v Midwest Oil Co. (1915) 236 US 459, 59 L Ed 673, 35 S Ct 309 (ovrld on other grounds by INS v Chadha, 462 US 919, 77 L Ed 2d 317, 103 S Ct 2764, 13 ELR 20663) as stated in United States v Woodley (CA9 Hawaii) 726 F2d 1328, different results reached on reh. en banc (CA9 Hawaii) 751 F2d 1008.

§ 143. [Repealed]

HISTORY; ANCILLARY LAWS AND DIRECTIVES

This section (Act Jan. 9, 1903, ch 63, § 3, 32 Stat. 765) was repealed by Act Dec. 16, 1930, ch 14, § 1, 46 Stat. 1028. This section related to leases of cavern and lands.

§ 144. [Repealed]

HISTORY; ANCILLARY LAWS AND DIRECTIVES

This section (Act Jan. 9, 1903, ch 63, § 4, 32 Stat. 765) was repealed by Act Dec. 16, 1930, ch 14, § 1, 46 Stat. 1028. This section provided for the disposition of funds from rentals and leases.

THE CODE OF THE LAWS
OF THE
UNITED STATES OF AMERICA

TITLE 21 — FOOD AND DRUGS

CHAPTER 12. MEAT INSPECTION

Section

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- (b) Humane methods of slaughter.
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FOOD AND DRUGS

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513. Inspectors of animals for export; certificates of condition
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515. Inspection of carcasses; meat of which is intended for export
516. Inspectors of carcasses, etc., meat of which is intended for export; certificates of condition
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Auto-Cite: Cases and annotations referred to herein can be further researched through the Auto-Cite[®] computer-assisted research service. Use Auto-Cite to check citations for form, parallel references, prior and later history, and annotation references.

INSPECTION REQUIREMENTS; ADULTERATION AND MISBRANDING

01. Definitions

used in this Act, except as otherwise specified, the following terms shall have the meanings stated below:

The term "Secretary" means the Secretary of Agriculture of the United States or his delegate.

The term "firm" means any partnership, association, or other unincorporated business organization.

The term "meat broker" means any person, firm, or corporation engaged in the business of buying or selling carcasses, parts of carcasses, meat, or food products of cattle, sheep, swine, goats, horses, mules, or other animals on commission, or otherwise negotiating purchases or sales of such

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articles other than for his own account or as an employee of another person, firm, or corporation.

(d) The term "renderer" means any person, firm, or corporation engaged in the business of rendering carcasses or parts or products of the carcasses, of cattle, sheep, swine, goats, horses, mules, or other equines, except rendering conducted under inspection or exemption under title I of this Act [21 USCS §§ 601 et seq.].

(e) The term "animal food manufacturer" means any person, firm, or corporation engaged in the business of manufacturing or processing animal food derived wholly or in part from carcasses, or parts or products of the carcasses, of cattle, sheep, swine, goats, horses, mules, or other equines.

(f) The term "State" means any State of the United States and the Commonwealth of Puerto Rico.

(g) The term "Territory" means Guam, the Virgin Islands of the United States, American Samoa, and any other territory or possession of the United States, excluding the Canal Zone.

(h) The term "commerce" means commerce between any State, any Territory, or the District of Columbia, and any place outside thereof; or within any Territory not organized with a legislative body, or the District of Columbia.

(i) The term "United States" means the States, the District of Columbia, and the Territories of the United States.

(j) The term "meat food product" means any product capable of use as human food which is made wholly or in part from any meat or other portion of the carcass of any cattle, sheep, swine, or goats, excepting products which contain meat or other portions of such carcasses only in a relatively small proportion or historically have not been considered by consumers as products of the meat food industry, and which are exempted from definition as meat food product by the Secretary under such conditions as he may prescribe to assure that the meat or other portions of such carcasses contained in such product are not adulterated and that such products are represented as meat food products. This term as applied to food products of equines shall have a meaning comparable to that provided in this paragraph with respect to cattle, sheep, swine, and goats.

(k) The term "capable of use as human food" shall apply to any carcass, part or product of a carcass, of any animal, unless it is denatured or otherwise identified as required by regulations prescribed by the Secretary to deter its use as human food, or it is naturally inedible by humans.

(l) The term "prepared" means slaughtered, canned, salted, rendered, boned, cut up, or otherwise manufactured or processed.

(m) The term "adulterated" shall apply to any carcass, part thereof, meat or meat food product under one or more of the following circumstances:

- (1) if it bears or contains any poisonous or deleterious substance which

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may render it injurious to health; but in case the substance is not an added substance, such article shall not be considered adulterated under this clause if the quantity of such substance in or on such article does not ordinarily render it injurious to health;

(2)(A) if it bears or contains (by reason of administration of any substance to the live animal or otherwise) any added poisonous or added deleterious substance (other than one which is (i) a pesticide chemical in or on a raw agricultural commodity; (ii) a food additive; or (iii) a color additive) which may, in the judgment of the Secretary, make such article unfit for human food[.];

(B) if it is, in whole or in part, a raw agricultural commodity and such commodity bears or contains a pesticide chemical which is unsafe within the meaning of section 408 of the Federal Food, Drug, and Cosmetic Act [21 USCS § 346a].

(C) if it bears or contains any food additive which is unsafe within the meaning of section 409 of the Federal Food, Drug, and Cosmetic Act [21 USCS § 348].

(D) if it bears or contains any color additive which is unsafe within the meaning of section 721 of the Federal Food, Drug, and Cosmetic Act [21 USCS § 379e]; Provided, That an article which is not adulterated under clause (B), (C), or (D) shall nevertheless be deemed adulterated if use of the pesticide chemical, food additive, or color additive in or on such article is prohibited by regulations of the Secretary in establishments at which inspection is maintained under title I of this Act [21 USCS §§ 601 et seq.];

(3) if it consists in whole or in part of any filthy, putrid, or decomposed substance or is for any other reason unsound, unhealthful, unwholesome, or otherwise unfit for human food;

(4) if it has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health;

(5) if it is, in whole or in part, the product of an animal which has died otherwise than by slaughter;

(6) if its container is composed, in whole or in part, of any poisonous or deleterious substance which may render the contents injurious to health;

(7) if it has been intentionally subjected to radiation, unless the use of the radiation was in conformity with a regulation or exemption in effect pursuant to section 409 of the Federal Food, Drug, and Cosmetic Act [21 USCS § 348];

(8) if any valuable constituent has been in whole or in part omitted or abstracted therefrom; or if any substance has been substituted, wholly or in part therefor; or if damage or inferiority has been concealed in any manner; or if any substance has been added thereto or mixed or packed therewith so as to increase its bulk or weight, or reduce its quality or strength, or make it appear better or of greater value than it is; or

(9) if it is margarine containing animal fat and any of the raw material

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used therein consisted in whole or in part of any filthy, putrid, or decomposed substance.

(n) The term "misbranded" shall apply to any carcass, part thereof, meat or meat food product under one or more of the following circumstances:

(1) if its labeling is false or misleading in any particular;

(2) if it is offered for sale under the name of another food;

(3) if it is an imitation of another food, unless its label bears, in type of uniform size and prominence, the word "imitation" and immediately thereafter, the name of the food imitated;

(4) if its container is so made, formed, or filled as to be misleading;

(5) if in a package or other container unless it bears a label showing (A) the name and place of business of the manufacturer, packer, or distributor; and (B) an accurate statement of the quantity of the contents in terms of weight, measure, or numerical count: Provided, That under clause (B) of this subparagraph (5), reasonable variations may be permitted, and exemptions as to small packages may be established, by regulations prescribed by the Secretary;

(6) if any word, statement, or other information required by or under authority of this Act to appear on the label or other labeling is not prominently placed thereon with such conspicuousness (as compared with other words, statements, designs, or devices, in the labeling) and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use;

(7) if it purports to be or is represented as a food for which a definite and standard of identity or composition has been prescribed by regulations of the Secretary under section 7 of this Act [21 USCS § 607] unless (A) it conforms to such definition and standard, and (B) its label bears the name of the food specified in the definition and standard and, insofar as may be required by such regulations, the common names of optional ingredients (other than spices, flavoring, and coloring) present in such food;

(8) if it purports to be or is represented as a food for which a standard of standards of fill of container have been prescribed by regulations of the Secretary under section 7 of this Act [21 USCS § 607], and it falls below the standard of fill of container applicable thereto, unless its label bears in such manner and form as such regulations specify, a statement that falls below such standard;

(9) if it is not subject to the provisions of subparagraph (7), unless its label bears (A) the common or usual name of the food, if any there be, and in case it is fabricated from two or more ingredients, the common or usual name of each such ingredient; except that spices, flavorings, and coloring may, when authorized by the Secretary, be designated as spices, flavorings, and colorings without naming each: Provided, That, to the extent that compliance with the requirements of clause (B) of this subparagraph (9) is impracticable, or results in deception or unfair competition, exceptions shall be established by regulations promulgated by the Secretary

(10) if it purports to be or is represented for special dietary uses, unless its label bears such information concerning its vitamin, mineral, and other dietary properties as the Secretary, after consultation with the Secretary of Health, Education, and Welfare (Secretary of Health and Human Services), determines to be, and by regulations prescribes as, necessary in order fully to inform purchasers as to its value for such uses;

(11) if it bears or contains any artificial flavoring, artificial coloring, or chemical preservative, unless it bears labeling stating that fact: Provided, That, to the extent that compliance with the requirements of this subparagraph (11) is impracticable, exemptions shall be established by regulations promulgated by the Secretary; or

(12) if it fails to bear, directly thereon or on its container, as the Secretary may by regulations prescribe, the inspection legend and, unrestricted by any of the foregoing, such other information as the Secretary may require in such regulations to assure that it will not have false or misleading labeling and that the public will be informed of the manner of handling required to maintain the article in a wholesome condition.

) The term "label" means a display of written, printed, or graphic matter on the immediate container (not including package liners) of any article.

) The term "labeling" means all labels and other written, printed, or graphic matter (1) upon any article or any of its containers or wrappers, or (2) accompanying such article.

) The term "Federal Food, Drug, and Cosmetic Act" means the Act so entitled, approved June 25, 1938 (52 Stat. 1040) [21 USCS §§ 301 et seq.] and Acts amendatory thereof or supplementary thereto.

The terms "pesticide chemical," "food additive," "color additive," and "agricultural commodity" shall have the same meanings for purposes of this Act as under the Federal Food, Drug, and Cosmetic Act [21 USCS § 301 et seq.]

The term "official mark" means the official inspection legend or any other symbol prescribed by regulations of the Secretary to identify the status of any article or animal under this Act.

The term "official inspection legend" means any symbol prescribed by regulations of the Secretary showing that an article was inspected and passed in accordance with this Act.

The term "official certificate" means any certificate prescribed by regulations of the Secretary for issuance by an inspector or other person performing official functions under this Act.

The term "official device" means any device prescribed or authorized by the Secretary for use in applying any official mark.

arch 4, 1907, ch 2907, Title I, § 1, as added Dec. 15, 1967, P. L. 90-201, § 81 Stat. 584; Oct. 29, 1992, P. L. 102-571, Title I, § 107(14), 106 Stat. 199.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch. 2907.

34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

The bracketed comma was inserted in subsec. (m)(2)(A) to indicate the punctuation probably intended by Congress.

The bracketed words "Secretary of Health and Human Services" are inserted on authority of Act Oct. 17, 1979, P. L. 96-88, Title V, § 509, 93 Stat. 695, which appears as 20 USCS § 3508, and which redesignated the Secretary of Health, Education, and Welfare as the Secretary of Health and Human Services, and provided that any reference to the Secretary of Health, Education, and Welfare, in any law in force on the effective date of such Act Oct. 17, 1979, shall be deemed to refer and apply to the Secretary of Health and Human Services, except to the extent such reference is to a function or office transferred to the Secretary of Education or the Department of Education under such Act Oct. 17, 1979.

Effective date of section:

For the effective date of this section, see the Other provisions note to this section.

Amendments:

1992, Act Oct. 29, 1992, in subsec. (m)(2), in subpara. (D), substituted "721" for "706".

Short title:

Act Dec. 15, 1967, P. L. 90-201, § 1, 81 Stat. 584, provided that "this Act [21 USCS §§ 601 et seq., generally; for full classification of such Act, consult USCS Tables volumes] may be cited as 'Wholesome Meat Act.' and that the provisions of Act March 4, 1907, ch. 2907, appearing as 21 USCS §§ 601 et seq. 'are hereby designated as the 'Federal Meat Inspection Act.'"

Act Oct. 10, 1978, P. L. 95-445, § 1, 92 Stat. 1069 (effective 1 year after enactment on 10/10/78, as provided by § 7 of such Act, which appears as 21 USCS § 603 note), provided: "This Act may be cited as the 'Humane Methods of Slaughter Act of 1978'". For full classification of this Act, consult USCS Tables volumes.

Act Nov. 10, 1986, P. L. 99-641, Title IV, § 401, 100 Stat. 3567, effective on enactment as provided by § 408 of such Act, which appears as 21 USCS § 606 note, provides: "This title may be cited as the 'Processed Products Inspection Improvement Act of 1986'".

Other provisions:

Separability of provisions. Act Dec. 15, 1967, P. L. 90-201, § 19, 81 Stat. 601, provided: "If any provision of this Act or of the amendments made hereby [21 USCS §§ 601 et seq., generally; for full classification, consult USCS Tables volumes] or the application thereof to any person or circumstances is held invalid, the validity of the remainder of the Act [21 USCS §§ 601 et seq., generally; for full classification, consult USCS Tables volumes] and the remaining amendments and of the application of such provision to other persons and circumstances shall not be affected thereby."

1 USCS § 601

Effective date and application of Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, provided:

"This Act [21 USCS §§ 601 et seq.; generally; for full classification, consult USCS Tables volumes] shall become effective upon enactment [enacted Dec. 15, 1967] except as provided in paragraphs (a) through (d):

"(a) The provisions of paragraph (b)(1) and (c) of section 10 and the provisions of section 20 of the Federal Meat Inspection Act, as amended by sections 7 and 10 of this Act [21 USCS §§ 610(b)(1), (c), 620], and the provisions of section 18 of this Act repealing paragraph (b) of section 306 of the Tariff Act of 1930 [repealing of 19 USCS § 1306(b)], shall become effective upon the expiration of sixty days after enactment hereof [enacted Dec. 15, 1967].

"(b) The provisions of title I of the Federal Meat Inspection Act, as amended by this Act [21 USCS §§ 601 et seq.], shall become effective with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof upon the expiration of sixty days after enactment hereof [enacted Dec. 15, 1967].

"(c) Section 11 of this Act, amending section 23, of the Federal Meat Inspection Act [21 USCS § 623], shall become effective upon the expiration of sixty days after enactment hereof [enacted Dec. 15, 1967].

"(d) Section 204 of the Federal Meat Inspection Act, as added by Section 14 of this Act [21 USCS § 644], shall become effective upon the expiration of sixty days after enactment hereof [enacted Dec. 15, 1967]."

Construction of Act Nov. 8, 1990 amendments. For the effect of Act Nov. 8, 1990 amendments on the authority of the Secretary of Health and Human Services and the Secretary of Agriculture, see § 9 of Act Nov. 8, 1990, P. L. 101-535, 104 Stat. 2365, which appears as 21 USCS § 343 note.

CODE OF FEDERAL REGULATIONS

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Definitions, 9 CFR Part 301.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Exports, 9 CFR Part 322.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Transportation, 9 CFR Part 325.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Imported products, 9 CFR Part 327.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Detention; seizure and condemnation; criminal offenses, 9 CFR Part 329.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Special provisions for designated States and territories; and designation of establishments which endanger public health and for such designated establishments, 9 CFR Part 331.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Rules of practice governing proceedings under the Federal Meat Inspection Act, 9 CFR Part 335.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department

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of Agriculture—Fees and charges for inspection services and laboratory accreditation, 9 CFR Part 391.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Sanitation, 9 CFR Part 416.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Hazard analysis and critical control point (HACCP), 9 CFR Part 417.

CROSS REFERENCES

This section is referred to in 15 USCS §§ 2052, 2602; and 21 USCS §§ 607, 673, 676.

RESEARCH GUIDE

Federal Procedure L Ed:

7 Fed Proc L Ed, Consumer Product Safety § 16:15.

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:440-441, 35:444-445, 35:448, 35:454, 35:457, 35:460.

17 Fed Proc L Ed, Health, Education, and Welfare § 42:1071.

Am Jur:

35 Am Jur 2d, Food § 36.

Annotations:

Commerce clause of Federal Constitution as violated by state or local regulation or prohibition affecting business of selling, distributing, packaging, packing, labeling or processing food intended for human consumption. 25 L Ed 2d 846.

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Federal pre-emption of state food labeling legislation or regulation. 79 ALR Fed 181.

Law Review Articles:

Some Problems of the Food Industry Under Federal Regulatory Statutes. 18 Food Drug Cosm L J 154.

Consumer Protection, Beef Producers View. 26 Food Drug Cosm L J 13.

Assuring Product Integrity. 27 Food Drug Cosm L J 27, 1972.

Case for Federal Meat Inspection Examined. 7 J L & Econ 107.

INTERPRETIVE NOTES AND DECISIONS

I. IN GENERAL

1. Generally

2. Purpose

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5. Validity of state law

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8. Injunctions

I. IN GENERAL

1. Generally

Department of Agriculture's legend "inspect for wholesomeness" prescribed by Secretary of Agriculture, conforms to 21 USCS §§ 453, § 601 and is not false or misleading because of possibility that salmonellae may be present in poultry products inspected. American Public Health Ass'n v Buiz (1974) 167 US App DC 93, 511 F.2d 131.

Meat inspectors have considerable discretion determining adulteration or misbranding of meat both in domestic establishments and at ports.

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and denial of admission of meat will be upheld where it is based upon outward conditions of cans and general conditions of ship on which it is transported. *G. A. Portello & Co. v Butz*, DC Dist Col 345 F Supp 1204.

Under definitions contained in 21 USCS §§ 453, 454, Secretary has no authority to balance benefits of additives against their possible carcinogenic properties, but does have discretion, upon finding that such additives are carcinogenic, to promulgate rules and procedures to assure their removal from commerce. (1979) 43 Op Gen No. 19.

Prevention of adulteration of food, and introduction or receipt in interstate commerce of such are central purposes of Food and Drug Act (USCS §§ 301 et seq.). Meat Inspection Act (USCS §§ 601 et seq.), and Poultry Products Inspection Act (21 USCS §§ 451 et seq.). (1979) 43 Op Gen No. 19.

Products derived from bison meat are not covered by Meat Inspection Act (21 USCS et seq.). *United States v Articles of Food*, 10 Jerky (1978, DC Neb) 456 F Supp 207.

Private right of action

Private remedy under Federal Meat Inspection Act (21 USCS §§ 601 et seq.) will be implied if federal meat inspector claiming damage arising out of interference with his contract of sale and with performance of his duties. *z v Monfort of Colorado, Inc.* (1985, CA10 754 F2d 318, cert den (1986) 475 US 1044, 1045, 106 S Ct 1259.

Private right of action exists under 21 USCS et seq. *Mario's Butcher Shop & Food Inc. v Armour & Co.* (1983, ND Ill) 574 F Supp 653.

Nonprofit charitable Massachusetts corporation members promote animal welfare had to obtain state law authorization for injunction, in purchasing their food, and alleging that producers sold veal in Massachusetts contaminated with anti-biotic resistant salmonella, to state claim on which relief could be granted because no private right of action could be under the food, drug, and cosmetic act of (USCS § 301). *Animal Legal Defense Fund, Inc. v Veal Corp.* (1986, DC Mass) 626 F Supp 802 F2d without op (1986, CA1 Mass) 802 F2d

Right of state law

Some Meat Act of 1967 [21 USCS §§ 601 et seq.] preempted certain California statutes and

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regulations pertaining to labelling by weight of packaged goods at retail stores and thus state officials were properly enjoined from enforcing such preempted state laws; however, California standards not in addition to or different from federal net weight labelling standards could be enforced by appropriate state procedures at retail level. *Rath Packing Co. v Becker* (1975, CA9 Cal) 530 F2d 1295, affd (1977) 430 US 519, 51 L Ed 2d 604, 97 S Ct 1305, reh den (1977) 431 US 925, 53 L Ed 2d 240, 97 S Ct 2201.

If area has been pre-empted under Supremacy Clause, as meat ingredient standards have been under Federal Wholesome Meat Act (21 USCS §§ 601 et seq.), subject to exception for intra-state processors, contradictory state law must be held invalid. *American Meat Institute v Ball* (1982, WD Mich) 550 F Supp 285, affd (1984, CA6 Mich) 724 F2d 45.

Various state statutes and regulations were pre-empted by federal law when applied to defendant meat packer's bacon in manner which failed to fully recognize reasonable variations in net weight permitted by federal regulation (9 CFR § 317.2(h)(2)). *People v Rath Packing Co.* (1978, 2nd Dist) 85 Cal App 3d 308, 149 Cal Rptr 431.

II. PRACTICE AND PROCEDURE

6. Adulterated products

Term "adulterated" in Federal Meat Inspection Act was not unconstitutionally vague as applied to defendant convicted of sale and distribution in commerce of adulterated ground beef in violation of 21 USCS §§ 601(m)(3), 510, and 676(a), where term was defined by several simple, commonly used and easily understood terms, including un-sound, unhealthful, and unfit for human food, and doubt that it was adulterated. *United States v Agnew* (1991, CA10 Colo) 931 F2d 1307, 32 Fed Rules Evid Serv 1151, cert den (1991) 502 US 884, 116 L Ed 2d 193, 112 S Ct 237.

Imidazole is industrial chemical that masks normal deterioration or spoilage of meat products and which has not been approved by Food and Drug Administration for use in any foods and has not been approved by Department of Agriculture for use in meat food products; it is considered deleterious substance which, when added to meat food products causes them to be adulterated. *Re Tyson Provision Company, Inc.* (1981) 40 Ag Dec 533.

7. Misbranded products

Secretary of Agriculture had power to prohibit use of word "sausage," as being false and deceptive, when applied to meat food product containing more than 2 per cent added cereal and 3 per cent added water, although product was not un-

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wholesome and did not contain dyes or chemicals. *Houston v St. Louis Independent Packing Co.* (1919) 249 US 479, 63 L Ed 717, 39 S Ct 332.

Sufficient evidence supported conviction of defendants under 21 USCS § 601, for selling misbranded, or mislabeled, and "reworked" meat products, where there was testimony that meat returned because of spoilage was "reworked" and then reshipped; and mislabeling of meat was carried out so as to give the consignee erroneous understanding as to production date. *United States v Cattle King Packing Co.* (1986, CA10 Colo) 793 F2d 232, 21 Fed Rules Evid Serv 59, cert den (1986) 479 US 985, 93 L Ed 2d 577, 107 S Ct 573.

USDA regulation permitting meat products prepared without nitrates or nitrites to be marketed under traditional product names need not require un-cured products to bear label "imitations" as required by 21 USCS § 601(m)(3) since nature of difference between cured and uncured products is not such that latter would be commonly understood to be imitations of former. *National Pork Producers Council v Bergland* (1980, SD Iowa) 484 F Supp 540, rev'd on other grounds (1980, CA8 Iowa) 631 F2d 1353, 15 Env't Rep Cas 1656, cert den (1981) 450 US 912, 67 L Ed 2d 335, 101 S Ct 1350, 15 Env't Rep Cas 1696.

Proposed new product "Potatoes With Corned Beef," consisting of same ingredients as "Corned Beef Hash" except that it contains only 14 percent beef compared to 35 percent beef required by regulations and which looks, tastes and smells like "Corned Beef Hash," and is to be marketed in same type container would be misleadingly labeled and producer must instead use label "Imitation Corned Beef Hash" followed by its ingredients with appropriate explanation of "imitation" label if desired. *Re Cattleberry's Fruit Co.* (1981) 40 Ag Dec 1262.

8. Injunctions

Federal courts should abstain from enjoining criminal prosecutions under state meat inspection act, which sets higher standards than similar federal legislation. *Armour & Co. v Ball* (1971, WD Mich) 331 F Supp 938, rev'd on other grounds (1972, CA6 Mich) 468 F2d 76, cert den (1973) 411 US 981, 36 L Ed 2d 957, 93 S Ct 2267.

Preliminary injunction would issue to prevent enforcement of regulations promulgated by De-

21 USCS § 602

Department of Agriculture governing use of mechanically deboned meat (MDM) as constituent element of certain food products where Secretary failed to conform with rule-making requirements of 5 USCS § 553 and where likelihood existed that Secretary's approval of use of MDM in certain processed foods would be found clearly erroneous. *Community Nutrition Institute v Butz* (1976, DC Dist Col) 420 F Supp 751.

Preliminary injunction requested by associations of packers and processors of meat and poultry products, among others, to prevent Department of Agriculture from paying for, using, receiving or considering study provided by consumer organization, which analyzed economic impact of regulations concerning shrinking of meat and poultry during distribution, would not be granted since it was unlikely that plaintiffs would prevail on merits on principle arguments that Department of Agriculture lacked authority to fund participation in rulemaking, and that it discriminated against plaintiffs by extending Regulatory comment period for consumer organization. *Chamber of Commerce v United States Dept of Agriculture* (1978, DC Dist Col) 459 F Supp 216, 8 ELR 20754.

Nonprofit charitable Massachusetts corporation whose members promote animal welfare had sought to obtain state law authorization for injunctive relief, in purchasing their food, and alleging that veal producers sold veal in Massachusetts contaminated with anti-biotic resistant salmonella, failed to state claim on which relief could be granted because no private right of action could be implied under the food, drug, and cosmetic act of 21 USCS § 301. *Animal Legal Defense Fund, Inc. v Provident Veal Corp.* (1986, DC Mass) 626 F Supp 278, aff'd without op (1986, CA1 Mass) 802 F2d 440.

Preliminary injunction preventing implementation of new USDA *e. coli* sampling program is denied, where food industry associations challenge decision to consider *e. coli* as "adulterant" under 21 USCS § 601(m)(1), even though other courts have held that other pathogens, such as salmonella, are not adulterants, because evidence submitted indicates *e. coli* is substance that renders "injurious to health" what many Americans believe to be properly cooked ground beef. *Texas Food Indus. Ass'n v Espy* (1994, WD Tex) 870 F Supp 143.

§ 602. Congressional statement of findings

Meat and meat food products are an important source of the Nation's total supply of food. They are consumed throughout the Nation and the major portion thereof moves in interstate and foreign commerce. It is essential in the public interest that the health and welfare of consumers be protected by assuring that meat and meat food products distributed to them are wholesome, not adulterated, and properly marked, labeled, and packaged. Unwholesome,

21 USCS § 602

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labeled, or misbranded meat or meat food products impair the effective regulation of meat and meat food products in interstate or foreign commerce, are injurious to the public welfare, destroy markets for wholesome, not adulterated, and properly labeled and packaged meat and meat food products, and result in sundry losses to livestock producers and processors of meat and meat food products, as well as injury to consumers. The unwholesome, adulterated, mislabeled, or deceptively packaged articles can be sold at lower prices and compete unfairly with the wholesome, not adulterated, and properly labeled and packaged articles, to the detriment of consumers and the public generally. It is hereby found that all articles and animals which are regulated under this Act are either in interstate or foreign commerce or substantially affect such commerce, and that regulation by the Secretary and cooperation by the States and other jurisdictions as contemplated by this Act are appropriate to prevent and eliminate burdens upon such commerce, to effectively regulate such commerce, and to protect the health and welfare of consumers.

March 4, 1907, ch 2907, Title I, § 2, as added Dec. 15, 1967, P. L. 90-201, § 2, 81 Stat. 587.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Effective date of section:

For the effective date and application of this section, see the Other provisions note to this section.

Other provisions:

Effective date and application of section. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such section is effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

RESEARCH GUIDE

Federal Procedure I. Ed:

13 Fed Proc L. Ed. Food, Drugs, and Cosmetics § 35:440.

17 Fed Proc L. Ed. Health, Education, and Welfare § 42:1071.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Law Review Articles:

Attaining Our Objectives in Food. 27 Food Drug Cosm L J 64, 1972.
Safe Suppliers in the Seventies. 27 Food Drug Cosm L J 87, 1972.

MEAT INSPECTION

21 USCS § 603

§ 603. Inspection of meat and meat food products

(a) Examination of animals before slaughtering; diseased animals slaughtered separately and carcasses examined. For the purpose of preventing the use in commerce of meat and meat food products which are adulterated, the Secretary shall cause to be made, by inspectors appointed for that purpose, an examination and inspection of all cattle, sheep, swine, goats, horses, mules, and other equines before they shall be allowed to enter into any slaughtering, packing, meat-canning, rendering, or similar establishment in which they are to be slaughtered and the meat and meat food products thereof are to be used in commerce; and all cattle, swine, sheep, goats, horses, mules, and other equines found on such inspection to show symptoms of disease shall be set apart and slaughtered separately from all other cattle, sheep, swine, goats, horses, mules, or other equines; and when so slaughtered the carcasses of said cattle, sheep, swine, goats, horses, mules, or other equines shall be subject to a careful examination and inspection, all as provided by the rules and regulations to be prescribed by the Secretary, as herein provided for.

(b) Humane methods of slaughter. For the purpose of preventing the inhumane slaughtering of livestock, the Secretary shall cause to be made, by inspectors appointed for that purpose, an examination and inspection of the method by which cattle, sheep, swine, goats, horses, mules, and other equines are slaughtered and handled in connection with slaughter in the slaughtering establishments inspected under this Act. The Secretary may refuse to provide inspection to a new slaughtering establishment or may cause inspection to be temporarily suspended at a slaughtering establishment if the Secretary finds that any cattle, sheep, swine, goats, horses, mules, or other equines have been slaughtered or handled in connection with slaughter at such establishment by any method not in accordance with the Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1905) until the establishment furnishes assurances satisfactory to the Secretary that all slaughtering and handling in connection with slaughter of livestock shall be in accordance with such method.

(March 4, 1907, ch 2907, Title I, § 3, 34 Stat. 1260; Dec. 15, 1967, P. L. 90-201, §§ 1, 3, 12(a), (b), 81 Stat. 584, 588, 592; Oct. 10, 1978, P. L. 95-445 § 2, 92 Stat. 1069.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

"The Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1906)", referred to in this section, is Act Aug. 27, 1958, P. L. 85-765, 72 Stat. 862, which appears as 7 USCS §§ 1901 et seq.; however, 7 USCS §§ 1903 and 1905 were repealed by Act Oct. 10, 1978, P. L. 95-445, § 5(b), effective as provided by § 7 of such Act, which appears as a note to this section.

Explanatory notes:

This section formerly appeared as 21 USCS § 71.

Amendments:

1967, Act Dec. 15, 1967, deleted "interstate or foreign" preceding "commerce" wherever appearing, substituted "Secretary shall" for "Secretary of Agriculture, at his discretion, may", deleted "of Agriculture" following "Secretary" wherever appearing, substituted "cattle, sheep, swine, goats, horses, mules, and other equines" for "cattle, sheep, swine, and goats" wherever appearing, and substituted "cattle, sheep, swine, goats, horses, mules, or other equines" for "cattle, sheep, swine, or goats" wherever appearing, and substituted "adulterated" for "unsound, unhealthful, unwholesome, or otherwise unfit for human food".

1978, Act Oct. 10, 1978 designated the existing provisions as subsec. (a); and added subsec. (b).

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the first paragraph of Act March 4, 1907, ch 2907, Title 1, 34 Stat. 1260, as § 3 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

Religious freedom; ritual slaughter. Act Oct. 10, 1978, P. L. 95-445, § 6, 92 Stat. 1070 (effective as provided by § 7, which appears as a note to this section), provided: "Nothing in this Act [this section, among other things; for full classification, consult USCS Tables volumes] shall be construed to prohibit, abridge, or in any way hinder the religious freedom of any person or group. Notwithstanding any other provision of this Act [this section, among other things; for full classification, consult USCS Tables volumes], in order to protect freedom of religion, ritual slaughter and the handling or other preparation of livestock for ritual slaughter are exempted from the terms of this Act [this section, among other things; for full classification, consult USCS Tables volumes]. For the purposes of this section the term 'ritual slaughter' means slaughter in accordance with section 2(b) of the Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1902(b) [7 USCS § 1902(b)])."

Effective date and application of amendments made by Act Oct. 10, 1978; exceptions. Act Oct. 10, 1978, P. L. 95-445, § 7, 92 Stat. 1070, provided: "The provisions of this Act [amending this section, among other things; for full classification, consult USCS Tables volumes] shall become effective one year after the date of enactment [enacted Oct. 10, 1978]. However, such provisions shall not apply to a person, firm, or corporation for such additional period of time, not to exceed eighteen months, as may be determined by the Secretary, if the Secretary, upon application, finds that compliance with the provisions of this Act on its

effective date would cause undue hardship on such person, firm, or corporation."

RESEARCH GUIDE**Federal Procedure L Ed:**

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:440, 35:458.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Law Review Articles:

Case for the Factory Inspection Amendment. 18 Bus Law 203.

INTERPRETIVE NOTES AND DECISIONS

1. Generally dealer engaged in both interstate and intrastate commerce. *Tovrea Packing Co. v Live Stock Comm.*, 1934, 44 Ariz 151, 34 P2d 420.
2. Applicability City ordinance which created "packing inspector" whose duty it was to inspect of brought in from outside county, and inspection charge upon importers, was interference with interstate commerce, and *Armour & Co. v City Council of August*, 134 Ga 178, 67 SE 417.
3. Validity of state law City ordinance which required inspection of meat products not subject to federal inspection not invalid. *Baltimore v Bloecher & Sch* (1926) 149 Md 648, 132 A 160, aff'd (1927) 490, 72 L Ed 389, 48 S Ct 33.
4. Civil liability

1. Generally It was not crime for inspected establishment to ship unwholesome meats, providing inspection laws have been fully complied with. *United States v Rohe & Bro.* (1914, DC NY) 218 F 182.

Stamping of government inspection brand upon wrappers containing government-inspected hams which had been boiled after inspection was unlawful. *Armour & Co. v United States* (1915, 3 Pa) 222 F 233.

2. Applicability

Oleo oil made from fat of slaughtered bees and mainly usable in preparing foods, although seldom used as food itself, was meat food product subject to inspection notwithstanding manufacturer branding it "inedible" and not offering it for food uses. *Pittsburgh Melting Co. v Totten* (1918) 248 US 1, 63 L Ed 97, 39 S Ct 3, 16 Ohio 373.

Oleomargarine compounded in part of oleo oil and neutral lard was meat food product subject to inspection. *Brougham v Blanton Mfg. Co.* (1919) 249 US 495, 63 L Ed 725, 39 S Ct 363.

Predecessor to this section did not provide standards for sausages. *St. Louis Independent Packing Co. v Houston* (1914, 8 Mo) 215 F 553.

3. Validity of state law

Former Meat Inspection Act of August 30, 1890 did not deprive state of its police powers to regulate sales in prevention of fraud and deception. *Crossman v Lurman* (1904) 192 US 189, 48 L Ed 401, 24 S Ct 234.

State statute which required inspection of meat and imposed inspection fee whether or not meat carried federal inspection tag was valid as to meat

dealer engaged in both interstate and intrastate commerce. *Tovrea Packing Co. v Live Stock Comm.*, 1934, 44 Ariz 151, 34 P2d 420.

City ordinance which created "packing inspector" whose duty it was to inspect of brought in from outside county, and inspection charge upon importers, was interference with interstate commerce, and *Armour & Co. v City Council of August*, 134 Ga 178, 67 SE 417.

City ordinance which required inspection of meat products not subject to federal inspection not invalid. *Baltimore v Bloecher & Sch* (1926) 149 Md 648, 132 A 160, aff'd (1927) 490, 72 L Ed 389, 48 S Ct 33.

4. Civil liability

Where hog was ordered by federal meat inspector to be destroyed, seller could not maintain action against packing house for purchase; cause, such hog was not returned to him was duty of inspector to slaughter and hog found with symptoms of disease. *Wes Dakota Packing & Shipping Co.* (1920) 41 180 NW 510.

Although cattle was inspected by government inspector, master was not relieved of his duty to exercise ordinary and reasonable care for safety of his servant to prevent such from coming in contact with diseased meat. *O'Connor v Armour Packing Co.* (1908) 158 F 241.

Inspection by government officials of meats did not relieve packers from liability for negligence on their part to any one injured. *Ketterer v Armour & Co.* (1917, 2 NY) 217.

Federal statutes providing for meat inspection by government officers did not relieve packers of liability for damages where he made no provision for inspection of meat. *Wholesale Food Co. v* (1915) 251 Pa 52, 95 A 931.

604. Post mortem examination of carcasses and marking or labeling; destruction of carcasses condemned; reinspection

For the purposes hereinbefore set forth the Secretary shall cause to be made by inspectors appointed for that purpose a post-mortem examination and inspection of the carcasses and parts thereof of all cattle, sheep, swine, goats, horses, mules, and other equines to be prepared at any slaughtering, meat-canning, salting, packing, rendering, or similar establishment in any State, Territory, or the District of Columbia as articles of commerce which are capable of use as human food; and the carcasses and parts thereof of all such animals found to be not adulterated shall be marked, stamped, tagged, or labeled as "inspected and passed"; and said inspectors shall label, mark, stamp, or tag as "inspected and condemned" all carcasses and parts thereof if animals found to be adulterated; and all carcasses and parts thereof thus inspected and condemned shall be destroyed for food purposes by the said establishment in the presence of an inspector, and the Secretary may remove inspectors from any such establishment which fails to so destroy any such condemned carcass or part thereof, and said inspectors, after said first inspection, shall, when they deem it necessary, reinspect said carcasses or parts thereof to determine whether since the first inspection the same have become adulterated, and if any carcass or any part thereof shall, upon examination and inspection subsequent to the first examination and inspection, be found to be adulterated, it shall be destroyed for food purposes by the said establishment in the presence of an inspector, and the Secretary may remove inspectors from any establishment which fails to so destroy any such condemned carcass or part thereof.

March 4, 1907, ch. 2907, Title I, § 4, 34 Stat. 1260; Dec. 15, 1967, P. L. 90-201, §§ 1, 3, 4, 12(a)-(d), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**Explanatory notes:**

This section formerly appeared as 21 USCS § 72.

Amendments:

1967, Act Dec. 15, 1967, deleted "interstate or foreign" preceding "commerce"; deleted "of Agriculture" following "Secretary" wherever appearing, deleted "for human consumption" preceding "at any slaughtering", deleted "for transportation or sale" following "District of Columbia", inserted "which are capable of use as human food", deleted "and" preceding "goats", inserted "horses, mules, and other equines", substituted "not adulterated" for "sound, healthful, wholesome, and fit for human food", substituted "adulterated" for "unsound, unhealthful, unwholesome, or otherwise unfit for human food" and substituted "adulterated" for "unsound, unhealthful, unwholesome, or in any way unfit for human food".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the second paragraph of Act March 4, 1907, ch. 2907, Title I, 34 Stat. 1260, as § 4 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967, Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

RESEARCH GUIDE**Federal Procedure L. Ed.:**

13 Fed Proc L. Ed, Food, Drugs, and Cosmetics §§ 35:440, 35:447, 35:458.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

§ 605. Examination of carcasses brought into slaughtering or packing establishments, and of meat food products issued from any returned thereto; conditions for entry

The foregoing provisions shall apply to all carcasses or parts of carcasses, cattle, sheep, swine, goats, horses, mules, and other equines, or the meat or meat products thereof which may be brought into any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and such examination and inspection shall be had before the said carcasses or parts thereof shall be allowed to enter into any department wherein the same are to be treated and prepared for meat food products; and the foregoing provisions shall also apply to all such products, which, after having been issued from any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, shall be returned to the same or to any similar establishment where such inspection is maintained. The Secretary may limit the entry of carcasses, parts of carcasses, meat and meat food products, and other materials into any establishment at which inspection under this title is required by 21 USCS §§ 601 et seq. It is maintained, under such conditions as he may prescribe to assure that allowing the entry of such articles into such inspection establishments will be consistent with the purposes of this Act. (March 4, 1907, ch. 2907, Title I, § 5, 34 Stat. 1261; Dec. 15, 1967, P. L. 90-201, §§ 1, 5, 12(a), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**References in text:**

"This Act", referred to in this section, is Act March 4, 1907, ch. 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 73.

Amendments:

1967. Act Dec. 15, 1967, deleted "and" before "goats", inserted "horses, mules, and other equines", and added the sentence beginning "The Secretary may limit . . .".

Redesignations:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the third paragraph of Act March 4, 1907, ch. 2907, Title I, § 34 Stat. 1261, as § 5 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

RESEARCH GUIDE**Federal Procedure L Ed:**

13 Fed Proc L Ed, Food, Drugs, and Cosmetics § 35:440, 35:458.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

606. Inspectors of meat food products; marks of inspection; destruction of condemned products; products for export

or the purposes hereinbefore set forth the Secretary shall cause to be made, inspectors appointed for that purpose, an examination and inspection of all meat food products prepared for commerce in any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and for the purposes of any examination and inspection said inspectors shall have access all times, by day or night, whether the establishment be operated or not, every part of said establishment; and said inspectors shall mark, stamp, or label as "Inspected and passed" all such products found to be not adulterated; and said inspectors shall label, mark, stamp, or tag as "Inspected and condemned" all such products found adulterated, and all such condemned meat food products shall be destroyed for food purposes, as hereinbefore provided, and the Secretary may remove inspectors from any establishment which fails to so destroy such condemned meat food products: *Provided*, That subject to the rules and regulations of the Secretary the provisions hereof in regard to preservatives shall not apply to meat food products for export to any foreign country and which are prepared or packed according to the specifications or directions of the foreign purchaser, when such substance is used in the preparation or packing thereof in conflict with

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the laws of the foreign country to which said article is to be exported; but said article shall be in fact sold or offered for sale for domestic use or consumption then this proviso shall not exempt said article from the operation of all the other provisions of this Act.

(March 4, 1907, ch. 2907, Title I, § 6, 34 Stat. 1261; Dec. 15, 1967, P. L. 90-201, §§ 1, 3, 12(e), 81 Stat. 584, 588, 592; Nov. 10, 1986, P. L. 99-641, Title IV, § 403(a), 100 Stat. 3567.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**References in text:**

"This Act", referred to in this section, is Act March 4, 1907, ch. 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 74.

Amendments:

1967. Act Dec. 15, 1967, deleted "interstate or foreign" preceding "commerce", deleted "of Agriculture" following "Secretary" wherever appearing, substituted "not adulterated" for "sound, healthful, and wholesome, and which contain no dyes, chemicals, preservatives, or ingredients which render such meat or meat food products unsound, unhealthful, unwholesome, or unfit for human food", and substituted "adulterated" for "unsound, unhealthful, and unwholesome, or which contain dyes, chemicals, preservatives, or ingredients which render such meat or meat food products unsound, unhealthful, unwholesome, or unfit for human food".

1986. Act Nov. 10, 1986 (effective only during the 6-year period beginning on the date of enactment, as provided by § 403(a) of such Act), substituted

"(a)(1) For the purposes set forth in the preceding provisions of this Act, the Secretary shall cause to be made, by inspectors appointed for that purpose, an examination and inspection of meat food products prepared for commerce in any slaughtering, meat-canning, salting, packing, rendering, or similar establishment.

"(2) Such examination and inspection shall be conducted with such frequency and in such manner as the Secretary considers necessary, as provided in rules and regulations issued by the Secretary, taking into account such factors as the Secretary considers to be appropriate, including—

"(A) the nature and frequency of the processing operations at such establishment;

"(B) the adequacy and reliability of the processing controls and sanitary procedures at such establishment; and

"(C) the history of compliance with inspection requirements in effect under this Act, by the operator of such establishment or anyone responsibly connected with the business (as described in section 401(g)) that operates such establishment.

"(b)(1) All such products found by any of such inspectors and by the

operator of such establishment to be not adulterated shall be marked, stamped, tagged, or labeled as 'inspected and passed'.

"(2) All such products found by any of such inspectors or by the operator of such establishment to be adulterated shall be marked, stamped, tagged, or labeled as 'inspected and condemned'. Each such condemned product shall be destroyed for human food purposes. The Secretary may suspend inspection at, and remove inspectors from, any establishment that fails to so condemn adulterated meat food products or fails to so destroy condemned meat food products.

"(c) For purposes of any examination and inspection, such inspectors shall have access to every part of an establishment at all times, by day or night, and without regard to whether such establishment is operated.

"(d) Notwithstanding the preceding provisions of this section,"

for "For the purposes hereinbefore set forth the Secretary shall cause to be made, by inspectors appointed for that purpose, an examination and inspection of all meat food products prepared for commerce in any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and for the purposes of any examination and inspection said inspectors shall have access at all times, by day or night, whether the establishment be operated or not, to every part of said establishment; and said inspectors shall mark, stamp, tag, or label as 'inspected and passed' all such products found to be not adulterated; and said inspectors shall label, mark, stamp, or tag as 'inspected and condemned' all such products found adulterated, and all such condemned meat food products shall be destroyed for food purposes, as hereinbefore provided, and the Secretary may remove inspectors from any establishment which fails to so destroy such condemned meat food products: Provided, That"

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the fourth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1261, as § 6 of such Act.

Other provisions:

Effective date and applicability of amendments made by Act Dec. 15, 1967, Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

Construction of amendments made by Act Nov. 10, 1986, Act Nov. 10, 1986, P. L. 99-641, Title IV, § 403(e), 100 Stat. 3570, effective on enactment except as otherwise provided by § 408 of such Act, which appears as a note to this section, provides: "The amendments made by this section [amending this section and 21 USCS §§ 609, 621, 671, and 676] shall not be construed to authorize the Secretary of Agriculture to refuse to provide inspection under the Federal Meat Inspection Act (21 U.S.C. 601 et seq.) at an establishment solely because such establishment does not participate in a total plant quality-control program."

Savings provision. Act Nov. 10, 1986, P. L. 99-641, Title IV, § 404, 100

Stat. 3571, effective on enactment except as otherwise provided by § 408 of such Act, which appears as a note to this section, provides: "The expiration date provisions of section 403 [notes to this section and 21 USCS §§ 606, 609, 621, 671, 676] shall not have the effect of releasing or extinguishing any penalty, forfeiture, or liability incurred under the Federal Meat Inspection Act (21 U.S.C. 601 et seq.), as amended by section 403 [amending this section and 21 USCS §§ 606, 609, 621, 671 and 676], or under the rules or regulations issued under such Act."

Sense of Congress. Act Nov. 10, 1986, P. L. 99-641, Title IV, § 405, 100 Stat. 3571, effective on enactment except as otherwise provided by § 408 of such Act, which appears as a note to this section, provides: "It is the sense of Congress that the Secretary of Agriculture should—

"(1) carry out a program to detect residues in livestock that are subject to inspection under title I of the Federal Meat Inspection Act (21 U.S.C. 601 et seq.); and

"(2) evaluate the feasibility of, and develop, a program that would enable the Secretary to trace any particular livestock that are subject to inspection under title I of the Federal Meat Inspection Act, in order to identify the producer of such livestock."

Annual report. Act Nov. 10, 1986, P. L. 99-641, Title IV, § 406, 100 Stat. 3571, effective on enactment except as otherwise provided by § 408 of such Act, which appears as a note to this section, provides:

"Not later than 1 year after the date of the enactment of this Act, and annually thereafter, the Secretary of Agriculture shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate a report describing—

"(1) any action proposed or taken by the Secretary to implement the amendments made by section 403 [amending this section and 21 USCS § 609, 621, 671, 676];

"(2) any action proposed or taken by the Secretary to carry out a program to detect residues in livestock that are subject to inspection under title I of the Federal Meat Inspection Act (21 U.S.C. 601 et seq.);

"(3) any action proposed or taken by the Secretary to evaluate the feasibility of, and develop, a program that would enable the Secretary to trace any particular livestock that are subject to inspection under such title, in order to identify the producer of such livestock; and

"(4) any personnel action proposed or taken by the Secretary as a result of the amendments made by section 403 [amending this section and 21 USCS §§ 609, 621, 671, 676] and any effort made by the Secretary to minimize any adverse economic effect of such amendments on employees of the Department of Agriculture."

Congressional reevaluation. Act Nov. 10, 1986, P. L. 99-641, Title IV, § 407, 100 Stat. 3571, effective on enactment except as otherwise provided by § 408 of such Act, which appears as a note to this section, provides:

"It is the sense of Congress that, not later than 6 years after the date of the enactment of this Act, Congress shall—

"(1) evaluate the operation and effects of the amendments made by

21 USCS § 606

section 403 [amending this section and 21 USCS §§ 609, 621, 671, 676], for the purpose of determining whether to extend or modify the operation of such amendments; and

“(2) enact such legislation as may be necessary to efficiently and effectively carry out the Federal Meat Inspection Act (21 U.S.C. 601 et seq.).”

Effective date and application of amendments made by Act Nov. 10, 1986. Act Nov. 10, 1986, P. L. 99-641, Title IV, § 408, 100 Stat. 3571, provides:

“(a) General effective date. Except as provided in subsection (b) of this section, this title and the amendments made by this title [adding 21 USCS §§ 601, 606, 609, 621, 671, 676 notes and amending this section and 21 USCS §§ 609, 621, 671, and 676] shall become effective on the date of the enactment of this Act.”

“(b) Temporary application of existing law. Sections 6, 9, and 21 of the Federal Meat Inspection Act (21 U.S.C. 606, 609, and 621), as in effect immediately before the date of the enactment of this Act, shall apply with respect to establishments until the Secretary of Agriculture first issues rules and regulations to implement the amendments made by section 403(a) [amending this section].”

RESEARCH GUIDE

Federal Procedure L Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:441, 447, 458.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

INTERPRETIVE NOTES AND DECISIONS

1. Generally

2. Applicability

3. Marks of inspection

4. Judicial review

• Generally

Government meat inspectors had status of invites at packing plants when they were inspecting meat. *Cudahy Packing Co. v. McBride* (1937, CA8 Neb) 92 F.2d 737, cert den (1938) 303 US 639, 82 Ed 1099, 58 S Ct 526.

Provisions of 21 USCS § 642 that during inspection of inventory upon payment of fair market value thereof is not applicable to samples taken under 21 USCS § 606 for purpose of determining whether meat products can be marked “inspected and passed”; taking of such samples does not constitute due process as long as sampling is not excessive. *Chip Steak, Inc. v. Hardin* (1973, ND Cal) 353 F Supp 438, aff’d (1974, CA9 Cal) 502 F.2d 764, cert den (1975) 420 US 926, 43 L Ed 2d 86, 95 S Ct 1123.

2. Applicability

Defendant's pizza-making operation was not covered by continuous inspection provision of Federal Meat Inspection Act of 21 USCS § 606 and in injunction prohibiting defendants from enforcing that provision was proper under circumstances, since plaintiff could not be treated as packing or similar establishment subject to provision of Federal Meat Inspection Act under 21 USCS § 606. *D & W Food Centers, Inc. v. Block* (1986, CA6 Mich) 786 F.2d 751.

3. Marks of inspection

Secretary of Agriculture was not required to cause meat product containing greater percentage of cereal and water than permitted by regulation to be marked “Sausage and cereal, inspected and passed,” though product was wholesome and contained no dyes or chemicals. *Houston v. St. Louis Independent Packing Co.* (1919) 249 US 479, 63 L Ed 717, 39 S Ct 332.

Department of Agriculture's legend “inspected for wholesomeness” prescribed by Secretary of

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Agriculture, conforms to 21 USCS §§ 453, § 601, and is not false or misleading because of possibility that salmonellae may be present in poultry products inspected. *American Public Health Assn. v. Butz* (1974) 167 US App DC 93, 511 F.2d 331.

4. Judicial review

Validity of meat inspector's condemnation of meat is not subject to judicial-type review where 21 USCS § 606 requires meat to be marked either “inspected and passed” or “inspected and condemned” and all condemned meat “shall” be destroyed for food purposes, since condemnation de-

termination does not present question essentially legal nature, judicial-type review would result in sizable number of cases challenging such determinations, possible mistakes in review would be contrary to Congressional purpose of assuring wholesomeness of meat, and public would have right to know that meat stamped “inspected and passed” could include condemned meat where determination is reversed on appeal which may significantly undermine public confidence in meat inspection program. *Re Haring Meats & Delicatessen, Inc.* (1985) 44 Ag Dec 1886.

§ 607. Labeling, marking, and container requirements

(a) **Labeling receptacles or coverings of meat or meat food product inspected and passed; supervision by inspectors.** When any meat or meat food product prepared for commerce which has been inspected as hereinbefore provided and marked “inspected and passed” shall be placed or packed in any can, pot, tin, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this Act is maintained, the person, firm, or corporation preparing said product shall cause a label to be attached to said can, pot, tin, canvas, or other receptacle or covering, under the supervision of an inspector, which label shall state that the contents thereof have been “inspected and passed” under the provisions of this Act and no inspection and examination of meat or meat food products deposited or inclosed in cans, tins, pots, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this Act is maintained shall be deemed to be complete until such meat or meat food product have been sealed or inclosed in said can, tin, pot, canvas, or other receptacle or covering under the supervision of an inspector.

(b) **Information on articles or containers; legible form.** All carcasses, parts of carcasses, meat and meat food products inspected at any establishment under the authority of this title [21 USCS §§ 601 et seq.] and found to be not adulterated, shall at the time they leave the establishment bear, distinctly legible form, directly thereon or on their containers, as the Secretary may require, the information required under paragraph (n) of section of this Act [21 USCS § 601(m)].

(c) **Labeling: type styles and sizes; definitions and standards of identity and composition; standards of fill of container; consistency of Federal and Federal-State standards.** The Secretary, whenever he determines such action is necessary for the protection of the public, may prescribe: (1) the styles and sizes of type to be used with respect to material required to be incorporated in labeling to avoid false or misleading labeling in marketing and labeling of any articles or animals subject to this title [21 USCS §§ 601 et seq.] or title II of this Act [21 USCS § 641 et seq.]; (2) definitions and standards of identity or composition for articles subject to this title [21 USCS §§ 601 et seq.] and standards of fill of container for such articles not inconsistent with any such standards established under the Federal Food, Drug, and Cosmetic

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21 USCS § 601

et [21 USCS §§ 301 et seq.], and there shall be consultation between the Secretary and the Secretary of Health, Education, and Welfare [Secretary of Health and Human Welfare] prior to the issuance of such standards under their Act relating to articles subject to this Act to avoid inconsistency in such standards and possible impairment of the coordinated effective administration of these Acts. There shall also be consultation between the Secretary and an appropriate advisory committee provided for in section 301 of this Act [21 USCS § 661], prior to the issuance of such standards under this Act, to avoid, insofar as feasible, inconsistency between Federal and State standards.

l) Sales under false or misleading name, other marking or labeling or in containers of misleading form or size; trade names, and other marking, labeling, and containers approved by Secretary. No article subject to this title [21 USCS §§ 601 et seq.] shall be sold or offered for sale by any person, firm, or corporation, in commerce, under any name or other marking or labeling which is false or misleading, or in any container of a misleading form or size, but established trade names and other marking and labeling on containers which are not false or misleading and which are approved by the Secretary are permitted.

e) Use withholding directive respecting false or misleading marking, labeling, or container; modification of false or misleading matter; hearing; withholding use pending proceedings; finality of Secretary's action; judicial review; application of 7 USCS § 194. If the Secretary has reason to believe that any marking or labeling or the size or form of any container in use or proposed for use with respect to any article subject to this title [21 USCS § 601 et seq.] is false or misleading in any particular, he may direct that such use be withheld unless the marking, labeling, or container is modified in such manner as he may prescribe so that it will not be false or misleading. 3. If the person, firm, or corporation using or proposing to use the marking, labeling, or container does not accept the determination of the Secretary, the person, firm, or corporation may request a hearing, but the use of the marking, labeling, or container shall, if the Secretary so directs, be withheld pending hearing and final determination by the Secretary. Any such determination by the Secretary shall be conclusive unless, within thirty days after receipt of notice of such final determination, the person, firm, or corporation adversely affected thereby appeals to the United States court of appeals in the circuit in which such person, firm, or corporation has its principal place of business or to the United States Court of Appeals for the District of Columbia Circuit. The provisions of section 204 of the Packers and Stockyards Act, 1921 (42 Stat. 162, as amended; 7 U.S.C. 194 [7 USCS § 94]), shall be applicable to appeals taken under this section.

Lamb and mutton. The Secretary, consistent with United States international obligations, shall establish standards for the labeling of sheep carcasses, parts of sheep carcasses, sheepmeat, and sheepmeat food products. March 4, 1907, ch 2907, Title I, § 7, 34 Stat. 1262; Dec. 15, 1967, P. L. 90-1, §§ 1, 3(a), 6, 81 Stat. 584, 588; April 4, 1996, P. L. 104-127, Title II, article C, § 279, 110 Stat. 979.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

"Either Act" and "these Acts", referred to in this section are references to Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq., and to Act June 25, 1938, ch 675, 52 Stat. 1040, which appears as 21 USCS §§ 301 et seq. For full classification of Act Dec. 15, 1967, see USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 75.

The bracketed words "Secretary of Health and Human Services" are inserted on authority of Act Oct. 17, 1979, P. L. 96-88, Title V, § 509, 93 Stat. 695, which appears as 20 USCS § 3508, and which redesignated the Secretary of Health, Education, and Welfare as the Secretary of Health and Human Services and provided that any reference to the Secretary of Health, Education, and Welfare, in any law in force on the effective date of such Act Oct. 17, 1979, shall be deemed to refer and apply to the Secretary of Health and Human Services, except to the extent such reference is to a function or office transferred to the Secretary of Education or the Department of Education under such Act Oct. 17, 1979.

Amendments:

1967. Act Dec. 15, 1967, designated the existing provisions as subsec. (a), deleted "interstate or foreign" preceding "commerce", deleted ", and no such meat or meat food products shall be sold or offered for sale by any person, firm, or corporation in interstate or foreign commerce under any false or deceptive name; but established trade name or names which are usual to such products and which are not false and deceptive and which shall be approved by the Secretary are permitted" following "supervision of an inspector"; and added subsecs. (b)-(e).

1996. Act April 4, 1996 added subsec. (f).

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the fifth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1262, as § 7 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CROSS REFERENCES

Federal Food, Drug, and Cosmetic Act defined, 21 USCS § 601.

This section is referred to in 21 USCS §§ 601, 674.

RESEARCH GUIDE

Federal Procedure I, Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:440, 35:442-443, 35:453.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Law Review Articles:

Informative Labeling as a Consumer Guide. 27 Food Drug Cosm L J 70, 1972.

INTERPRETIVE NOTES AND DECISIONS

generally standards of identity or composition also or misleading labeling -Particular circumstances necessarily applied to packaged meat subject to labeling elements of Wholesome Meat Act, state's labeling statute and regulations which did low reasonable variations from stated weight from loss of moisture during course of distribution practices were preempted by fed- w. Jones v Rath Packing Co. (1977) 430 US 1 L Ed 2d 604, 97 S Ct 1305, reh den (1977) S 925, 53 L Ed 2d 240, 97 S Ct 2201.

standards of identity or composition regulations of Secretary of Agriculture require- ickers who process meats in federally in- J plants to affix label IMITATION HAM to d hams containing added moisture up to 10 ncent of their "green" or uncured weight, apicious and arbitrary on their faces and court erred in refusing preliminary injunc- gainst their enforcement. Armour & Co. v in (1962) 113 US App DC 37, 304 F2d 404, in (1962) 370 US 920, 8 L Ed 2d 500, 82 S 9.

3. False or misleading labeling Secretary of Agriculture had power to determine whether trade name was false or deceptive, and his decision, unless arbitrary, was conclusive. Houston v St. Louis Independent Packing Co. (1919) 249 US 479, 63 L Ed 717, 39 S Ct 332; Brougham v Blanton Mfg. Co. (1919) 249 US 495, 63 L Ed 725, 39 S Ct 363.

Although trade name was not false and decep- tive at time of its adoption and original use, it became so and subject to condemnation by reason of change in ingredients used in compounding meat food product to which name was applied. Brougham v Blanton Mfg. Co. (1919) 249 US 495, 63 L Ed 725, 39 S Ct 363.

Practice of using brands in such way as to cre- ate false impression as to origin of merchandise was one which could not be defended, but power to regulate business of packers rested with Secre- tary of Agriculture and not with Federal Trade Commission. United Corp. v Federal Trade Com. (1940, CA4) 110 F2d 473.

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4. —Particular circumstances Label "All Meat", applied to frankfurter con- taining 85 per cent meat, and employed to distin- guish such frankfurters from those containing 3/2 per cent binders and extenders and 81 1/2 per cent meat, is false or misleading under 21 USCS § 607(d); regulation promulgated by Secretary of Agriculture permitting such labelling is invalid, as in excess of Secretary's authority and arbitrary, capricious, and otherwise not in accordance with law. Federation of Homemakers v Butz (1972) 151 US App DC 291, 466 F2d 462.

USDA properly exercised its authority when it issued regulation providing that meat and meat products that are not cured with nitrates, nitrites or other preservatives may be sold under their traditional names, so long as word "Uncured" ap- pears on label as part of product name and label states: "No Nitrate or Nitrite Added" and "Not Preserved—Keep Refrigerated Below 40 degrees F. At All Times". National Pork Producers Coun- cil v Bergland (1980, CA8 Iowa) 631 F2d 1353, 15 Env't Rep Cas 1656, cert den (1981) 450 US 912, 67 L Ed 2d 335, 101 S Ct 1350, 15 Env't Rep Cas 1696.

Approval by Secretary of Agriculture of label "all meat" on frankfurters containing 15 per cent non-meat fails to comport with requirements of 21 USCS § 607(d), and constitutes abuse of discretion within meaning of 5 USCS § 706(2)(A). Federation of Homemakers v Hardin (1971, DC Dist Col) 328 F Supp 181.

§ 608. Sanitary inspection and regulation of slaughtering and pack- ing establishments; rejection of adulterated meat or meat food prod- ucts

The Secretary shall cause to be made, by experts in sanitation or by other competent inspectors, such inspection of all slaughtering, meat canning, salt- ing, packing, rendering, or similar establishments in which cattle, sheep, swine, goats, horses, mules, and other equines are slaughtered and the meat and meat food products thereof are prepared for commerce as may be nec- essary to inform himself concerning the sanitary conditions of the same, and to prescribe the rules and regulations of sanitation under which such establishments shall be maintained; and where the sanitary conditions of any such establishment are such that the meat or meat food products are rendered adulterated, he shall refuse to allow said meat or meat food products to be labeled, marked, stamped, or tagged as "inspected and passed".

(March 4, 1907, ch 2907, Title I, § 8, 34 Stat. 1262; Dec. 15, 1967, P. L. 90- 201, §§ 1, 3, 12(a), (f), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:

This section formerly appeared as 21 USCS § 76.

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Product label "Ham Baloney" is not false and misleading labeling where product is prepared with that single meat ingredient; regulations provide that cooked sausage product prepared with meat from single species must be labeled with term designating particular species in conjunction with generic name and since term ham designates spec- ies, as well as particular cut from species, it gives consumer accurate information; existence of other meat product labeled "Ham Baloney", which may not be made exclusively from ham, will not lead to confusion in public's mind where there is little likelihood of any immediate competition between products and prior product was in existence before passage of Federal Meat Inspection Act (21 USCS § 601 et seq.) and its label is protected as histori- cal product with common or usual name under 21 USCS § 601(n)(9). Re Agar Food Products Inc. (1980) 39 Ag Dec 578.

Processed new product "Potatoes With Corned Beef," consisting of same ingredients as "Corned Beef Hash" except that it contains only 14 percent beef compared to 35 percent beef required by regulations and which looks, tastes and smells like "Corned Beef Hash" and is to be marketed in same type container would be misleadingly labeled and producer must instead use label "Imitation Corned Beef Hash" followed by its ingredients with appro- priate explanation of "imitation" label if desired. Re Castleberry's Fruit Co. (1981) 40 Ag Dec 1262.

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Amendments:

1967, Act Dec. 15, 1967, deleted "interstate or foreign" preceding "commerce", deleted "of Agriculture" following "Secretary", deleted "and" preceding "goats", inserted "horses, mules, and other equines", and substituted "adulterated" for "unclean, unsound, unhealthful, unwholesome, or otherwise unfit for human food".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the seventh paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1262, as § 8 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

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Federal Procedure L. Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics § 35:450.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

9. Examination of animals and food products thereof, slaughter and prepared during nighttime

Secretary shall cause an examination and inspection of all cattle, sheep, goats, horses, mules, and other equines, and the food products thereof, slaughtered and prepared in the establishments hereinbefore described for purposes of commerce to be made during the nighttime as well as during daytime when the slaughtering of said cattle, sheep, swine, goats, mules, and other equines, or the preparation of said food products is effected during the nighttime.

ch 4, 1907, ch 2907, Title I, § 9, 34 Stat. 1262; Dec. 15, 1967, P. L. 90-201, § 1, 3, 12(a), 81 Stat. 584, 588, 592. Nov. 10, 1986, P. L. 99-641, Title 403(d)(1), 100 Stat. 3570.)

HISTORY: ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:

[This section formerly appeared as 21 USCS § 77.

Amendments:

1967, Act Dec. 15, 1967, deleted "interstate or foreign" preceding "commerce".

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merce", deleted "of Agriculture" following "Secretary", deleted "and" preceding "goats" wherever appearing, and inserted "horses, mules, and other equines" wherever appearing.

1986, Act Nov. 10, 1986 (effective only during the 6-year period beginning on the date of enactment, as provided by § 403(a) of such Act) inserted "adulterated" following "equines, and".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the eighth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1262, as § 9 of such Act.

Other provisions:

Effective date and applicability of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

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Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

§ 610. Prohibited acts

No person, firm, or corporation shall, with respect to any cattle, sheep, swine, goats, horses, mules, or other equines, or any carcasses, parts of carcasses, meat or meat food products of any such animals—

(a) Slaughtering animals or preparation of articles capable of use as human food, slaughter any such animals or prepare any such articles which are capable of use as human food at any establishment preparing any such articles for commerce, except in compliance with the requirements of this Act;

(b) Humane methods of slaughter, slaughter or handle in connection with slaughter any such animals in any manner not in accordance with the Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1906);

(c) Sales, transportation, and other transactions, sell, transport, offer for sale or transportation, or receive for transportation, in commerce, (1) any such articles which (A) are capable of use as human food and (B) are adulterated or misbranded at the time of such sale, transportation, offer for sale or transportation, or receipt for transportation; or (2) any articles required to be inspected under this title [21 USCS §§ 601 et seq.] unless they have been so inspected and passed;

(d) Adulteration or misbranding, do, with respect to any such articles which

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capable of use as human food, any act while they are being transported in commerce or held for sale after such transportation, which is intended to se or has the effect of causing such articles to be adulterated or mis-ided.

rch 4, 1907, ch 2907, Title I, § 10, 34 Stat. 1262; Dec. 15, 1967, P. L. 201, §§ 1, 7, 81 Stat. 584, 589; Oct. 10, 1978, P. L. 95-445, § 3, 92 Stat. 9.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

"The Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1906)", referred to in this section, is Act Aug. 27, 1958, P. L. 85-765, 72 Stat. 862, which appears as 7 USCS §§ 1901 et seq.; however, 7 USCS §§ 1903 and 1905 were repealed by Act Oct. 10, 1978, P. L. 95-445, § 5(b), effective as provided by § 7 of such Act, which appears as 21 USCS § 603 note.

Explanatory notes:

This section formerly appeared as 21 USCS § 78.

Amendments:

1967. Act Dec. 15, 1967, substituted this section for one which read: "No person, firm, or corporation shall transport or offer for transportation, and no carrier of interstate or foreign commerce shall transport or receive for transportation from one State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or to any place under the jurisdiction of the United States, or to any foreign country, any carcasses or parts thereof, meat, or meat food products thereof which have not been inspected, examined, and marked as 'Inspected and passed', in accordance with the terms of this Act and with the rules and regulations prescribed by the Secretary of Agriculture: Provided, That all meat and meat food products on hand on October first, nineteen hundred and six, at establishments where inspection has not been maintained, or which have been inspected under existing law, shall be examined and labeled under such rules and regulations as the Secretary of Agriculture shall prescribe, and then shall be allowed to be sold in interstate or foreign commerce."

1978. Act Oct. 10, 1978, redesignated former subsections. (b) and (c) as subsections. (c) and (d); and added subsec. (b).

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the eighth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1262, as § 10 of such Act.

Other provisions:

Effective date and application of amendment made by Act Dec. 15, 1967, Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendment made to this section by

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such Act is effective on enactment on Dec. 15, 1967, except that subsec. (b)(1) and (c) of this section are effective upon the expiration of 60 days after Dec. 15, 1967, as provided by § 20(a) of such Act, and that, with respect to equines (meat than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendment is effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

Effective date of amendments made by Act Oct. 10, 1978; exceptions. For the effective date one year after enactment on Oct. 10, 1978, of amendments made to this section by such Act, with hardship exceptions, see Act Oct. 10, 1978, P. L. 95-445, § 7, 92 Stat. 1070, which appears as 21 USCS § 603 note.

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Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

INTERPRETIVE NOTES AND DECISIONS

1. Generally

2. Jury instructions

1. Generally

Any meat product for which definition or standard of identity or composition has been prescribed by regulations of Secretary must conform to that definition or standard and be labeled accordingly, or it is misbranded as defined under 21 USCS § 601(n)(7). Re George Alexander, Jr (1980) 39 Ag Dec 1383.

2. Jury instructions

Jury instruction in prosecution under 21 USCS § 610(b)(1) stating that crime charged required proof of intent, and that to establish intent government had to prove that defendant knowingly did act that law forbade, was proper. United States v Agnew (1991, CA10 Colo) 931 F2d 1397, 32 Fed Rules Evid Serv 1151, cert den (1991) 502 US 884, 116 L Ed 2d 193, 112 S Ct 237.

§ 611. Devices, marks, labels, and certificates; simulations

(a) Devices to be made under authorization of Secretary. No brand manufacturer, printer, or other person, firm, or corporation shall cast, print, lithograph, or otherwise make any device containing any official mark or simulation thereof, or any label bearing any such mark or simulation, or any form of official certificate or simulation thereof, except as authorized by the Secretary.

(b) Other misconduct. No person, firm, or corporation shall—

- (1) forge any official device, mark, or certificate;
- (2) without authorization from the Secretary use any official device, mark, or certificate, or simulation thereof, or alter, detach, deface, or destroy any official device, mark, or certificate;
- (3) contrary to the regulations prescribed by the Secretary, fail to use, or to detach, deface, or destroy any official device, mark, or certificate;
- (4) knowingly possess, without promptly notifying the Secretary or his representative, any official device or any counterfeit, simulated, forged, or improperly altered official certificate or any device or label or any carcass

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f any animal, or part or product thereof, bearing any counterfeit, imitated, forged, or improperly altered official mark;

g) knowingly make any false statement in any shipper's certificate or other nonofficial or official certificate provided for in the regulations prescribed by the Secretary; or

h) knowingly represent that any article has been inspected and passed, or exempted, under this Act when, in fact, it has, respectively, not been so inspected and passed, or exempted.

March 4, 1907, ch 2907, Title I, § 11, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-1, §§ 1, 8, 81 Stat. 584, 589.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 79.

Amendments:

1967. Act Dec. 15, 1967, substituted this section for one which read: "No person, firm, or corporation, or officer, agent, or employee thereof, shall forge, counterfeit, simulate, or falsely represent, or shall without proper authority use, fail to use, or detach, or shall knowingly or wrongfully alter, deface, or destroy, or fail to deface or destroy, any of the marks, stamps, tags, labels, or other identification devices provided for in this Act, or in and as directed by the rules and regulations prescribed hereunder by the Secretary of Agriculture, on any carcasses, parts of carcasses, or the food product, or containers thereof, subject to the provisions of this Act, or any certificate in relation thereto, authorized or required by this Act or by the said rules and regulations of the Secretary of Agriculture."

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the ninth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 11 of such Act.

Other provisions:

Effective date and application of amendment made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendment made to this section by such Act is effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendment is effective upon the expiration of 60 days after enactment on Dec. 15, 1967, as provided by § 20(b) of such Act.

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Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspec-

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tion Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

INTERPRETIVE NOTES AND DECISIONS

1. Applicability

2. Scientist

3. Particular labels

I. Applicability

"No person" as used in predecessor to this section was construed as relating to any person who destroyed tags or other identifications, whether such person was engaged in meat business or not. *United States v Lewis* (1914) 235 US 282, 59 L Ed 229, 35 S Ct 44.

2. Scientist

Element of scienter was not required in prosecution for violation of predecessor to this section where defendant was charged with "detaching" of official seal of Department of Agriculture. *United States v Hart Motor Express, Inc.* (1958, DC Minn) 160 F Supp 886.

3. Particular labels

Meat packer's preparation of shipper's certificate incorrectly stating that meat goods were marked "U. S. inspected and passed by Department of Agriculture" when, in fact, through inadvertence, marks had been removed in trimming process was not deceitful and fraudulent misrepresentation prohibited by predecessor to this section. *United States v Frank J. Petrini Meat Co.* (1963, ND Cal) 215 F Supp 545.

When ham, after being inspected and stamped, was shipped to another plant not under government supervision, where it was boiled and wrapped, it was violation of law to place upon wrapper, which contained statement that it was boiled ham, label containing words "U. S. Inspected and Passed Under Act of Congress of June 30, 1906, Establishment 2A." *Armour & Co. v United States* (1915, 3 Pa) 222 F 233.

§ 612. Inspection of animals for export

The Secretary shall cause to be made a careful inspection of all cattle, sheep, swine, goats, horses, mules, and other equines intended and offered for export to foreign countries at such times and places, and in such manner as he may deem proper, to ascertain whether such cattle, sheep, swine, goats, horses, mules, and other equines are free from disease. (March 4, 1907, ch 2907, Title I, § 12, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-201, §§ 1, 3(b), 12(a), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:

This section formerly appeared as 21 USCS § 80.

Amendments:

1967. Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary", deleted "and" preceding "goats", wherever appearing, and inserted ", horses, mules, and other equines", wherever appearing.

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the tenth paragraph of Act March 4, 1907 ch 2907, Title I, 34 Stat. 1263, as § 12 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and

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parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CODE OF FEDERAL REGULATIONS

Animal and Plant Health Inspection Service, Department of Agriculture—inspection and handling of livestock for exportation, 9 CFR Part 91.

Animal and Plant Health Inspection Service, Department of Agriculture—Accreditation of Veterinarians and Suspension or Revocation of such Accreditation—Definition of terms, 9 CFR Part 160.

Animal and Plant Health Inspection Service, Department of Agriculture—Requirements and standards for accredited veterinarians and suspension or revocation of such accreditation, 9 CFR Part 161.

CROSS REFERENCES

This section is referred to in 16 USCS § 1540; 21 USCS § 613.

RESEARCH GUIDE

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

13. Inspectors of animals for export; certificates of condition

This purpose he may appoint inspectors who shall be authorized to give official certificate clearly stating the condition in which such cattle, sheep, swine, goats, horses, mules, and other equines are found.

March 4, 1907, ch 2907, Title I, § 13, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-1, §§ 1, 12(a), 81 Stat. 584, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"For this purpose", referred to in this section, is probably intended to be a reference to 21 USCS § 612.

Explanatory notes:

This section formerly appeared as 21 USCS § 81.

Amendments:

1967. Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary", deleted "and" before "goats" and inserted ", horses, mules, and other equines".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the eleventh paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 13 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967, Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears

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as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CODE OF FEDERAL REGULATIONS

Animal and Plant Health Inspection Service, Department of Agriculture—Inspection and handling of livestock for exportation, 9 CFR Part 91.

Animal and Plant Health Inspection Service, Department of Agriculture—Accreditation of Veterinarians and Suspension or Revocation of such Accreditation—Definition of terms, 9 CFR Part 160.

Animal and Plant Health Inspection Service, Department of Agriculture—Requirements and standards for accredited veterinarians and suspension or revocation of such accreditation, 9 CFR Part 161.

CROSS REFERENCES

This section is referred to in 16 USCS § 1540.

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Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

§ 614. Clearance prohibited to vessel carrying animals for export without inspector's certificate

No clearance shall be given to any vessel having on board cattle, sheep, swine, goats, horses, mules, or other equines for export to a foreign country until the owner or shipper of such cattle, sheep, swine, goats, horses, mules, or other equines has a certificate from the inspector authorized to be appointed, stating that the said cattle, sheep, swine, goats, horses, mules, or other equines are sound and healthy, or unless the Secretary shall have waived the requirement of such certificate for export to the particular country to which such cattle, sheep, swine, goats, horses, mules, or other equines are to be exported.

(March 4, 1907, ch 2907, Title I, § 14, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-201, §§ 1, 3(b), 12(a), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:

This section formerly appeared as 21 USCS § 82.

Amendments:

1967. Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary", deleted "or" preceding "goats" wherever appearing, and inserted ", horses mules, or other equines" wherever appearing.

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the twelfth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 14 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CODE OF FEDERAL REGULATIONS

Animal and Plant Health Inspection Service, Department of Agriculture—inspection and handling of livestock for exportation, 9 CFR Part 91.

CROSS REFERENCES

This section is referred to in 16 USCS § 1540.

RESEARCH GUIDE**Annotations:**

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

5. Inspection of carcasses, meat of which is intended for export

Secretary shall also cause to be made a careful inspection of the issues and parts thereof of all cattle, sheep, swine, goats, horses, mules, other equines, the meat of which, fresh, salted, canned, corned, packed, or otherwise prepared, is intended and offered for export to any foreign country, at such times and places and in such manner as he may deem proper.

ch 4, 1907, ch 2907, Title I, § 15, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-201, §§ 1, 3(b), 12(a), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**Explanatory notes**

This section formerly appeared as 21 USCS § 83.

Amendments:

1967, Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary"; deleted "and" preceding "goats", and inserted ", horses, mules, and other equines".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the thirteenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 15 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CROSS REFERENCES

This section is referred to in 21 USCS § 616.

RESEARCH GUIDE**Annotations:**

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

§ 616. Inspectors of carcasses, etc., meat of which is intended for export; certificates of condition

For this purpose he may appoint inspectors who shall be authorized to give an official certificate stating the condition in which said cattle, sheep, swine, goats, horses, mules, or other equines, and the meat thereof, are found. (March 4, 1907, ch 2907, Title I, § 16, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-201, §§ 1, 12(a), 81 Stat. 584, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**References in text:**

"For this purpose", referred to in this section, is probably intended to be a reference to the purpose of 21 USCS § 615.

Explanatory notes:

This section formerly appeared as 21 USCS § 84.

Amendments:

1967, Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary"; deleted "and" before "goats", and inserted ", horses, mules, or other equines".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the fourteenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 16 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and

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parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

RESEARCH GUIDE

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Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

§ 617. Clearance prohibited to vessel carrying meat for export without inspector's certificate

No clearance shall be given to any vessel having on board any fresh, salted, canned, corned, or packed beef, mutton, pork, goat or equine meat for export to and sale in a foreign country from any port in the United States, until the owner or shipper thereof shall obtain from an inspector appointed under the provisions of this Act a certificate that the said cattle, sheep, swine, goats, horses, mules, and other equines were sound and healthy at the time of inspection, and that their meat is sound and wholesome, unless the Secretary shall have waived the requirements of such certificate for the country to which said cattle, sheep, swine, goats, horses, mules and other equines or meats are to be exported.

(March 4, 1907, ch 2907, Title I, § 17, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-201, §§ 1, 3(b), 12(a), (g), 81 Stat. 584, 588, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act"; referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Amendments:

1967. Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary", substituted "goat or equine meat" for "or goat meat, being the meat of animals killed after passage of this Act, or except as hereinbefore provided", and substituted "cattle, sheep, swine, goats, horses, mules and other equines" for "cattle, sheep, swine, and goats" wherever appearing.

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the fifteenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 17 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments

§ 618. Delivery of inspectors' certificates, and of copies

The inspectors provided for herein shall be authorized to give official certificates of the condition of the cattle, sheep, swine, goats, horses, mules, and other equines, their carcasses and products as herein described; and one copy of every certificate granted under the provisions of this Act shall be filed with the Department of Agriculture, another copy shall be delivered to the owner or shipper, and when the cattle, sheep, swine, goats, horses, mules, and other equines, or their carcasses and products are sent abroad, a third copy shall be delivered to the chief officer of the vessel on which the shipment shall be made.

(March 4, 1907, ch 2907, Title I, § 18, 34 Stat. 1263; Dec. 15, 1967, P. L. 90-201, §§ 1, 12(a), (h), 81 Stat. 584, 592.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"Provided for herein", referred to in this section, is probably intended to be a reference to Title I of Act March 4, 1907, ch 2907, which appears generally as 21 USCS §§ 601 et seq. For full classification, consult USCS Tables volumes.

"Herein described", referred to in this section, is probably intended to be a reference to Title I of Act March 4, 1907, ch 2907, which appears generally as 21 USCS §§ 601 et seq. For full classification, consult USCS Tables volumes.

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 86.

Amendments:

1967. Act Dec. 15, 1967, deleted "sound and wholesome" preceding "condition" and substituted "cattle, sheep, swine, goats, horses, mules, and other equines" for "cattle, sheep, swine, and goats" wherever appearing.

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the sixteenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1263, as § 18 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967, Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CODE OF FEDERAL REGULATIONS

Animal and Plant Health Inspection Service, Department of Agriculture—specification and handling of livestock for exportation, 9 CFR Part 91.

RESEARCH GUIDE**Annotations:**

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

3. Marking, labeling, or other identification of kinds of animals articles' derivation; separate establishments for preparation and shipping activities

Person, firm, or corporation shall sell, transport, offer for sale or portation, or receive for transportation, in commerce, any carcasses of s, mules, or other equines or parts of such carcasses, or the meat or food products thereof, unless they are plainly and conspicuously ed or labeled or otherwise identified as required by regulations pre- x) by the Secretary to show the kinds of animals from which they were d. When required by the Secretary, with respect to establishments at inspection is maintained under this title [21 USCS §§ 601 et seq.], animals and their carcasses, parts thereof, meat and meat food products be prepared in establishments separate from those in which cattle, , swine, or goats are slaughtered or their carcasses, parts thereof, meat at food products are prepared.

h 4, 1907, ch 2907, Title I, § 19, 34 Stat. 1264; Dec. 15, 1967, P. L. l, §§ 1, 9, 81 Stat. 584, 590.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**Explanatory notes:**

This section formerly appeared as 21 USCS § 87.

Amendments:

967, Act Dec. 15, 1967, substituted this section for one which read: No person, firm, or corporation engaged in the interstate commerce of eat or meat food products shall transport or offer for transportation, ell or offer to sell any such meat or meat food products in any State or rritory or in the District of Columbia or any place under the jurisdic- on of the United States, other than in the State or Territory or in the

District of Columbia or any place under the jurisdiction of the United States in which the slaughtering, packing, canning, rendering, or other similar establishment owned, leased, or operated by said firm, person, or corporation is located unless and until said person, firm, or corporation shall have complied with all of the provisions of this Act."

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the seventeenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1264, as § 19 of such Act.

Other provisions:

Effective date of amendment made by Act Dec. 15, 1967, Act Dec. 15, 1967, P. L. 90-201, § 20, 81 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendment made to this section by such Act is effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendment is effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

RESEARCH GUIDE**Annotations:**

Operation of pure food and drug statutes as "infamous crime" which, under Fifth Amendment must be prosecuted by presentment or indictment of grand jury. 2 L Ed 2d 1971.

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

INTERPRETIVE NOTES AND DECISIONS

Regulation which makes inapplicable Wholesale Meat Act's inspection requirements to those operations of types traditionally and usually conducted as retail stores and restaurants for the sale in normal retail quantities" [9 C.F.R. § 303.1(d)(1)] in no way affects prohibition of 21 USCS § 619 on transporting and selling already improperly labeled meat. United States v Rikard (1977, CA5 Ga) 552 F2d 151.

§ 620. Imports

(a) Adulteration or misbranding prohibition; compliance with inspection, building construction standards, and other provisions; humane methods of slaughter; treatment as domestic articles subject to this chapter and food, drug, and cosmetic provisions; marking and labeling; personal consumption exemption. No carcasses, parts of carcasses, or meat or meat food products of cattle, sheep, swine, goats, horses, mules, or other equines which are capable of use as human food, shall be imported into the United States if such articles are adulterated or misbranded and unless they comply with all the inspection, building construction standards, and all other provisions of this Act and regulations issued thereunder applicable to such articles in commerce within the United States. No such carcasses, parts of carcasses, meat or meat food products shall be imported into the United States unless the livestock from which they were produced was slaughtered and handled in connection

slaughter in accordance with the Act of August 27, 1958 (72 Stat. 862; U.S.C. 1901-1906). All such imported articles shall, upon entry into the United States, be deemed and treated as domestic articles subject to the other provisions of this Act and the Federal Food, Drug, and Cosmetic Act [21 USC §§ 301 et seq.]: Provided, That they shall be marked and labeled as required by such regulations for imported articles: Provided further, That nothing in this section shall apply to any individual who purchases meat or meat products outside the United States for his own consumption except that the total amount of such meat or meat products shall not exceed fifty pounds.

Terms and conditions for destruction. The Secretary may prescribe the terms and conditions for the destruction of all such articles which are imported contrary to this section, unless (1) they are exported by the consignee within the time fixed therefor by the Secretary, or (2) in the case of articles which are not in compliance with the Act solely because of misbranding, such articles are brought into compliance with the Act under the revision of authorized representatives of the Secretary.

Payment of storage, cartage, and labor charges by owner or consignee; All charges for storage, cartage, and labor with respect to any article which is imported contrary to this section shall be paid by the owner or consignee, and in default of such payment shall constitute a lien against such article and any other article thereafter imported under this Act by or for the owner or consignee.

Prohibition. The knowing importation of any article contrary to this section is prohibited.

Reports to Congressional committees. Not later than March 1 of each year the Secretary shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate a comprehensive and detailed written report with respect to the administration of this section during the immediately preceding calendar year. Such report shall include, but shall not be limited to the following:

(A) A certification by the Secretary that foreign plants exporting carcasses or meat or meat products referred to in subsection (a) have complied with requirements that achieve a level of sanitary protection equivalent to that achieved under United States requirements with regard to all inspection, building construction standards, and all other provisions of this Act and regulations issued under this Act.

(B) The Secretary may treat as equivalent to a United States requirement a requirement described in subparagraph (A) if the exporting country provides the Secretary with scientific evidence or other information, in accordance with risk assessment methodologies determined appropriate by the Secretary, to demonstrate that the requirement achieves the level of sanitary protection achieved under the United States requirement. For the purposes of this subsection, the term 'sanitary protection' means protection to safeguard public health.

(C) The Secretary may—

(i) determine, on a scientific basis, that a requirement of an exporting country does not achieve the level of protection that the Secretary considers appropriate; and

(ii) provide the basis for the determination to the exporting country in writing on request.

(2) The names and locations of plants authorized or permitted to have imported into the United States therefrom carcasses or meat or meat products referred to in subsection (a) of this section.

(3) The number of inspectors employed by the Department of Agriculture in the calendar year concerned who were assigned to inspect plants referred to in paragraph (e)(2) hereof and the frequency with which each such plant was inspected by such inspectors.

(4) The number of inspectors licensed by each country from which any imports subject to the provisions of this section were imported who were assigned, during the calendar year concerned, to inspect such imports and the facilities in which such imports were handled and the frequency and effectiveness of such inspections.

(5) The total volume of carcasses or meat or meat products referred to in subsection (a) of this section which was imported into the United States during the calendar year concerned from each country, including a separate itemization of the volume of each major category of such imports from each country during such year, and a detailed report of rejections of plants and products because of failure to meet appropriate standards prescribed by this Act.

(6) The name of each foreign country that applies standards for the importation of meat articles from the United States that are described in subsection (h)(2).

(f) **Inspection and other standards; applicability, enforcement, etc.; certifications.** Notwithstanding any other provision of law, all carcasses, parts of carcasses, meat, and meat food products of cattle, sheep, swine, goats, horses, mules, or other equines, capable of use as human food, offered for importation into the United States shall be subject to the inspection, sanitary, quality, species verification, and residue standards applied to products produced in the United States. Any such imported meat articles that do not meet such standards shall not be permitted entry into the United States. The Secretary shall enforce this provision through (1) the imposition of random inspections for such species verification and for residues, and (2) random sampling and testing of internal organs and fat of the carcasses for residues at the point of slaughter by the exporting country in accordance with methods approved by the Secretary. Each foreign country from which such meat articles are offered for importation into the United States shall obtain a certification issued by the Secretary stating that the country maintains a program using reliable analytical methods to ensure compliance with the United States standards for residues in such meat articles. No such meat article shall be permitted entry into the United States from a country for which the Secretary has not

ed such certification. The Secretary shall periodically review such certifications and shall revoke any certification if the Secretary determines that country involved is not maintaining a program that uses reliable analytical methods to ensure compliance with United States standards for residues under this article. The consideration of any application for a certification under this subsection and the review of any such certification, by the Secretary, shall include the inspection of individual establishments to ensure that inspection program of the foreign country involved is meeting such United States standards.

Administration of animal drugs or antibiotics; terms and conditions of order violations. The Secretary may prescribe terms and conditions under which cattle, sheep, swine, goats, horses, mules, and other equines it have been administered an animal drug or antibiotic banned for use in United States may be imported for slaughter and human consumption. person shall enter cattle, sheep, swine, goats, horses, mules, and other equines into the United States in violation of any order issued under this section by the Secretary.

Definitions; reciprocal meat inspection requirement. (1) As used in this subsection:

(A) The term "meat articles" means carcasses, meat and meat food products of cattle, sheep, swine, goats, horses, mules, or other equines, that are capable of use as human food.

(B) The term "standards" means inspection, building construction, sanitary, quality, species verification, residue, and other standards that are applicable to meat articles.

(2) On request of the Committee on Agriculture or the Committee on Ways and Means of the House of Representatives or the Committee on Agriculture, Nutrition, and Forestry or the Committee on Finance of the Senate, or at the initiative of the Secretary, the Secretary shall, as soon as practicable, determine whether a particular foreign country applies standards for the importation of meat articles from the United States that are not related to public health concerns about end-product quality that can be substantiated by reliable analytical methods.

(3) If the Secretary determines that a foreign country applies standards described in paragraph (2)—

(A) the Secretary shall consult with the United States Trade Representative; and

(B) within 30 days after the determination of the Secretary under paragraph (2), the Secretary and the United States Trade Representative shall recommend to the President whether action should be taken under paragraph (4).

(4) Within 30 days after receiving a recommendation for action under paragraph (3), the President shall, if and for such time as the President considers appropriate, prohibit imports into the United States of any meat articles produced in such foreign country unless it is determined that the meat articles produced in that country meet the standards applicable to meat articles in commerce within the United States.

(5) The action authorized under paragraph (4) may be used instead of, or in addition to, any other action taken under any other law.

(March 4, 1907, ch 2907, Title I, § 20, 34 Stat. 1264; Dec. 15, 1967, P. L. 90-201, § 10, 81 Stat. 590; Oct. 10, 1978, P. L. 95-445, § 4, 92 Stat. 1069; Dec. 22, 1981, P. L. 97-98, Title XI, Subtitle B, § 1122, 95 Stat. 1273; Dec. 23, 1985, P. L. 99-198, Title XVII, Subtitle A, § 1702, 99 Stat. 1634; Aug. 23, 1988, P. L. 100-418, Title IV, Subtitle F, § 4604, 102 Stat. 1408; Dec. 8, 1993, P. L. 103-182, Title III, Subtitle E, Part 2, § 361(f), 107 Stat. 2124; Nov. 2, 1994, P. L. 103-437, § 8(2), 108 Stat. 4588; Dec. 8, 1994, P. L. 103-465, Title IV, Subtitle B, § 431(d), 108 Stat. 4970.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"Subsec. (e)(2)", referred to in subsec. (e)(3), was repealed by Act Nov. 2, 1994.

"This Act" and "the Act", as used in this section, are references to Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

The "Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1906)", referred to in this section, is Act Aug. 27, 1958, P. L. 85-765, 72 Stat. 862, which appears as 7 USCS §§ 1901 et seq.; however, 7 USCS §§ 1903 and 1905 were repealed by Act Oct. 10, 1978, P. L. 95-445, § 5(b) (effective as provided by § 7 of such Act, which appears as 21 USCS § 603 note).

Explanatory notes:

This section formerly appeared as 21 USCS § 88.

Amendments:

1967. Act Dec. 15, 1967, substituted this section for one which read:

"Any person, firm, or corporation, or any officer or agent of any such person, firm, or corporation, who shall violate any of the provisions of this Act shall be deemed guilty of a misdemeanor and shall be punished on conviction thereof by a fine of not exceeding ten thousand dollars or imprisonment for a period of not more than two years, or by both such fine and imprisonment, in the discretion of the court."

1978. Act Oct. 10, 1978, in subsec. (a), inserted "No such carcasses, parts of carcasses, meat or meat food products shall be imported into the United States unless the livestock from which they were produced was slaughtered and handled in connection with slaughter in accordance with the Act of August 27, 1958 (72 Stat. 862; 7 U.S.C. 1901-1906)".

1981. Act Dec. 22, 1981 (effective 6 months after enactment on 12/22/81, as provided by subsec. (f) of this section), added subsec. (f).

1985. Act Dec. 23, 1985 (effective upon enactment on 12/23/85, as provided by § 1801 of such Act, which appears as 7 USCS § 1281 note), in subsec. (f), substituted the sentences beginning "Each foreign country . . ." "No such meat . . ." "The Secretary shall periodically . . ." and "The consideration of . . ." for "The provisions of this subsection shall become effective six months after enactment of the Agriculture and Food Act of 1981"; and added subsec. (g).

1988, Act Aug. 23, 1988, in subsec. (e), in para. (4), deleted "and" following "inspections"; in para. (5), substituted ";"; and for the concluding period, and added para. (6); and added subsec. (h).
 1993, Act Dec. 8, 1993, in subsec. (e), in the introductory matter, substituted "not be limited to the following:" for "not be limited to—"; deleted para. (1), which read: "(1) a certification by the Secretary that foreign plants exporting carcasses or meat or meat products referred to in subsection (a) of this section have complied with requirements at least equal to all the inspection, building construction standards, and all other provisions of this Act and regulations issued thereunder;"; redesignated paras. (2)-(6) as paras. (3)-(7), respectively, and added new paras. (1) and (2), in paras. (3)-(7) as redesignated, substituted "The" for "the" following the paragraph designations, in paras. (3)-(5) as redesignated, substituted the concluding period for a semicolon, and in para. (6) as redesignated, substituted the concluding period for ";"; and".
 1994, Act Nov. 2, 1994, in subsec. (e), in the introductory matter, substituted "Agriculture, Nutrition, and Forestry" for "Agriculture and Forestry".

Act Dec. 8, 1994 (effective as provided by § 451 of such Act, which appears as 19 USCS § 3601 note), in subsec. (e), substituted subparagraphs (1)(A) and (B) for ones which read:

"(A) Subject to subparagraphs (B) and (C), a certification by the Secretary that foreign plants in Canada and Mexico that export carcasses or meat or meat products referred to in subsection (a) have complied with paragraph (2) or with requirements that are equivalent to United States requirements with regard to all inspection and building construction standards, and all other provisions of this Act and regulations issued under this Act.

"(B) Subject to subparagraph (C), the Secretary may treat as equivalent to a United States requirement a requirement described in subparagraph (A) if the exporting country provides the Secretary with scientific evidence or other information, in accordance with risk assessment methodologies agreed to by the Secretary and the exporting country, to demonstrate that the requirement or standard of the exporting country achieves the level of protection that the Secretary considers appropriate."

deleted para. (2), which read: "A certification by the Secretary that, except as provided in paragraph (1), foreign plants that export carcasses or meat or meat products referred to in subsection (a) have complied with requirements that are at least equal to all inspection and building construction standards and all other provisions of this Act and regulations issued under this Act."; and redesignated paras. (3)-(7) as paras. (2)-(6), respectively.

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the eighteenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1264, as § 20 of such Act.

Other provisions:

Effective date and application of amendment made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20(a), 81 Stat. 601, which appears as

21 USCS § 601 note, provided that the amendment made to this section by such Act is effective on the expiration of 60 days after enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendment is effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CROSS REFERENCES

Federal Food, Drug, and Cosmetic Act defined, 21 USCS § 601.

RESEARCH GUIDE

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Law Review Articles:

Verkuil, A Study of Informal Adjudication Procedures. 43 U Chi L Rev 739.

INTERPRETIVE NOTES AND DECISIONS

Secretary of Agriculture did not act arbitrarily Industrial, S.A. v Block (1982, DC Dist Col) 556 and capriciously in withdrawing beef importation F Supp 354, affd (1984, App DC) 234 US App DC privilege of foreign company which misbranded, adulterated and falsely certified meat. *Canadara*, 57, 727 F2d 1156.

§ 621. Inspectors to make examinations provided for; appointment; duties; regulations

The Secretary shall appoint from time to time inspectors to make examination and inspection of all cattle, sheep, swine, goats, horses, mules, and other equines, the inspection of which is hereby provided for, and of all carcasses and parts thereof, and of all meats and meat food products thereof, and of the sanitary conditions of all establishments in which such meat and meat food products hereinbefore described are prepared; and said inspectors shall refuse to stamp, mark, tag, or label any carcass or any part thereof, or meat food product therefrom, prepared in any establishment hereinbefore mentioned, until the same shall have actually been inspected and found to be not adulterated; and shall perform such other duties as are provided by this Act and by the rules and regulations to be prescribed by said Secretary; and said Secretary shall, from time to time, make such rules and regulations as are necessary for the efficient execution of the provisions of this Act, and all inspections and examinations made under this Act shall be such and made in such manner as described in the rules and regulations prescribed by said Secretary not inconsistent with the provisions of this Act.

(March 4, 1907, ch 2907, Title I, § 21, 34 Stat. 1264; Dec. 15, 1967, P. L. 90-201, §§ 1, 3(b), 12(a), (i), 81 Stat. 584, 588, 592, 593; Nov. 10, 1986, P. L. 99-641, Title IV, § 403(d)(2), 100 Stat. 3570.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907.

USCS § 621

FOOD AND DRUGS

34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 89.

Amendments:

1967. Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary" wherever appearing, deleted "and" preceding "goats"; inserted "horses, mules, and other equines", and substituted "not adulterated" for "sound, healthful, wholesome, and fit for human food, and to contain no dyes, chemicals, preservatives, or ingredients which render such meat food product unsound, unhealthful, unwholesome, or unfit for human food; and to have been prepared under proper sanitary conditions, hereinbefore provided for".

1986. Act Nov. 10, 1986 (effective only during the 6-year period beginning on the date of enactment, as provided by § 403(a) of such Act) substituted "thereof, and of meat food products" for "and meat food products" following "and of all meats".

Redesignations:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the nineteenth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1264, as § 21 of such Act.

Other provisions:

Effective date and applicability of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CODE OF FEDERAL REGULATIONS

Office of the Secretary of Agriculture—Administrative regulations, 7 CFR part 1.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Official numbers; inauguration of inspection; withdrawal of inspection; reports of violation, 9 CFR Part 305.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Marketing products and their containers, 9 CFR Part 316.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Definitions and standards of identity or composition, 9 CFR part 319.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Records, registration, and reports, 9 CFR Part 320.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Transportation, 9 CFR Part 325.

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Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspec-

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tion Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Law Review Articles:

Verkuil. A Study of Informal Adjudication Procedures. 43 U Chi L Rev 739.

INTERPRETIVE NOTES AND DECISIONS

1. Generally
2. Preemption of state law
3. Reinspection of meat

which were less than three weeks old invalidated state regulation prohibiting any person from keeping flesh of any calf which was less than four weeks old with intent to ship it out of state. *State v Peet* (1908) 80 Vt. 449, 68 A 661.

1. Generally
Authorizing Secretary of Agriculture to make rules relating to inspection of meat was not delegation of legislative power. *United States v Cudahy Packing Co.* (1917, DC Conn) 243 F 441.

3. Reinspection of meat

It was within power of Secretary of Agriculture to require reinspection of meat immediately before shipment. *United States v Rohde & Bro.* (1914, DC NY) 218 F 182.

2. Preemption of state law
Regulation of Secretary of Agriculture which provided for condemnation of meat of animals

§ 622. Bribery of, or gifts to, inspectors or other officers and acceptance of gifts

Any person, firm, or corporation, or any agent or employee of any person, firm, or corporation, who shall give, pay, or offer, directly or indirectly, to any inspector, deputy inspector, chief inspector, or any other officer or employee of the United States authorized to perform any of the duties prescribed by this Act or by the rules and regulations of the Secretary any money or other thing of value, with intent to influence said inspector, deputy inspector, chief inspector, or other officer or employee of the United States in the discharge of any duty provided for in this Act, shall be deemed guilty of a felony, and, upon conviction thereof, shall be punished by a fine not less than \$5,000 nor more than \$10,000 and by imprisonment not less than one year nor more than three years; and any inspector, deputy inspector, chief inspector, or other officer or employee of the United States authorized to perform any of the duties prescribed by this Act who shall accept any money, gift, or other thing of value from any person, firm, or corporation, or officers, agents, or employees thereof, given with intent to influence his official action, or who shall receive or accept from any person, firm, or corporation engaged in commerce any gift, money, or other thing of value, given with any purpose or intent whatsoever, shall be deemed guilty of a felony and shall, upon conviction thereof, be summarily discharged from office and shall be punished by a fine not less than \$1,000 nor more than \$10,000 and by imprisonment not less than one year nor more than three years.

(March 4, 1907, ch 2907, Title I, § 22, 34 Stat. 1264; Dec. 15, 1967, P. L. 90-201, §§ 1, 3, 81 Stat. 584, 588.)

SCS § 622

FOOD AND DRUGS HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section formerly appeared as 21 USCS § 90.

Amendments:

1967. Act Dec. 15, 1967, deleted "of Agriculture" following "Secretary" and deleted "intersiate or foreign" before "commerce".

Redesignation:

Act Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this section, formerly the twentieth paragraph of Act March 4, 1907, ch 2907, Title I, 34 Stat. 1264, as § 22 of such Act.

Other provisions:

Effective date and application of amendments made by Act Dec. 15, 1967. Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that the amendments made to this section by such Act are effective on enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, such amendments are effective upon the expiration of 60 days after enactment on Dec. 15, 1967, as provided by § 20(b) of such Act.

RESEARCH GUIDE

Federal Procedure L Ed:

3 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:452, 35:459.

Am Jur:

5 Am Jur 2d, Food § 36.

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

INTERPRETIVE NOTES AND DECISIONS

That transfer is one of value and transferor is engaged in interstate commerce. *United States v Seuss* (1973), CA1 Mass) 474 F2d 385, 21 ALR Fed 967, cert den (1973) 412 US 928, 37 L Ed 2d 155, 93 S Ct 2751.

2. Constitutionality

21 USCS § 622 is not void for vagueness in light of clear Congressional intent to prohibit acceptance of things of value in connection with or arising out of performance of official duties. *United States v Seuss* (1973), CA1 Mass) 474 F2d 385, 21 ALR Fed 967, cert den (1973) 412 US 928, 37 L Ed 2d 155, 93 S Ct 2751.

21 USCS § 622 of requirement that prove intent, either of donor to influence official conduct, or of recipient to alter performance of official duties. *United States v Murphy* (1973), CA1 Mass) 480 F2d 256, cert den (1973) 414 US 912, 38 L Ed 2d 151, 94 S Ct 253.

Provision of 21 USCS § 622 penalizing any

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MEAT INSPECTION

Inspector who accepts bribes is not invalid on equal protection grounds as drawing impermissible distinction between meat inspectors and meat packers. *United States v Murphy* (1973), CA1 Mass) 480 F2d 256, cert den (1973) 414 US 912, 38 L Ed 2d 151, 94 S Ct 253.

21 USCS § 622 is constitutional, and furthermore, distinct classification of federal meat inspectors does not violate equal protection guarantees implicit in Fifth Amendment; § 622 may be interpreted to require that prohibited act be in connection with or arising out of performance of official duties, and one charged with receipt of substantial amounts of money and meat may not object to statute on grounds that phrase "thing of value" is overly broad. *United States v Mullens* (1978), CA5 Tex) 583 F2d 134.

3. Construction

Limitation in third portion of 21 USCS § 622 to receipt or acceptance from any "person, firm, or corporation engaged in commerce" does not limit scope of that portion to receipt from employee acting only as agent of employer who was real donor. *United States v Seuss* (1973), CA1 Mass) 474 F2d 385, 21 ALR Fed 967, cert den (1973) 412 US 928, 37 L Ed 2d 155, 93 S Ct 2751.

Employees of firm engaged in commerce are included within statutory term "person. . . engaged in commerce" in 21 USCS § 622 regardless of whether offenses are more or less extensive or involve conspiracy. *United States v Forgiome* (1973), CA1 Mass) 487 F2d 364, cert den (1974) 415 US 975, 39 L Ed 2d 872, 94 S Ct 1561.

4. Evidence

Acts of defendant occurring before date set by statute of limitations were properly admitted in evidence to show general conspiracy over period of time. *United States v Seuss* (1973), CA1 Mass) 474 F2d 385, 21 ALR Fed 967, cert den (1973) 412 US 928, 37 L Ed 2d 155, 93 S Ct 2751.

In prosecution under 21 USCS § 622, admission of evidence indicating that defendant committed number of criminal acts in accepting illegal payments in addition to those for which he was being tried was not error, nor was government's evidence insufficient to establish that meat packers involved in illegal payments were engaged in interstate commerce; failure of trial court to give instruction mentioning transactional immunity granted government's witnesses and instruction that in order to convict jury must find connection between payments made and defendant's official duties did not constitute error. *United States v Murphy* (1973), CA1 Mass) 480 F2d 256, cert den (1973) 414 US 912, 38 L Ed 2d 151, 94 S Ct 253.

5. —Intent

Absence in 21 USCS § 622 of requirement that

21 USCS § 622, n 7

government prove intent, either of donor to influence official conduct, or of recipient to alter performance, does not render § 622 one of strict liability, and receiving or accepting official must be aware that transfer is one of value and transferor is engaged in interstate commerce; however, failure of trial court to instruct with reference to requirement that acceptance of things of value be in connection with officer's official duties was harmless due to abundant evidence in this regard and lack of prior interpretation of statute. *United States v Seuss* (1973), CA1 Mass) 474 F2d 385, 21 ALR Fed 967, cert den (1973) 412 US 928, 37 L Ed 2d 155, 93 S Ct 2751.

In prosecution under 21 USCS § 622, government had only to establish general criminal intent to prove that defendant meat inspector willfully or voluntarily received alleged gifts from those he inspected. *United States v Mullens* (1978), CA5 Tex) 583 F2d 134.

6. Instructions

Absence in 21 USCS § 622 of requirement that government prove intent, either of donor to influence official conduct, or of recipient to alter performance, does not render § 622 one of strict liability, and receiving or accepting official must be aware that transfer is one of value and transferor is engaged in interstate commerce; however, failure of trial court to instruct with reference to requirement that acceptance of things of value be in connection with officer's official duties was harmless due to abundant evidence in this regard and lack of prior interpretation of statute. *United States v Seuss* (1973), CA1 Mass) 474 F2d 385, 21 ALR Fed 967, cert den (1973) 412 US 928, 37 L Ed 2d 155, 93 S Ct 2751.

In prosecution under 21 USCS § 622, admission of evidence indicating that defendant committed number of criminal acts in accepting illegal payments in addition to those for which he was being tried was not error, nor was government's evidence insufficient to establish that meat packers involved in illegal payments were engaged in interstate commerce; failure of trial court to give instruction mentioning transactional immunity granted government's witnesses and instruction that in order to convict jury must find connection between payments made and defendant's official duties did not constitute error. *United States v Murphy* (1973), CA1 Mass) 480 F2d 256, cert den (1973) 414 US 912, 38 L Ed 2d 151, 94 S Ct 253.

7. Penalties

Three year sentence upon conviction under 21 USCS § 622 was clearly within statutory limits and was thus not denial of equal protection. *United States v Murphy* (1973), CA1 Mass) 480 F2d 256, cert den (1973) 414 US 912, 38 L Ed 2d 151, 94 S Ct 253.

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ishment for bribery of inspector may be by tion, purpose of which is to remove persons icted from any function or plant operation iving meat grading or meat inspection services r than to withdraw service from companies ndividuals; isolation is to assure involved iduals will not be in jobs where their presence it by USDA personnel, which would tend to ide or interfere with performance of official s by USDA personnel, or which could influ- performance of graders or inspectors in any Re Great Western Packing Co. (1980) 39 Ag 1358.

Where corporate officer of meat packing com- pany had been convicted under 18 USCS § 201(f) and 21 USCS § 622, and withdrawal of federal meat and poultry inspection services under terms of consent decision and order had been held in abeyance on condition that company disassociate itself from officer and have no dealings with any firm that officer is associated with, suspended with- drawal will be immediately activated upon deter- mination that prohibited association is occurring. In re Vermont Meat Packers, Inc. (1989) 48 Ag Dec 150.

23. Exemptions from inspection requirements

Personal slaughtering and custom slaughtering for personal, household, and employee uses. The provisions of this title [21 USCS §§ 601 et seq.] requiring inspection of the slaughter of animals and the preparation of carcasses, parts thereof, meat and meat food products at establishments conducting such operations for commerce shall not apply to the slaughtering by any person of animals of his own raising, and the preparation by him transportation in commerce of the carcasses, parts thereof, meat and meat food products of such animals exclusively for use by him and members of his household and his nonpaying guests and employees; nor to the custom slaughter by any person, firm, or corporation of cattle, sheep, swine or goats slaughtered and transportation in commerce of the carcasses, parts thereof, meat and meat food products of such animals, exclusively for use, the household of such owner, by him and members of his household and nonpaying guests and employees; nor to the custom preparation by any person, firm, or corporation of carcasses, parts thereof, meat or meat food products, derived from the slaughter by any person of cattle, sheep, swine, goats of his own raising, or from game animals, delivered by the owner thereof for such custom preparation, and transportation in commerce of such custom prepared articles, exclusively for use in the household of such owner, and members of his household and his nonpaying guests and employees. *Provided*, That in cases where such person, firm, or corporation engages in such custom operations at an establishment at which inspection under this title [21 USCS §§ 601 et seq.] is maintained, the Secretary may exempt from inspection at such establishment any animals slaughtered or any meat food products otherwise prepared on such custom basis: *Provided* further, That custom operations at any establishment shall be exempt from inspection requirements as provided by this section only if the establishment complies with regulations which the Secretary is hereby authorized to promulgate to assure that any carcasses, parts thereof, meat or meat food products wherever handled on a custom basis, or any containers or packages containing such articles, are separated at all times from carcasses, parts thereof, meat or meat food products prepared for sale, and that all such articles prepared on a custom basis, or any containers or packages containing such articles, are plainly marked "Not for Sale" immediately after being

prepared and kept so identified until delivered to the owner and that the establishment conducting the custom operation is maintained and operated in a sanitary manner.

(b) **Territorial exemption; refusal, withdrawal, or modification.** The Secretary may, under such sanitary conditions as he may by regulations prescribe, exempt from the inspection requirements of this title [21 USCS §§ 601 et seq.] the slaughter of animals, and the preparation of carcasses, parts thereof, meat and meat food products, by any person, firm, or corporation in any Territory not organized with a legislative body solely for distribution within such Territory when the Secretary determines that it is impracticable to provide such inspection within the limits of funds appropriated for administration of this Act and that such exemption will otherwise facilitate enforcement of this Act. The Secretary may refuse, withdraw, or modify any exemption under this paragraph (b) in his discretion whenever he determines such action is necessary to effectuate the purposes of this Act.

(c) **Pizzas containing meat food products.** (1) Under such terms and conditions as the Secretary shall prescribe through rules and regulations issued under section 24 that may be necessary to ensure food safety and protect public health such as special handling procedures, the Secretary shall exempt pizzas containing a meat food product from the inspection requirements of this Act if—

(A) the meat food product components of the pizzas have been prepared, inspected, and passed in a cured or cooked form as ready-to-eat in compliance with the requirements of this Act; and

(B) the pizzas are to be served in public or private nonprofit institutions.

(2) The Secretary may withdraw or modify any exemption under this subsection whenever the Secretary determines such action is necessary to ensure food safety and to protect public health. The Secretary may reinstate or further modify any exemption withdrawn or modified under this subsection.

(d) **Adulteration and misbranding provisions applicable to inspection-free articles.** The adulteration and misbranding provisions of this title [21 USCS §§ 601 et seq.], other than the requirement of the inspection legend, shall apply to articles which are exempted from inspection or not required to be inspected under this section. (March 4, 1907, ch 2907, Title I, § 23, 34 Stat. 1265; June 29, 1938, ch 810, 52 Stat. 1235; Dec. 15, 1967, P. L. 90-201, §§ 1, 11, 81 Stat. 584, 591; July 18, 1970, P. L. 91-342, 84 Stat. 438; Dec. 13, 1991, P. L. 102-237, Title X, § 1016(a), 105 Stat. 1902.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

explanatory notes: his section formerly appeared as 21 USCS §§ 91 and 92. amendments:

§38. Act June 29, 1938, substituted this section for one which read: The provisions of this Act requiring inspection to be made by the Secretary of Agriculture shall not apply to animals slaughtered by any farmer on the farm and sold and transported as interstate or foreign commerce, nor to retail butchers and retail dealers in meat and meat products, supplying their customers: Provided, That if any person shall sell or offer for sale or transportation for interstate or foreign commerce any meat or meat food products which are diseased, unsound, unhealthy, unwholesome, or otherwise unfit for human consumption, he shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding one thousand dollars or by imprisonment for a period of not exceeding one year, or by both such fine and imprisonment: Provided also, That the Secretary of Agriculture is authorized to maintain the inspection in this Act provided for at any slaughter, meat-canning, salting, packing, rendering, or similar establishment notwithstanding this exception, and that the persons operating the same may be retail butchers and retail dealers or farmers: and where the Secretary of Agriculture shall establish such inspection then the provisions of this Act shall apply notwithstanding this exception. And the Secretary of Agriculture shall, in his annual estimates made to Congress, submit a statement in detail, showing the number of persons employed at such inspections and the salary or per diem paid to each, together with the contingent expenses of such inspectors and where they have been and are employed."

67. Act Dec. 15, 1967, substituted this section for one which read: That within the meaning of this Act—

(1) A 'farmer' means any person or partnership chiefly engaged in producing agricultural products on whose farm the number of cattle, calves, sheep, lambs, swine, or goats is in keeping with the size of the farm or with the volume or character of the agricultural products produced thereon, but does not mean any person or partnership engaged in producing agricultural products who—

"(1) actively engages in buying or trading in cattle, calves, sheep, lambs, swine, or goats: or

"(2) actively engages, directly or indirectly, in conducting a business which includes the slaughter of cattle, calves, sheep, lambs, swine, or goats for food purposes; or

"(3) actively engages, directly or indirectly, in buying or selling meat or meat food products other than those prepared by any farmer on the farm; or

"(4) actively engages, directly or indirectly, in salting, curing, or canning meat, or in preparing sausage, lard, or other meat food products; or

"(5) slaughters, or permits any person to slaughter, on his or their farm cattle, calves, sheep, lambs, swine, or goats which are not actually owned by him or them.

(1) A 'retail butcher' means any person, partnership, association, or

corporation chiefly engaged in selling meat or meat food products to consumers only, except that the Secretary of Agriculture, at his discretion, may permit any retail butcher to transport in interstate or foreign commerce to consumers and meat retailers in any one week not more than five carcasses of cattle, twenty-five carcasses of calves, twenty carcasses of sheep, twenty-five carcasses of lambs, ten carcasses of swine, twenty carcasses of goats, or twenty-five carcasses of goat kids, or the equivalent of fresh meat therefrom, and to transport in interstate or foreign commerce to consumers only meat and meat food products which have been salted, cured, canned, or prepared as sausage, lard, or other meat food products, and which have not been inspected, examined, and marked as 'Inspected and Passed' in accordance with the terms of the Meat Inspection Act of March 4, 1907, and Acts supplemental thereto, and with the rules and regulations prescribed by the Secretary of Agriculture.

"(c) A 'retail dealer' means any person, partnership, association, or corporation chiefly engaged in selling meat or meat food products to consumers only except that the Secretary of Agriculture, at his discretion, may permit any retail dealer to transport in interstate trade or foreign commerce to consumers and meat retailers in any one week not more than five carcasses of cattle, twenty-five carcasses of calves, twenty carcasses of sheep, twenty-five carcasses of lambs, ten carcasses of swine, twenty carcasses of goats, or twenty-five carcasses of goat kids, or the equivalent of fresh meat therefrom, and to transport in interstate foreign commerce to consumers only meat and meat food products which have been salted, cured, canned, or prepared as sausage, lard, or other meat food products which have not been inspected, examined, and marked as 'Inspected and Passed' in accordance with the terms of the Meat Inspection Act of March 4, 1907, and Acts supplemental thereto, and with the rules and regulations prescribed by the Secretary of Agriculture. That the provisions of the Meat Inspection Act of March 4, 1907, requiring inspection to be made by the Secretary of Agriculture shall not apply to animals slaughtered by any farmer on the farm and sold and transported in interstate or foreign commerce, nor to retail butchers and retail dealers in meat and meat food products, supplying their customers: Provided, That all meat and meat food products derived from animals slaughtered by any farmer on the farm which are salted, cured, canned, or prepared into sausage, lard, or other meat food products at any place other than by the farmer on the farm upon which the animals were slaughtered shall not be transported in interstate or foreign commerce under the farmers' exemption herein provided, and all fresh meat and all farm-cured or prepared meat and meat food products derived from animals slaughtered by any farmer on the farm which are to be used in interstate or foreign commerce shall be clearly marked with the name and address of the farmer on whose farm the animals were slaughtered: Provided further, That if any person shall sell or offer for sale or transportation for interstate or foreign commerce any meat or meat food products which are diseased, unsound, unhealthy, unwholesome, or otherwise unfit for human food, knowing that such meat food products are intended for human consumption, he shall be guilty of a misdemeanor and on conviction thereof shall be punished by a fine not exceeding \$1,000 or by imprisonment for a period of not exceeding one year, or by both such

and imprisonment: And provided further, That the Secretary of Agriculture is authorized to maintain the inspection in this Act provided at any slaughtering, meat canning, salting, packing, rendering, or similar establishment notwithstanding this exception, and that the persons operating the same may be retail butchers and retail dealers or owners; and where the Secretary of Agriculture shall establish such section then the provisions of this Act shall apply notwithstanding exception."

0. Act July 18, 1970, in subsec. (a), substituted "; nor to the custom variation by any person, firm, or corporation of carcasses, parts of meat or meat food products, derived from the slaughter by any of cattle, sheep, swine, or goats of his own raising, or from game animals, delivered by the owner thereof for such custom preparation, transportation in commerce of such custom prepared articles, usually for use in the household of such owner, by him and members of his household and his nonpaying guests and employees: Provided, That in cases where such person, firm, or corporation engages in such operations at an establishment at which inspection under this Act is maintained, the Secretary may exempt from such inspection at that establishment any animals slaughtered or any meat or meat food products otherwise prepared on such custom basis: Provided further, That custom operations at any establishment shall be exempt from such operations as provided by this section only if the establishment complies with regulations which the Secretary is hereby authorized to promulgate to assure that any carcasses, parts thereof, meat or meat products wherever handled on a custom basis, or any containers or packages containing such articles, are separated at all times from meat or meat food products prepared for sale, that all such articles prepared on a custom basis, or any containers or packages containing such articles, are plainly marked "Not for Sale" immediately after being prepared and kept so identified until delivered to the owner and that the establishment conducting the custom operation be maintained and operated in a sanitary manner." for "": Provided, That a custom slaughterer does not engage in the business of buying or selling any carcasses, parts of carcasses, meat or meat food products of cattle, sheep, swine, goats or equines, capable of use as human

Act Dec. 13, 1991 (effective upon enactment as provided by 11(a) of such Act, which appears as 7 USCS § 1421 note) redesignated former subsec. (c) as subsec. (d); and inserted a new subsec. (c). (c).

signature:

Dec. 15, 1967, P. L. 90-201, § 1 in part, 81 Stat. 584, designated this in, formerly the twenty-first and twenty-second paragraphs of Act of 1907, ch 2907, Title I, 34 Stat. 1255, as § 23 of such Act.

provisions:

Dec. 15, 1967, P. L. 90-201, § 20(c), 71 Stat. 601, which appears as 5 USCS § 601 note, provided that the amendment made to this section by Act of 1967, ch 2907, Title I, 34 Stat. 1255, as § 23 of such Act is effective on the expiration of 60 days after enactment on Dec. 15, 1967, except that, with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products

thereof, such amendment is effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

Issuance of final rules implementing the exemption authorized by subsec. (c). Act Dec. 13, 1991, P. L. 102-237, Title X, § 1016(c), 105 Stat. 1903, effective on enactment as provided by § 1101(a) of such Act, which appears as 7 USCS § 1421 note, provides: "No later than August 1, 1992, the Secretary of Agriculture shall issue final rules, through prior notice and comment rulemaking procedures, to implement the exemption authorized by section 23(c) of the Federal Meat Inspection Act (as added by subsection (a)) [subsec. (c) of this section] and the exemption authorized by section 15(d) of the Poultry Products Inspection Act (as added by subsection (b)) [21 USCS § 464(d)]. Prior to the issuance of the final rules, the Secretary shall hold at least one public hearing examining the public health and food safety issues raised by the granting of each of the exemptions."

RESEARCH GUIDE

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

Law Review Articles:

Verkuil. A Study of Informal Adjudication Procedures. 43 U Chi L Rev 739.

INTERPRETIVE NOTES AND DECISIONS

There is no discretion vested in Secretary of §§ 601 et seq., and it is duty of Secretary to Agriculture as to his application of "custom exemption" provision as written. Fargo Packing Corp. v Wholesale Meat Act [21 USCS Corp. v Hardin (1970, DC ND) 312 F Supp 942.

§ 624. Storage and handling regulations; violations; exemption of establishments subject to non-Federal jurisdiction

The Secretary may by regulations prescribe conditions under which carcasses, parts of carcasses, meat, and meat food products of cattle, sheep, swine, goats, horses, mules, or other equines, capable of use as human food, shall be stored or otherwise handled by any person, firm, or corporation engaged in the business of buying, selling, freezing, storing, or transporting, in or for commerce, or importing, such articles, whenever the Secretary deems such action necessary to assure that such articles will not be adulterated or misbranded when delivered to the consumer. Violation of any such regulation is prohibited. However, such regulations shall not apply to the storage or handling of such articles at any retail store or other establishment in any State or organized Territory that would be subject to this section only because of purchases in commerce, if the storage and handling of such articles at such establishment is regulated under the laws of the State or Territory in which such establishment is located, in a manner which the Secretary, after consultation with the appropriate advisory committee provided for in section 301 of this Act [21 USCS § 651], determines is adequate to effectuate the purposes of this section.

USCS § 624

FOOD AND DRUGS

March 4, 1907, ch 2907, Title I, § 24, as added Dec. 15, 1967, P. L. 90-201, § 13, 81 Stat. 593.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967, except that with respect to equines (other than horses) and their carcasses and parts thereof, meat, and meat food products thereof, this section is effective upon the expiration of 60 days after enactment on Dec. 15, 1967 as provided by § 20(b) of such Act.

CODE OF FEDERAL REGULATIONS

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Transportation, 9 CFR Part 325.

RESEARCH GUIDE

Annotations:

Validity, construction, and application of § 22 of Federal Meat Inspection Act (21 USCS § 622) making it federal offense to bribe federal meat inspectors or for inspectors to accept bribe. 21 ALR Fed 977.

INTERPRETIVE NOTES AND DECISIONS

ertain municipal ordinances under which inspections allowed by Act of facilities and delivery of delivery vehicles were conducted while vehicles on premises of regulated establishment, their routes, or while being unloaded at point of and ordinances in question provide for delivery vehicle inspection away from premises of such establishment. Chicago-Midwest Meat Assn. v Evans-related regulations similarly set forth standards ton (1978, CA7 Ill) 589 F.2d 278, cert den (1979) : used by federal officials carrying out inspection. 442 US 946, 61 L Ed 2d 318, 99 S Ct 2895.

MEAT PROCESSORS AND RELATED INDUSTRIES

41. Prohibition of 21 USCS §§ 601 et seq. inspection of articles intended for use as human food; denaturation or other identification prior to distribution in commerce; inedible articles

ection shall not be provided under title I of this Act [21 USCS §§ 601 et seq.] at any establishment for the slaughter of cattle, sheep, swine, goats, horses, mules, or other equines, or the preparation of any carcasses or parts of products of such animals, which are not intended for use as human food, such articles shall, prior to their offer for sale or transportation in commerce, unless naturally inedible by humans, be denatured or otherwise identified as prescribed by regulations of the Secretary to deter their use for human food. No person, firm, or corporation shall buy, sell, transport, or export for sale or transportation, or receive for transportation, in commerce, any carcasses, parts thereof, meat or meat food products of any animals, which are not intended for use as human food unless they are identified or otherwise identified as required by the regulations of the Secretary or are naturally inedible by humans.

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MEAT INSPECTION

21 USCS § 642

(March 4, 1907, ch 2907, Title II, § 201, as added Dec. 15, 1967, P. L. 90-201, § 14, 81 Stat. 593.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

RESEARCH GUIDE

Federal Procedure L Ed:

17 Fed Proc L Ed, Health, Education, and Welfare § 42:1071.

Am. Jur:

61 Am Jur 2d, Plant and Job Safety § 22.

§ 642. Recordkeeping requirements

(a) Classes of persons bound; scope of disclosure; access to places of business; examination of records, facilities, and inventories; copies; samples. The following classes of persons, firms, and corporations shall keep such records as will fully and correctly disclose all transactions involved in their businesses; and all persons, firms, and corporations subject to such requirements shall, at all reasonable times, upon notice by a duly authorized representative of the Secretary, afford such representative access to their places of business and opportunity to examine, the facilities, inventory, and records thereof, to copy all such records, and to take reasonable samples of their inventory upon payment of the fair market value thereof—

(1) Any persons, firms, or corporations that engage, for commerce, in the business of slaughtering any cattle, sheep, swine, goats, horses, mules, or other equines, or preparing, freezing, packaging, or labeling any carcasses, or parts or products of carcasses, of any such animals, for use as human food or animal food;

(2) Any persons, firms, or corporations that engage in the business of buying or selling (as meat brokers, wholesalers or otherwise), or transporting in commerce, or storing in or for commerce, or importing, any carcasses, or parts or products of carcasses, of any such animals;

(3) Any persons, firms, or corporations that engage in business, in or for commerce, as renderers, or engage in the business of buying, selling, or transporting, in commerce, or importing, any dead, dying, disabled, or diseased cattle, sheep, swine, goats, horses, mules, or other equines, or parts of the carcasses of any such animals that died otherwise than by slaughter.

(b) Period of maintenance. Any record required to be maintained by this section shall be maintained for such period of time as the Secretary may by regulations prescribe.

(March 4, 1907, ch 2907, Title II, § 202, as added Dec. 15, 1967, P. L. 90-201, § 14, 81 Stat. 593.)

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21 USCS § 642

FOOD AND DRUGS

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CROSS REFERENCES

This section is referred to in 21 USCS §§ 645, 661, 678.

INTERPRETIVE NOTES AND DECISIONS

Provisions of 21 USCS § 642 that during inspection, agents of Department of Agriculture may take samples of inventory upon payment of fair market value thereof is not applicable to samples taken under 21 USCS § 606 for purpose of determining whether meat products can be marked "inspected and passed"; taking of such samples does not violate due process as long as sampling is not excessive. *Chip Steak, Inc. v Hardin* (1973, ND Cal) 353 F. Supp. 438, aff'd (1974, CA9 Cal) 502 F.2d 764, cert den (1975) 420 US 926, 43 L. Ed. 2d 396, 95 S. Ct. 1123.

643. Registration of business, name of person, and trade names

Any person, firm, or corporation shall engage in business, in or for commerce, as a meat broker, renderer, or animal food manufacturer, or engage in business in commerce as a wholesaler of any carcasses, or parts or products of carcasses, of any cattle, sheep, swine, goats, horses, mules, or other animals, whether intended for human food or other purposes, or engage in business as a public warehouseman storing any such articles in or for commerce, or engage in the business of buying, selling, or transporting, in commerce, or importing any dead, dying, disabled, or diseased animals of the specified kinds, or parts of the carcasses of any such animals that died otherwise than by slaughter, unless, when required by regulations of the Secretary, he has registered with the Secretary his name, and the address of his place of business at which, and all trade names under which, he produces such business.

Act Dec. 15, 1967, ch 2907, Title II, § 203, as added Dec. 15, 1967, P. L. 90-201, § 14, 81 Stat. 594.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CROSS REFERENCES

This section is referred to in 21 USCS § 645.

644. Regulation of transactions, transportation, or importation of animals to prevent use as human food

Any person, firm, or corporation engaged in the business of buying, selling, transporting in commerce, or importing, dead, dying, disabled, or diseased animals, or any parts of the carcasses of any animals that died otherwise

MEAT INSPECTION

21 USCS § 645

Any person who slaughters, sells, transports, offers for sale or transportation, or receives for transportation, in commerce, or imports, any dead, dying, disabled, or diseased cattle, sheep, swine, goats, horses, mules or other equines, or parts of the carcasses of any such animals that died otherwise than by slaughter, unless such transaction, transportation or importation is made in accordance with such regulations as the Secretary may prescribe to assure that such animals, or the unwholesome parts or products thereof, will be prevented from being used for human food purposes.

(March 4, 1907, ch 2907, Title II, § 204, as added Dec. 15, 1967, P. L. 90-201, § 14, 81 Stat. 594.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20(d), 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on the expiration of 60 days after enactment on Dec. 15, 1967.

CROSS REFERENCES

This section is referred to in 21 USCS § 645.

§ 645. Federal provisions applicable to State or Territorial business transactions of a local nature and not subject to local authority

The authority conferred on the Secretary by section 202, 203, or 204 of this title [21 USCS § 642, 643, or 644] with respect to persons, firms, and corporations engaged in the specified kinds of business in or for commerce may be exercised with respect to persons, firms, or corporations engaged, in any State or organized Territory, in such kinds of business but not in or for commerce, whenever the Secretary determines, after consultation with an appropriate advisory committee provided for in section 301 of this Act [21 USCS § 661], that the State or Territory does not have at least equal authority under its laws or such authority is not exercised in a manner to effectuate the purposes of this Act, including the State providing for the Secretary or his representative being afforded access to such places of business and the facilities, inventories, and records thereof, and the taking of reasonable samples, where he determines necessary in carrying out his responsibilities under this Act; and in such case the provisions of section 202, 203, or 204 [21 USCS § 642, 643, or 644], respectively, shall apply to such persons, firms, and corporations to the same extent and in the same manner as if they were engaged in such business in or for commerce and the transactions involved were in commerce.

(March 4, 1907, ch 2907, Title II, § 205, as added Dec. 15, 1967, P. L. 90-201, § 14, 81 Stat. 594.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CODE OF FEDERAL REGULATIONS

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Special provisions for designated States and territories; and designation of establishments which endanger public health and for such designated establishments, 9 CFR Part 331.

FEDERAL AND STATE COOPERATION

§1. Federal and State cooperation

Congressional statement of policy. It is the policy of the Congress to protect the consuming public from meat and meat food products that are iterated or misbranded and to assist in efforts by State and other Government agencies to accomplish this objective. In furtherance of this policy—

(a) Development and administration of State meat inspection program equal to those provided in Title I ante and post mortem inspection, inspection, and sanitation requirements. The Secretary is authorized, whenever he determines that it would effectuate the purposes of this Act, to cooperate with the appropriate State agency in developing and administering a State meat inspection program in any State which has enacted State meat inspection law that imposes mandatory ante mortem and post mortem inspection, reinspection and sanitation requirements that are at least equal to those under title I of this Act [21 USCS §§ 601 et seq.], with respect to all or certain classes of persons engaged in the State in slaughtering cattle, sheep, swine, goats, or equines, or preparing the carcasses, parts thereof, meat or meat food products, of any such animals for use as human food solely for distribution within such State.

(b) Development and administration of State program with authorities equal to those provided in Title II authorities; cooperation with Federal agencies. The Secretary is further authorized, whenever he determines that it would effectuate the purposes of this Act, to cooperate with appropriate State agencies in developing and administering State programs under State laws containing authorities at least equal to those provided in title I of this Act [21 USCS §§ 641 et seq.]; and to cooperate with other agencies of the United States in carrying out any provisions of this Act.

(c) Scope of cooperation: advisory assistance, technical and laboratory assistance and training, and financial and other aid; limitation on amount; equitable allocation of Federal funds; adequacy of State program to obtain Federal cooperation and payments. Cooperation with State agencies under this section may include furnishing to the appropriate State agency: (i) advisory assistance in planning and otherwise developing an adequate State program under the State law; and (ii) technical and laboratory assistance and training (including necessary curricular and instructional materials and equipment), and financial and other aid for administration of such a program. The amount to be contributed to any State by the Secretary under this section from Federal funds for any year shall not exceed 50 per centum of the estimated total cost of the cooperative

MEAT INSPECTION

program; and the Federal funds shall be allocated among the States desiring to cooperate on an equitable basis. Such cooperation and payment shall be contingent at all times upon the administration of the State program in a manner which the Secretary, in consultation with the appropriate advisory committee appointed under paragraph (4), deems adequate to effectuate the purposes of this section.

(4) Advisory committees. The Secretary may appoint advisory committees consisting of such representatives of appropriate State agencies as the Secretary and the State agencies may designate to consult with him concerning State and Federal programs with respect to meat inspection and other matters within the scope of this Act, including evaluating State programs for purposes of this Act and obtaining better coordination and more uniformity among the State programs and between the Federal and State programs and adequate protection of consumers.

(b) Single State agency; subordinate governmental unit as part of State agency. The appropriate State agency with which the Secretary may cooperate under this Act shall be a single agency in the State which is primarily responsible for the coordination of the State programs having objectives similar to those under this Act. When the State program includes performance of certain functions by a municipality or other subordinate governmental unit, such unit shall be deemed to be a part of the State agency for purposes of this section.

(c) State meat inspection requirements. (1) Notice to Governor of nondevelopment or nonenforcement; designation of State as subject to title [titles] I and IV [21 USCS §§ 601 et seq. and 671 et seq.]; delay and revocation of designation; publication in the Federal Register; notice of production of adulterated meat or meat food products; designation of State. If the Secretary has reason to believe, by thirty days prior to the expiration of two years after enactment of the Wholesome Meat Act [enacted Dec. 15, 1967], that a State has failed to develop or is not enforcing, with respect to all establishments within its jurisdiction (except those that would be exempted from Federal inspection under subparagraph (2)) at which cattle, sheep, swine, goats, or equines are slaughtered, or their carcasses, or parts or products thereof, are prepared for use as human food, solely for distribution within such State, and the products of such establishments, requirements at least equal to those imposed under title [titles] I and IV of this Act [21 USCS §§ 601 et seq. and 671 et seq.], he shall promptly notify the Governor of the State of this fact. If the Secretary determines, after consultation with the Governor of the State, or representative selected by him, that such requirements have not been developed and activated, he shall promptly after the expiration of such two-year period designate such State as one in which the provisions of titles I and IV of this Act [21 USCS §§ 601 et seq., 671 et seq.] shall apply to operations and transactions wholly within such State: *Provided*, That if the Secretary has reason to believe that the State will activate such requirements within one additional year, he may delay such designation for said period, and not designate the State, if he determines at the end of the year that the

ate then has such requirements in effective operation. The Secretary shall publish any such designation in the Federal Register and, upon the expiration of thirty days after such publication, the provisions of titles I and IV [21 USCS §§ 601 et seq. and 671 et seq.] shall apply to operations and transactions and to persons, firms, and corporations engaged therein the State to the same extent and in the same manner as if such operations and transactions were conducted in or for commerce. Thereafter, upon request of the Governor, the Secretary shall revoke such designation if the Secretary determines that such State has developed and will enforce requirements at least equal to those imposed under title I and title IV of this Act [21 USCS §§ 601 et seq. and 671 et seq.]. *And provided further*, that, notwithstanding any other provision of this section, if the Secretary determines that any establishment within a State is producing adulterated meat or meat food products for distribution within such State which would clearly endanger the public health he shall notify the Governor of such State and the appropriate Advisory Committee provided by section 1 of the Act [this section] of such fact for effective action under State local law. If the State does not take the action to prevent such endangering of the public health within a reasonable time after such notification, as determined by the Secretary, in light of the risk to public health, the Secretary may forthwith designate any such establishment as subject to the provisions of titles I and IV of the Act [21 USCS §§ 601 et seq. and 671 et seq.], and thereupon the establishment and operator thereof shall be subject to such provisions as though engaged in commerce until such time as the Secretary determines that such State has developed and will enforce requirements at least equal to those imposed under title I and title IV of this Act [21 USCS §§ 601 et seq. and 671 et seq.].

Exemptions of retail stores, restaurants, and similar retail-type establishments; operations conducted at a restaurant central kitchen facility. The provisions of this Act requiring inspection of the slaughter of animals in the preparation of carcasses, parts thereof, meat and meat food products shall not apply to operations of types traditionally and usually conducted at retail stores and restaurants, when conducted at any retail store or restaurant or similar retail-type establishment for sale in normal quantities or service of such articles to consumers at such establishments if such establishments are subject to such inspection provisions only under this paragraph (c). For the purposes of this subparagraph, operations conducted at a restaurant central kitchen facility shall be considered as being conducted at a restaurant if the restaurant central kitchen prepares meat or meat food products that are ready to eat when they leave the facility and are served in meals or as entrees only to customers at restaurants owned or operated by the same person, firm, or corporation or operating such facility: *Provided*, That such facility shall be subject to the provisions of section 202 of this Act [21 USCS § 642]: *And provided further*, That the facility may be subject to the inspection requirements under title I of this Act [21 USCS §§ 601 et seq.] for as long as the Secretary deems necessary, if the Secretary determines that the

sanitary conditions or practices of the facility or the processing procedures or methods at the facility are such that any of its meat or meat food products are rendered adulterated.

(3) Termination of designation of State upon development and enforcement of minimum requirements; redesignation; designation for non-enforcement of minimum requirements; notice and publication in Federal Register. Whenever the Secretary determines that any State designated under this paragraph (c) has developed and will enforce State meat inspection requirements at least equal to those imposed under titles I and IV [21 USCS §§ 601 et seq. and 671 et seq.], with respect to the operations and transactions within such State which are regulated under subparagraph (1), he shall terminate the designation of such State under this paragraph (c), but this shall not preclude the subsequent redesignation of the State at any time upon thirty days notice to the Governor and publication in the Federal Register in accordance with this paragraph, and any State may be designated upon such notice and publication at any time after the period specified in this paragraph whether or not the State has theretofore been designated upon the Secretary determining that it is not effectively enforcing requirements at least equal to those imposed under titles I and IV [21 USCS §§ 601 et seq. and 671 et seq.].

(4) Periodic review; report to Congressional committees. The Secretary shall promptly upon enactment of the Wholesome Meat Act [enacted Dec. 15, 1967] and periodically thereafter, but at least annually, review the requirements, including the enforcement thereof, of the several States not designated under this paragraph (c), with respect to the slaughter, and the preparation, storage, handling and distribution of carcasses, parts thereof, meat and meat food products, of such animals, and inspection of such operations, and annually report thereon to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate in the report required under section 17 of the Wholesome Meat Act [21 USCS § 691].

(d) "State" defined. As used in this section, the term "State" means any State (including the Commonwealth of Puerto Rico) or organized Territory. (March 4, 1907, ch 2907, Title III, § 301, as added Dec. 15, 1967, P. L. 90-201, § 15, 81 Stat. 595; Oct. 17, 1984, P. L. 98-487, § 1, 98 Stat. 2264; Nov. 2, 1994, P. L. 103-437, § 8(2), 108 Stat. 4588.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

The bracketed word "titles" was inserted in subsec. (c)(1) to indicate the word probably intended by Congress.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

Amendments:

1984. Act Oct. 17, 1984, in subsec. (c)(2), added the sentence beginning "For the purposes . . ."
 1994. Act Nov. 2, 1994, in subsec. (c)(4), substituted "Agriculture, Nutrition, and Forestry" for "Agriculture and Forestry".

Other provisions:

Termination of advisory committees. Act Oct. 6, 1972, P. L. 92-463, §§ 3(2), 14, 86 Stat. 770, 776, located at 5 USCS Appendix, provided that advisory committees in existence on Jan. 5, 1973, would terminate not later than the expiration of the two-year period following Jan. 5, 1973, unless, in the case of a committee established by the President or an officer of the Federal government, such committee is renewed by appropriate action prior to the expiration of such two-year period, or in the case of a committee established by the Congress, its duration is otherwise provided by law. Advisory committees established after Jan. 5, 1973, would terminate not later than two years after their establishment, unless, in the case of a committee established by the President or an officer of the Federal Government, such committee is renewed by appropriate action prior to the expiration of such two-year period, or in the case of a committee established by the Congress, its duration is otherwise provided by law.

CROSS REFERENCES

This section is referred to in 21 USCS §§ 607, 624, 645.

RESEARCH GUIDE**Federal Procedure L. Ed.:**

17 Fed Proc L Ed, Health, Education, and Welfare § 42:1071.

Am Jur:

61 Am Jur 2d, Plant and Job Safety-OSHA and State Laws § 22.

Annotations:

Federal pre-emption of state food labeling legislation or regulation. 79 ALR Fed 181.

INTERPRETIVE NOTES AND DECISIONS

1. Applicability
2. Judicial review

1. Applicability

Mother and 8-year-old son may not proceed directly under Food, Drug, and Cosmetic Act (21 USCS §§ 301 et seq.) for fast-food restaurant's alleged violations of their civil rights and FDA rules by selling them tainted meat, even if private right of action under Act were available, because restaurants, as discrete category, have been specifically exempted from Act and rules under 21 USCS

2. Judicial review

Federal District Court has limited jurisdiction to construe Wholesome Meat Act [21 USCS §§ 601 et seq.] to determine whether Secretary of Agriculture exceeded his authority in making determination designating State of North Dakota as subject to federal inspection; Secretary had mandatory duty to promptly designate State of North Dakota as subject to federal inspection after Secretary received letter from Governor of North Dakota

which stated that North Dakota would not enforce Meat Act [21 USCS §§ 601 et seq.], *Fargis v. State Appropriation and Personnel Wholesome Corp. v. Hardin* (1970, DC ND) 312 F. Supp.

AUXILIARY PROVISIONS

§ 671. **Inspection services; refusal or withdrawal; hearings; but unfitness based upon certain convictions; other provisions for withdrawal of services unaffected; responsible connection with business; finality of Secretary's actions; judicial review; record**

The Secretary may (for such period, or indefinitely, as he deems necessary to effectuate the purposes of this Act) refuse to provide, or withdraw, inspection service under title I of this Act [21 USCS §§ 601 et seq.] with respect to any establishment if he determines, after opportunity for a hearing accorded to the applicant for, or recipient of, such service, that such applicant is unfit to engage in any business requiring inspection under title I [21 USCS §§ 601 et seq.] because the applicant or recipient, or any person responsibly connected with the applicant or recipient, has been convicted of any Federal or State crime, of (1) any felony, or (2) more than one violation of any law, other than a felony, based upon the acquiring, handling, distributing of unwholesome, mislabeled, or deceptively packaged food upon fraud in connection with transactions in food. This section shall affect in any way other provisions of this Act for withdrawal of inspection services under title I [21 USCS §§ 601 et seq.] from establishments failing to maintain sanitary conditions or to destroy condemned carcasses, parts, or meat food products.

For the purpose of this section a person shall be deemed to be responsible connected with the business if he was a partner, officer, director, holder of 10 per centum or more of its voting stock or employee in a managerial or executive capacity.

The determination and order of the Secretary with respect thereto subsection (e) shall be final and conclusive unless the affected applicant or recipient of, inspection service files application for judicial review within thirty days after the effective date of such order in the appropriate court provided in section 404 [21 USCS § 674]. Judicial review of any such determination shall be upon the record upon which the determination and order are made (March 4, 1907, ch 2907, Title IV, § 401, as added Dec. 15, 1967, P. L. 90-201, § 16, 81 Stat. 597; Nov. 10, 1986, P. L. 99-641, Title IV, § 403(c) Stat. 3568.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES**References in text:**

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

Amendments:

1986, Act Nov. 10, 1986 (effective only during the 6-year period beginning on the date of enactment, as provided by § 403(a) of such Act) designated the first sentence as subsec. (a) and, in such subsection, deleted "any felony, or (2)," and inserted "or (2) any felony" following "transactions in food"; designated the sentence beginning "This section shall not affect . . ." as subsec. (f); designated the sentence beginning "For the purpose of this section . . ." as subsec. (g); designated the sentence beginning "The determination and order . . ." as subsec. (h) and, in subsec. (h) as so designated, substituted "Except as provided in subsection (e)(2), the" for "The"; and added subsecs. (b)-(e) which read: "(b)(1) On the request of the Secretary at the time of the sentencing of an individual who is a person responsibly connected with any business requiring inspection under title I and who is convicted of a felony involving—

"(A) the intentional adulteration of food (except as defined in section 1(m)(8));

"(B) the adulteration of food, as defined in section 1(m)(8), with intent to defraud;

"(C) bribery; or

"(D) extortion; the sentencing court shall issue a temporary order forbidding such individual to exercise operational control of, or to be physically present at, any establishment requiring inspection under title I if the court finds that the exercise of operational control by, or the presence of, such individual at any such establishment either poses a direct and substantial threat to the public health or safety or, if such individual is convicted of a felony described in subparagraph (B), poses a clear likelihood of significant economic harm to consumers.

"(2) Such order shall terminate— (A) whenever the Secretary determines by order, after a hearing on the record, whether such individual should exercise operational control of, or be physically present at, any establishment requiring inspection under title I, and judicial review, if any, of such determination is completed; or

"(B) 90 days after the issuance of such temporary order by the court if the Secretary does not commence such hearing before the expiration of such 90 days; whichever occurs earlier.

"(c) Any determination and order of the Secretary issued under subsection (a) or (b) shall be conclusive and enforceable unless the affected applicant for, or recipient of, inspection service or the affected individual files, not later than 30 days after the effective date of such order, a petition for review of such order in the United States Court of Appeals for the District of Columbia Circuit or the court of appeals for the circuit in which the relevant establishment is doing business. Judicial review of such order shall be on the record on which the determination and order are based.

"(d)(1) Subject to paragraph (3), the Secretary may commence a civil action in an appropriate court, as provided in section 404, to withdraw inspection service under title I with respect to any establishment or to prevent any individual responsibly connected with any business requiring inspection under title I from exercising operational control of, or being present at, any establishment requiring inspection under title I.

"(2) If the court finds, on the basis of clear and convincing evidence, that the recipient of inspection service or such individual has repeatedly failed to comply with the requirements of this Act, or the rules and regulations issued under this Act, in a manner that poses a direct and substantial threat to the public health or safety, the court shall issue an order—

"(A) withdrawing inspection at such establishment; or

"(B) forbidding such individual to exercise operational control of, or to be physically present at, such establishment, for such period as the court determines is necessary to carry out the purposes of this Act.

"(3) Not less than 90 days, and not more than 450 days, before commencing a civil action under paragraph (1), the Secretary shall provide to each recipient of inspection service, and each individual responsibly connected with the business, with respect to which such action is commenced, a written notice that includes—

"(A) a statement that the Secretary intends to commence such action;

"(B) a comprehensive description of the violations of this Act and the regulations issued under this Act alleged by the Secretary; and

"(C) a description of the actions the Secretary considers necessary to be taken by such recipient or such individual to comply with this Act and to eliminate the need to commence such civil action.

"(e)(1) The Secretary may temporarily withdraw inspection service under title I with respect to any establishment for such period as is necessary to ensure the safe and effective performance of official duties under this Act if the Secretary determines, after an opportunity for a hearing on the record, that an officer, employee, or agent of such establishment—

"(A) threatened to forcibly assault;

"(B) forcibly assaulted;

"(C) forcibly intimidated; or

"(D) forcibly interfered with, an employee of the United States engaged in, or on account of, the performance of any of such official duties.

"(2)(A) Notwithstanding paragraph (1), the Secretary may temporarily suspend inspection service under title I with respect to any establishment, pending an expedited administrative hearing on the record and judicial review of the order of the Secretary based on such record, if the Secretary determines that temporary suspension of such inspection service is necessary for the safety of any employee who performs official duties under this Act.

"(B) If the Secretary receives, before or after temporarily suspend-

USCS § 671

ing such inspection service in accordance with subparagraph (A), adequate written assurances from the recipient of inspection service, or the individuals involved, that the conduct or circumstances that threatened the safety of such employee will not continue or recur, the Secretary may continue or restore such inspection service on condition that such assurances are fulfilled."

Such Act further (effective as above), in subsec. (a) as so designated, purported to substitute "applicant for" for "applicant, for," but such amendment could not be executed because "applicant, for" did not appear in such subsection.

RESEARCH GUIDE

Federal Procedure L Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:445-446, 35:448-449, 35:451.

18 Fed Proc L Ed, Health, Education, and Welfare § 42:1071.

Am Jur:

61 Am Jur 2d, Plant and Job Safety—OSHA and State Laws § 22.

Annotations:

Federal pre-emption of state food labeling legislation or regulation. 79 ALR Fed 181.

FOOD AND DRUGS

MEAT INSPECTION

upon fraud in connection with transactions with food" applies solely to words "more than one violation of any law, other than a felony," and does not apply to words "any felony." Re Norwich Beef Co. (1979) 38 Ag Dec 380.

Authority granted Secretary in 21 USCS §§ 467 and 671 is explicit, and displays Congress' intent that meat and poultry packing industries are to be operated by individuals who have not tainted themselves by performance of acts which result in felony convictions of any type (§ 671) or of any type involving fraud or bribery (§ 467). In re Windy City Meat Co., Inc. (1990) 49 Ag Dec 72.

5. "Unfitness" of applicant or recipient
Although USDA per se rule under 21 USCS § 671 requiring permanent withdrawal of inspection and grading services if employee remained with company after bribery-related conviction might deny due process, determination that particular meat packing company was unfit for inspection services was proper even if per se rule were not applied, where pattern of bribery over extended period of years showed that company presented threat to public health and safety. Windy City Meat Co. v United States Dept of Agriculture (1991, CA7) 926 F2d 672.

Although it is not Congress' intent to disenfranchise someone solely because of any felony conviction, if felony is one that strikes at heart of meat inspection program, it requires determination of unfitness. Toscony Provision Co. v Block (1982, CA3 NJ) 782 F2d 1031.

Judicial officer's finding of unfitness of plaintiff is not arbitrary or capricious where he considers fact that sodium sulfite was added to meat to make it look fresh and that this created danger that retailer may sell or consumer may eat product no longer wholesome. Wyszynski Provision Co. v Secretary of Agriculture (1982, ED Pa) 538 F Supp 361.

Conditional withdrawal of Federal Meat Inspection Services and 2-year probation of corporation was neither arbitrary nor capricious, since more than testimony of president's impressive character before and after felony convictions of knowingly distributing adulterated meat was necessary, in determining fitness of corporation under 21 USCS § 671 to engage in business requiring inspection, to outweigh implications of unfitness which inhere in such job-related conviction's. Toscony Provision Co. v Block (1984, DC NJ) 43 Ag Dec 361.

Secretary of Agriculture is not required to inspect packing plant under 21 USCS § 671, in mandamus action by plant, where Secretary determined that felony conviction of plant's marketing consultant renders plant unfit, because Secretary has absolute discretion. Federal Beef Processors, Inc. v Lyng (1987, DC ND) 674 F Supp 777.

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21 USCS § 671, n 5

Felony was of such nature as to support finding that recipient was "unfit to engage in any business requiring inspection," where officer and principal stockholder of meat processing plant was convicted of crime of larceny in first degree for receiving truckload of stolen beef and processing stolen beef through plant, with knowledge that it was stolen. Re Norwich Beef Co. (1979) 38 Ag Dec 380.

Inspection service and meat grading and acceptance services may properly be withdrawn from corporation operated by or having as responsible person, officer convicted of conspiracy to defraud United States under 18 USCS § 371. Re Stevens Foods, Inc. (1981) 40 Ag Dec 1288.

Except where appeal lies to Sixth Circuit, Federal meat inspection will be withdrawn indefinitely from plant under 21 USCS § 671 where person associated with plant is convicted under 18 USCS § 201(b) of corruptly bribing meat inspector, since such conduct so strikes at heart of meat inspection program as to prove conclusively, without regard to any mitigating circumstances, that convicted felon is unfit to receive Federal meat inspection, although inspection may be continued if convicted felon is completely disassociated from plant. Re Utica Packing Co. (1982) 44 Ag Dec 2724.

Federal inspection may be withdrawn from meat processing plant whose principal stockholder has been convicted of felony of knowingly distributing meat products to which unapproved industrial chemical has been added causing such products to be adulterated. Re Toscony Provision Co., Inc. (1982) 41 Ag Dec 862.

Meat packing company was convicted of conspiracy to violate food stamp laws (7 USCS § 2024(b, c)) is "unfit" to engage in any business requiring inspection under 21 USCS § 671, and thus company's inspection certificate is withdrawn for period of 2 years. Re 3-D Meat Inc. (1982) 41 Ag Dec 1533.

Meat packing plant was unfit to receive federal meat inspection service and thus such service was indefinitely withdrawn from and denied to plant under 21 USCS § 671, although sanction was suspended if certain conditions were met, where plant's president and chief operating officer was convicted under 18 USCS § 209(a) of 23 misdeameans involving contributing to and supplementing salary of Department's veterinarian assigned to perform inspection service at plant, since irrespective of particular facts revealed by record of criminal proceeding, such convictions were inherently and necessarily based upon fraud in connection with transactions in food which afforded jurisdictional basis for finding that plant was unfit to receive inspection service, and conviction for such offenses that strike at heart of meat inspection program rendered such per se approach not only reasonable, but only policy that properly protected public health. Re Great American Veal Co. (1986) 45 Ag Dec 1770.

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INTERPRETIVE NOTES AND DECISIONS

Generally

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purpose
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"Unfitness" of applicant or recipient
burden of proof
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Merally

withdrawal of meat inspection service is reme- rather than punitive sanction and may be ap- to owner of abattoir convicted of bribing al inspector; fact that Department of Agricul- had not published regulation specifying cir- tances under which inspection services could withdrawn pursuant to 21 USCS § 671 at time was committed is unimportant since agency first define and apply policy in context of icative proceeding without previously engag- rulemaking or publishing policy in Federal ter. Re Utica Packing Co. (1980) 39 Ag Dec

3. Purpose

Purpose of removal of inspection service is to promote and protect public health rather than to punish and argument that felony conviction and fines serve as sufficient punishment will not be of mitigating nature in determination of unfitness to receive federal inspection service. Re Wyszynski Provision Co. (1981) 40 Ag Dec 17.

4. Construction

In 21 USCS § 671, language "based upon the acquiring, handling, or distributing of unwhole- some, mislabelled, or deceptively packaged food or

2. Constitutionalality
21 USCS § 671, requiring meat packing firm to terminate employee, giving employer but not em- ployee right to be heard before agency or courts, denies employee due process rights under Consti- tution. Chemin v Lyng (1989, CA8 ND) 874 F2d 501.

Voluntary withdrawal of inspection services be- cause establishment has ceased operations does not accomplish purpose of 21 USCS § 671 which pro- vides that Secretary may refuse to provide or withdraw inspection service if he determines that recipient is unfit to engage in any business requir- ing inspection because he has been convicted of certain offenses. Re Oklahoma Beef & Provision Co. (1981) 40 Ag Dec 919.

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eat inspection services were properly withdrawn from and poultry product inspection services were properly denied to, respondent committed on felony conviction of individual defendant for slaughtering beef without required inspection process with intent to defraud, since individual respondent, who is part owner of respondent company, was responsibly connected to such company. In re William Stewart d/b/a J & B Meat (1991) 50 Ag Dec 511.

purposes of determining whether individual is responsibly connected" with applicant for, or agent of, inspection services, individual's title in some circumstances, be relevant, but con- ing weight should be given to individual's s, rather than his title. In re James N. Wilson, t at. 54 Ag Dec 141.

burden of proof erator of plant, as proponent of order termi- g suspension, has burden of proving that ad- assurances have been given that conduct or instances that threaten safety of inspector will continue or recur. In re Murray Meat (1992) ; Dec 266.

opening hearing ere is no basis for reopening hearing and ling second chance after withdrawal of meat :tion services, since present compliance with Inspection Act requirements is irrelevant, ex- ry conduct during course of litigation is considered as weighty, mitigating circum- , and second chance would render ineffective- ial statutes, is unreasonable where public is at stake, and would be inconsistent with essional policy set forth in 21 USCS § 671 permits withdrawal of meat inspection due- viction of single felony. Re Apex Meat Co. 44 Ag Dec 1835.

2. Administrative detentions; duration; pending judicial proceed- ; notification of governmental authorities; release

never any carcass, part of a carcass, meat or meat food product of cattle, , swine, goats, horses, mules, or other equines, or any product exempted the definition of a meat food product, or any dead, dying, disabled, or sed cattle, sheep, swine, goat, or equine is found by any authorized rep- rative of the Secretary upon any premises where it is held for purposes r during or after distribution in commerce or otherwise subject to title II of this Act [21 USCS §§ 601 et seq. or 641 et seq.], and there is rea- to believe that any such article is adulterated or misbranded and is ble of use as human food, or that it has not been inspected, in violation e provisions of title I of this Act [21 USCS §§ 601 et seq.] or of any r Federal law or the laws of any State or Territory, or the District of mbia, or that such article or animal has been or is intended to be, ibuted in violation of any such provisions, it may be detained by such

representative for a period not to exceed twenty days, pending action under section 403 of this Act [21 USCS § 673] or notification of any Federal, State, or other governmental authorities having jurisdiction over such article or animal, and shall not be moved by any person, firm, or corporation from the place at which it is located when so detained, until released by such repre- sentative. All official marks may be required by such representative to be removed from such article or animal before it is released unless it appears to the satisfaction of the Secretary that the article or animal is eligible to retain such marks.

(March 4, 1907, ch 2907, Title IV, § 402, as added Dec. 15, 1967, P. L. 90- 201, § 16, 81 Stat. 598.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CROSS REFERENCES

This section is referred to in 21 USCS § 159, 679.

RESEARCH GUIDE

Federal Procedure L Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:454, 35:456-457, 35:492.

INTERPRETIVE NOTES AND DECISIONS

Limitation for detention of adulterated or mis- ceedings to take; it is no limitation on time in branded food for period of twenty days is to give which libel action may be filed. United States v time for administrative determination of what pro- 2623 Pounds, etc. (1971, ND Cal)336 F Supp 140.

§ 673. Seizure and condemnation

(a) Proceedings in rem; libel of information; jurisdiction; disposal by de- struction or sale; proceeds into the Treasury; sales restrictions; bond; court costs and fees, storage, and other expenses against claimants; proceedings in admiralty; jury trial; United States as plaintiff. (1) Any carcass, part of a carcass, meat or meat food product of cattle, sheep, swine, goats, horses, mules or other equines, or any dead, dying, disabled, or diseased cattle, sheep, swine, goat, or equine, that is being transported in commerce or otherwise subject to title I or II of this Act [21 USCS §§601 et seq. or 641 et seq.], or is held for sale in the United States after such transportation, and that (A) is or has been prepared, sold, trans- ported, or otherwise distributed or offered or received for distribution in violation of this Act, or (B) is capable of use as human food and is adulterated or misbranded, or (C) in any other way is in violation of this Act, shall be liable to be proceeded against and seized and condemned, at any time, on a libel of information in any United States district court or

other proper court as provided in section 404 of this Act [21 USCS § 674] within the jurisdiction of which the article or animal is found.

(2) If the article or animal is condemned it shall, after entry of the decree, (A) be distributed in accordance with paragraph (5), or (B) be disposed of by destruction in accordance with paragraph (5) and the proceeds, if sold, less the court costs and fees, and storage and other proper expenses, shall be paid into the Treasury of the United States, but the article or animal shall not be sold contrary to the provisions of this Act, or the laws of the jurisdiction in which it is sold: *Provided*, That upon the execution and delivery of a good and sufficient bond conditioned that the article or animal shall not be sold or otherwise disposed of contrary to the provisions of this Act, or the laws of the jurisdiction in which disposal is made, the court may direct that such article or animal be delivered to the owner thereof subject to such supervision by authorized representatives of the Secretary as is necessary to insure compliance with the applicable laws.

(3) When a decree of condemnation is entered against the article or animal and it is released under bond, or destroyed, court costs and fees, and storage and other proper expenses shall be awarded against the person, if any, intervening as claimant of the article or animal.

(4) The proceedings in such libel cases shall conform, as nearly as may be, to the proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in any case, and all such proceedings shall be at the suit of and in the name of the United States.

(5)(A) An article that is condemned under paragraph (1) may as the court may direct, after entry of the decree, be distributed without charge to nonprofit, private entities or to Federal, State, or local government entities engaged in the distribution of food without charge to individuals, if such article—

(i) has been inspected under this Act and found to be wholesome and not to be adulterated within the meaning of paragraphs (1) through (7) and (9) of section 1(m) [21 USCS § 601(m)(1)-(7) and (9)] and a determination is made at the time of the entry of the decree that such article is wholesome and not so adulterated; and

(ii) is plainly marked "Not for Sale" on such article or its container.

(B) The United States may not be held legally responsible for any article that is distributed under subparagraph (A) to a nonprofit, private entity or to a Federal, State, or local government entity, if such article—

(i) was found after inspection under this Act to be wholesome and not adulterated within the meaning of paragraphs (1) through (7) and (9) of section 1(m) [21 USCS § 601(m)(1)-(7) and (9)] and a determination was made at the time of the entry of the decree that such article was wholesome and not so adulterated; and

(ii) was plainly marked "Not for Sale" on such article or its container.

(C) The person from whom such article was seized and condemned may not be held legally responsible for such article, if such article—

(i) was found after inspection under this Act to be wholesome and not adulterated within the meaning of paragraphs (1) through (7) and (9) of section 1(m) [21 USCS § 601(m)(1)-(7) and (9)] and a determination was made at the time of the entry of the decree that such article was wholesome and not so adulterated; and

(ii) was plainly marked "Not for Sale" on such article or its container.

(b) Condemnation or seizure under other provisions unaffected. The provisions of this section shall in no way derogate from authority for condemnation or seizure conferred by other provisions of this Act, or other laws. (March 4, 1907, ch 2907, Title IV, § 403, as added Dec. 15, 1967, P. L. 90-201, § 16, 81 Stat. 598; Dec. 7, 1989, P. L. 101-205, § 1, 103 Stat. 1829.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

Amendments:

1989, Act Dec. 7, 1989, in subsec: (a), designated the existing provisions as paras. (1)-(4), and in para. (1), as so designated, redesignated former paras. (1)-(3) as cls. (A)-(C), respectively, in para. (2), as so designated, inserted "(A) be distributed in accordance with paragraph (5), or (B)", and added para. (5).

Other provisions:

Federal Rules of Civil Procedure. Admiralty and maritime rules of practice, including libel procedures, were superseded, and civil and admiralty procedures in the United States district courts were unified, effective July 1, 1966; see USCS, Rules of Civil Procedure, Rule 1, and Supplemental Rules for Certain Admiralty and Maritime Claims.

CROSS REFERENCES

This section is referred to in 21 USCS § 159, 672.

RESEARCH GUIDE

Federal Procedure L Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:457-458.

Law Review Articles:

What to Do About Food Seizures. 19 Food Drug Cosm L J 142.

INTERPRETIVE NOTES AND DECISIONS

1. Applicability
2. Jurisdiction

Applicability

1 USCS § 673 makes it clear that provisions of 1(m)(1)-(2) can be applied to meat or meat food products at ultimate end of meat processor's distribution system—retail store. *Rath Packing Co. v. Ker* (1973, CD Cal) 357 F. Supp 529, aff'd in part and rev'd in part (1975, CA9 Cal) 530 F.2d 5, aff'd (1977) 430 US 519, 51 L. Ed 2d 604, 97 S.Ct. 1305, reh den (1977) 431 US 925, 53 L. Ed 2d 97 S.Ct. 2201.

2. Jurisdiction

Condemnation libel proceedings against adulterated or misbranded meat food product is within jurisdiction of District Court, and there is no requirement for prior administrative determination that label is misleading before bringing action charging misbranding. *United States v. 2623 Pounds, etc.* (1971, ND Cal) 336 F.Supp 140.

74. Federal court jurisdiction of enforcement and injunction proceedings and other kinds of cases; limitations of 21 USCS § 607(e)

United States district courts, the District Court of Guam, the District Court of the Virgin Islands, the highest court of American Samoa, and the district courts of the other Territories, are vested with jurisdiction to enforce, and to prevent and restrain violations of, this Act, and shall have jurisdiction in all other kinds of cases arising under this Act, except as provided in section 7(e) of this Act [21 USCS § 607(e)]. *March 4, 1907, ch 2907, Title IV, § 404, as added Dec. 15, 1967, P. L. 90-16, 81 Stat. 599.*

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CROSS REFERENCES

This section is referred to in 21 USCS §§ 159, 671, 673, 677.

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Federal Procedure L Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics §§ 35:453, 35:457.

5. Assaulting, resisting, or impeding certain persons; murder; execution of such persons

person who forcibly assaults, resists, opposes, impedes, intimidates, or interferes with any person while engaged in or on account of the performance of his official duties under this Act shall be fined not more than \$5,000 or imprisoned not more than three years, or both. Whoever, in the commission of any such acts, uses a deadly or dangerous weapon, shall be fined not more than \$10,000 or imprisoned not more than ten years, or both. Whoever kills any person while engaged in or on account of the performance of

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his official duties under this Act shall be punished as provided under sections 1111 and 1114 of title 18, United States Code.

(March 4, 1907, ch 2907, Title IV, § 405, as added Dec. 15, 1967, P. L. 90-201, § 16, 81 Stat. 599.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CROSS REFERENCES

This section is referred to in 42 USCS § 159.

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Federal Procedure L Ed:

13 Fed Proc L Ed, Food, Drugs, and Cosmetics § 35:459.

§ 676. Violations

(a) **Misdemeanors; felonies: intent to defraud and distribution of adulterated articles; good faith.** Any person, firm, or corporation who violates any provision of this Act for which no other criminal penalty is provided by this Act shall upon conviction be subject to imprisonment for not more than one year, or a fine of not more than \$1,000, or both such imprisonment and fine; but if such violation involves intent to defraud, or any distribution or attempted distribution of an article that is adulterated (except as defined in section 1(m)(8) of this Act [21 USCS § 601(m)(8)]), such person, firm, or corporation shall be subject to imprisonment for not more than three years or a fine of not more than \$10,000, or both: *Provided*, That no person, firm, or corporation, shall be subject to penalties under this section for receiving or transportation any article or animal in violation of this Act if such receipt was made in good faith, unless such person, firm, or corporation refuses to furnish on request of a representative of the Secretary the name and address of the person from whom he received such article or animal, and copies of all documents, if any there be, pertaining to the delivery of the article or animal to him.

(b) **Minor violations; written warning or criminal and civil proceedings.** Nothing in this Act shall be construed as requiring the Secretary to report for prosecution or for the institution of libel or injunction proceedings, minor violations of this Act whenever he believes that the public interest will be adequately served by a suitable written notice of warning.

(March 4, 1907, ch 2907, Title IV, § 406, as added Dec. 15, 1967, P. L. 90-

21 USCS § 676

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201, § 16, 81 Stat. 599; Nov. 10, 1986, P. L. 99-641, Title IV, § 403(c), 100 Stat. 3570.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1253, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

Amendments:

1986. Act Nov. 10, 1986 (effective only during the 6-year period beginning on the date of enactment, as provided by § 403(a) of such Act), in subsec. (b), added: "In determining whether the public interest could be adequately served by a written notice of warning, the Secretary shall take into account, among other factors—

"(1) the compliance history of such establishment;

"(2) the magnitude of the violation;

"(3) whether compliance with this Act would likely be obtained as a result of such notice; and

"(4) whether such violation is of a minor or technical nature."

following "notice of warning," and added subsec. (c) which read:

"(c) Unless the Secretary by regulation provides otherwise, before any violation of this Act is reported by the Secretary for prosecution in a criminal proceeding, the Secretary shall give the person alleged to have committed such violation—

"(1) reasonable notice that the Secretary intends to report such violation for prosecution; and

"(2) an opportunity to present to the Secretary, orally or in writing, views with respect to such proceeding."

Other provisions:

Federal Rules of Civil Procedure. Admiralty and maritime rules of practice, including libel procedures, were superseded, and civil and admiralty procedures in the United States district courts were unified, effective July 1, 1966; see USCS, Rules of Civil Procedure, Rule 1, and Supplemental Rules for Certain Admiralty and Maritime Claims.

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Federal Procedure L. Ed.
13 Fed Proc L Ed, Food, Drugs, and Cosmetics § 35:459.

INTERPRETIVE NOTES AND DECISIONS

1. "Distribution"

District court did not err in determining that conduct to which defendant pleaded guilty qualified as felony under 21 USCS § 676(a), since dis-

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district court's determination that defendant had substantive quality-control duties in his role as quality control supervisor at meat plant was not clearly erroneous, and since under § 676(a) "distribution" includes acts of meat adulteration by supervisor in charge of quality control. *United States v Brummels* (1994, CA8 Iowa) 15 F3d 769.

Under 21 USCS § 676(a) acts of "preparation" can, in some instances, also constitute "distribution"; defendant's "handling of orders" transpired his preparation of adulterated meat into felony because "handling of orders" involves "distribution" of adulterated article under § 676(a); any reasonable interpretation of "distribution or attempted distribution" would encompass acts of meat adulteration by individual whose responsibilities included training and supervision of quality control personnel and ensuring that final product

21 USCS § 677

met customer specifications. *United States v Brummels* (1994, CA8 Iowa) 15 F3d 769.

2. Judicial review

As to application of facts to legal interpretation of 21 USCS § 676(a), standard of appellate review is de novo; as to factual findings, proper standard of review is clearly erroneous. *United States v Brummels* (1994, CA8 Iowa) 15 F3d 769.

Declaratory action by meat processor fails under 21 USCS § 676, where processor failed to file administrative challenge to government's warning letter of possible meat inspection violations, because administrative remedies have not been exhausted. *Oak Grove Smokehouse, Inc. v United States Dep't of Agriculture* (1988, MD La) 704 F Supp 104.

§ 677. Other Federal laws applicable for administration and enforcement of 21 USCS §§ 601 et seq.; location of inquiries; jurisdiction of Federal courts

For the efficient administration and enforcement of this Act, the provisions (including penalties) of sections 6, 8, 9, and 10 of the Act entitled "An Act to create a Federal Trade Commission, to define its powers and duties, and for other purposes," approved September 26, 1914 (38 Stat. 721-723, as amended; 15 U.S.C. 46, 48, 49, and 50) (except paragraphs (c) through (h) of section 6 [15 USCS § 46(c)-(h)] and the last paragraph of section 9, and the provisions of subsection 409(l) of the Communications Act of 1934 (48 Stat. 1096, as amended; 47 U.S.C. 409(l)) are made applicable to the jurisdiction, powers, and duties of the Secretary in administering and enforcing the provisions of this Act and to any person, firm, or corporation with respect to whom such authority is exercised. The Secretary, in person or by such agents as he may designate, may prosecute any inquiry necessary to his duties under this Act in any part of the United States, and the power conferred by said sections 9 and 10 of the Act of September 26, 1914, as amended [15 USCS §§ 49 and 50], on the district courts of the United States may be exercised for the purposes of this Act by any court designated in section 404 of this Act [21 USCS § 674]. (March 4, 1907, ch 2907, Title IV, § 407, as added Dec. 15, 1967, P. L. 90-201, § 16, 81 Stat. 599.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1253, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

"The last paragraph of section 9, and the provisions of subsection 409(l) of the Communications Act of 1934 (48 Stat. 1096, as amended; 47 U.S.C. 409(l))", referred to in this section, were references to Act Sept. 26, 1914, ch 311, § 9, 38 Stat. 722, which appeared as the last paragraph

1 USCS § 677

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of 15 USCS § 49, and section 409(l) of Act June 19, 1934, ch 652, Title IV, 48 Stat. 1096, which appeared as 47 USCS § 409(l), respectively. These provisions, which related to immunity of witnesses, were repealed by Act Oct. 15, 1970, P. L. 91-452, Title II, 84 Stat. 929, 930. Similar provisions appear as 18 USCS §§ 6001 et seq.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CODE OF FEDERAL REGULATIONS

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Records, registration, and reports, 9 CFR Part 320.

678. Non-Federal jurisdiction of federally regulated matters; prohibition of additional or different requirements for establishments with inspection services and as to marking, labeling, packaging, and ingredients; recordkeeping and related requirements; concurrent jurisdiction over distribution for human food purposes of adulterated or misbranded and imported articles; other matters

requirements within the scope of this Act with respect to premises, facilities and operations of any establishment at which inspection is provided under title I of this Act [21 USCS §§ 601 et seq.], which are in addition to, or different than those made under this Act may not be imposed by any State or Territory or the District of Columbia, except that any such jurisdiction may impose recordkeeping and other requirements within the scope of section 202 of this Act [21 USCS § 642], if consistent therewith, with requirements in addition to, or different than, those made under this Act which are not imposed by any State or Territory or the District of Columbia with respect to articles prepared at any establishment under inspection in accordance with the requirements under title I of this Act [21 USCS §§ 601 et seq.], but any State or Territory or the District of Columbia may, consistent with the requirements under this Act, exercise concurrent jurisdiction with the Secretary over articles required to be inspected under said title [21 USCS §§ 601 et seq.], for the purpose of preventing the distribution for human food purposes of any such articles which are adulterated or misbranded and are outside of such an establishment, or, in the case of imported articles which are not at such an establishment, after their entry into the United States. This Act shall not preclude any State or Territory or the District of Columbia from making requirement [requirements] or taking other action, consistent with this Act, with respect to any other matters regulated under this Act.

arch 4, 1907, ch 2907, Title IV, § 408, as added Dec. 15, 1967, P. L. 90-1, § 16, 81 Stat. 600.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907,

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21 USCS § 678, n 2

34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

The bracketed word "requirements" was inserted to indicate the word probably intended by Congress.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

INTERPRETIVE NOTES AND DECISIONS

1. Generally
2. Permissible state regulation
3. Preempted state regulation

1. Generally

Reference to labeling requirements in 21 USCS § 678 does not refer only to format and placement of information but also to its content. *Jones v Rath Packing Co.* (1977) 430 US 519, 51 L Ed 2d 604, 97 S Ct 1305, reh den (1977) 431 US 925, 53 L Ed 2d 240, 97 S Ct 2201.

Congress never intended to cut states off from legislating on all subjects relating to health, life and safety of its citizens; intention of Congress to pre-empt field is not lightly conferred, especially where public health and safety are concerned and to find state law invalid under such circumstances, there must be inherent conflict that it is impossible to comply with both laws, or Congress must have manifest its intent to do so; supervision of readying of foodstuffs for market is matter of peculiarly local concern. *American Meat Institute v Ball* (1981, WD Mich) 520 F Supp 929.

21 USCS § 678 clearly authorizes state to enact laws aimed at protecting health and well-being of its citizenry, but such laws may not impose different or additional affirmative requirements upon product; compliance with federal rules and regulations in this regard shall be deemed sufficient compliance with state law. *Mario's Butcher Shop & Food Center, Inc. v Armour & Co.* (1983, ND Ill) 574 F Supp 653.

2. Permissible state regulation

Certain municipal ordinances under which inspections of delivery vehicles are conducted while on their routes, or while being unloaded at point of delivery, were not in conflict with, and therefore not preempted by, *Wholesome Meat Act* of 1967 (21 USCS §§ 601 et seq.); language of 21 USCS § 678 demonstrates that state regulation "in addition to, or different" from federal scheme of meat inspection is impermissible only on site of regu-

lated establishment. *Chicago-Midwest Meat Assn. v Everston* (1978, CA7 Ill) 589 F2d 278, cert den (1979) 442 US 946, 61 L Ed 2d 318, 99 S Ct 2895.

Product that is imitation frankfurter but which is not labeled as such is misbranded, and state may require product's label to meet standards set forth in 21 USCS § 601(n)(3), which requires that imitation food products be so labeled, where Department of Agriculture improperly disregarded that standard and approved labeling without indication that product is imitation. *Switt & Co. v Walkley* (1973, SD NY) 369 F Supp 1198.

State law requirement that grocers and restaurateurs who sell meat and meat products containing ingredients not meeting standards set by state law for similar products produced and sold within state, notify customers of that fact in prescribed fashion was lawful where such informational notices were not within definition of "label" found in 21 USCS § 601(b), and where nothing in history of *Wholesome Meat Act* indicated slightest intent to prohibit state from communicating information to its citizen-consumers nor to assist them in making informed purchasing decisions. *American Meat Institute v Ball* (1976, WD Mich) 424 F Supp 758.

State's regulation of net weight labeling requirements is not unreasonable burden on interstate commerce if such regulation is consistent with applicable federal law; state code provision governing misbranding of food was consistent with applicable federal law so that it could be employed to enforce federal labeling standards, and furthermore state could utilize sanction, penalty, or remedy which was not identical to that provided for under federal law. *People v Rath Packing Co.* (1978, 2nd Dist) 82 Cal App 3d 853, 147 Cal Rptr 525.

State may use "test" for determining mislabeling or misbranding which is not identical to any tests provided for under federal law, and furthermore states may use valid statistical sampling techniques, including reliance on average weight, to police compliance with federal and valid state net weight labeling laws. *People v Rath Packing Co.* (1978, 2nd Dist) 85 Cal App 3d 308, 149 Cal Rptr 431.

21 USCS § 678, n 3

3. Preempted state regulation

As applied to packaged meat subject to labeling requirements of Wholesome Meat Act, state weight labeling statute and regulations which did not allow reasonable variations from stated weight resulting from loss of moisture during course of food distribution practices were preempted by federal law. *Jones v Rath Packing Co.* (1977) 430 US 519, 51 L Ed 2d 604, 97 S Ct 1305, reh den (1977) 431 US 925, 53 L Ed 2d 240, 97 S Ct 2201.

Marketing, labelling, packaging, and ingredient provisions of Michigan Communitate Meat Law are "in addition to, or different than" those imposed under Federal Act [21 USCS § 601 et seq.] and regulations issued pursuant thereto, and are preempted by virtue of Congressional intent expressed in 21 USCS § 678, and Article VI, Clause II of United States Constitution. *Armour & Co. v Bail* (1972, CA6 Mich) 468 F2d 76, cert den (1973) 411 US 981, 36 L Ed 2d 957, 93 S Ct 2267.

Wholesome Meat Act of 1967 [21 USCS § 601 et seq.] preempted certain California statutes and regulations pertaining to labelling by weight of packaged goods at retail stores and thus state officials were properly enjoined from enforcing such preempted state laws; however, California standards not in addition to or different from federal

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net weight labelling standards could be enforced by appropriate state procedures at retail level. *Rath Packing Co. v Becker* (1975, CA9 Cal) 530 F2d 1295, affd (1977) 430 US 519, 51 L Ed 2d 604, 97 S Ct 1305, reh den (1977) 431 US 925, 53 L Ed 2d 240, 97 S Ct 2201.

New York statute requiring that products containing imitation cheese or cheese food be labeled as "imitation" regardless of fact such imitation cheese may be nutritionally equivalent to or superior to cheese is "in addition to" federal standards and is pre-empted by Poultry Products Inspection Act (21 USCS §§ 451 et seq.) and Federal Meat Inspection Act (21 USCS §§ 601 et seq.). *Grocery Mfrs. of America, Inc. v Gerace* (1984, SD NY) 581 F Supp 658, affd in part and revd in part on other grounds (1985, CA2 NY) 755 F2d 993, 79 ALR Fed 157, affd (1985) 474 US 801, 88 L Ed 2d 29, 106 S Ct 36 and cert den (1985) 474 US 820, 88 L Ed 2d 56, 106 S Ct 69.

Certain state statutes were preempted by federal law when applied to defendant's bacon in manner which failed to fully recognize reasonable variations in net weight permitted by federal regulation. *People v Rath Packing Co.* (1978, 2nd Dist) 82 Cal App 3d 853, 147 Cal Rptr 525.

§ 679. Application of Federal Food, Drug, and Cosmetic Act [21 USCS §§ 301 et seq.]

(a) Authorities under food, drug, and cosmetic provisions unaffected. Notwithstanding any other provisions of law, including section 902(b) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 392(a)), the provisions of this Act shall not derogate from any authority conferred by the Federal Food, Drug, and Cosmetic Act [21 USCS §§ 301 et seq.] prior to enactment of the Wholesome Meat Act [enacted Dec. 15, 1967].

(b) Enforcement proceedings; detainer authority of representatives of Secretary of Health and Human Services. The detainer authority conferred by section 402 of this Act [21 USCS § 672] shall apply to any authorized representative of the Secretary of Health, Education, and Welfare [Secretary of Health and Human Services] for purposes of the enforcement of the Federal Food, Drug, and Cosmetic Act [21 USCS §§ 301 et seq.] with respect to any carcass, part thereof, meat, or meat food product of cattle, sheep, swine, goats, or equines that is outside any premises at which inspection is being maintained under this Act, and for such purposes the first reference to the Secretary in section 402 [21 USCS § 672] shall be deemed to refer to the Secretary of Health, Education, and Welfare [Secretary of Health and Human Services].

(March 4, 1907, ch 2907, Title IV, § 409, as added Dec. 15, 1967, P. L. 90-201, § 16, 81 Stat. 600.)

MEAT INSPECTION

21 USCS § 6

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

The bracketed words "Secretary of Health and Human Services" were inserted on authority of Act Oct. 17, 1979, P. L. 96-88, Title V, § 509, 93 Stat. 695, which appears as 20 USCS § 3508, and which redesignated the Secretary of Health, Education, and Welfare as the Secretary of Health and Human Services and provided that any reference to the Secretary of Health, Education, and Welfare, in any law in force on the effective date of such Act Oct. 17, 1979, shall be deemed to refer and apply to the Secretary of Health and Human Services, except to the extent such reference is to a function or office transferred to the Secretary of Education or the Department of Education under such Act Oct. 17, 1979.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

CODE OF FEDERAL REGULATIONS

Food and Drug Administration, Department of Health and Human Services—Delegations of authority and organization, 21 CFR Part 5.

Food and Drug Administration, Department of Health and Human Services—Administrative practices and procedures, 21 CFR Part 10.

Food and Drug Administration, Department of Health and Human Services—Formal evidentiary public hearing, 21 CFR Part 12.

Food and Drug Administration, Department of Health and Human Services—Public hearing before a public board of inquiry, 21 CFR Part 13.

Food and Drug Administration, Department of Health and Human Services—Public hearing before a public advisory committee, 21 CFR Part 14.

Food and Drug Administration, Department of Health and Human Services—Public hearing before the Commissioner, 21 CFR Part 15.

Food and Drug Administration, Department of Health and Human Services—Regulatory hearing before the Food and Drug Administration, 21 CFR Part 16.

CROSS REFERENCES

Federal Food, Drug, and Cosmetic Act defined, 21 USCS § 601.

§ 679a. Safe Meat and Poultry Inspection Panel

(a) Establishment. There is established in the Department of Agriculture permanent advisory panel to be known as the "Safe Meat and Poultry Inspection Panel" (referred to in this section as the "panel").

(b) Duties. (1) Review and evaluation. The panel shall review and evalua-

as the panel considers necessary, the adequacy, necessity, safety, cost-effectiveness, and scientific merit of—

- (A) inspection procedures of, and work rules and worker relations involving Federal employees employed in, plants inspected under this Act;
 - (B) informal petitions or proposals for changes in inspection procedures, processes, and techniques of plants inspected under this Act;
 - (C) formal changes in meat inspection regulations promulgated under this Act, whether in notice, proposed, or final form; and
 - (D) such other matters as may be referred to the panel by the Secretary regarding the quality or effectiveness of a safe and cost-effective meat inspection system under this Act.
- (2) Reports. (A) In general. The panel shall submit to the Secretary a report on the results of each review and evaluation carried out under paragraph (1), including such recommendations as the panel considers appropriate.
- (B) Reports on formal changes. In the case of a report concerning a formal change in meat inspection regulations, the report shall be made within the time limits prescribed for formal comments on such changes.
- (C) Publication in Federal Register. Each report of the panel to the Secretary shall be published in the Federal Register.

(e) **Secretarial response.** Not later than 90 days after the publication of a panel report under subsection (b)(2)(C), the Secretary shall publish in the Federal Register any response required of the Secretary to the report.

(d) **Composition of panel.** The panel shall be composed of 7 members, not fewer than 5 of whom shall be from the food science, meat science, or poultry science profession, appointed to staggered terms not to exceed 3 years by the Secretary from nominations received from the National Institutes of Health and the Federation of American Societies of Food Animal Science and based on the professional qualifications of the nominees.

(e) **Nominations.** (1) Initial panel. In constituting the initial panel, the Secretary shall solicit 6 nominees from the National Institutes of Health and 6 nominees from the Federation of American Societies of Food Animal Science for membership on the panel.

(2) Vacancies. Any subsequent vacancy on the panel shall be filled by the Secretary after soliciting 2 nominees from the National Institutes of Health and 2 nominees from the Federation of American Societies of Food Animal Science.

(3) Requirements for nominees. (A) In general. Each nominee provided under paragraph (1) or (2) shall have a background in public health issues and a scientific expertise in food, meat, or poultry science or in veterinary science.

(B) Submission of information. The Secretary may require nominees to submit such information as the Secretary considers necessary prior to completing the selection process.

(4) Additional nominees. If any list of nominees provided under paragraph (1) or (2) is unsatisfactory to the Secretary, the Secretary may request nominating entities to submit an additional list of nominees.

(f) **Travel expenses.** While away from the home or regular place of business of a member of the panel in the performance of services for the panel, member shall be allowed travel expenses, including per diem in lieu of subsistence, at the same rate as a person employed intermittently in the Government service would be allowed under section 5703 of title 5, United States Code.

(g) **Conflicts of interest.** The Secretary shall promulgate regulations regarding conflicts of interest with respect to the members of the panel.

(h) **Exemption.** The Federal Advisory Committee Act (5 U.S.C. App.) title XVIII of the Food and Agriculture Act of 1977 (7 U.S.C. 2281 et seq.) shall not apply to the panel.

(i) **Funding.** From funds available to the Secretary to carry out this Act under the Poultry Products Inspection Act (21 U.S.C. 451 et seq.), the Secretary shall allocate such sums as may be necessary to carry out this section. (March 4, 1907, ch 2907, Title IV, § 410, as added April 4, 1996, P. L. 104-127, Title IX, Subtitle B, § 918(a)(1)(B), 110 Stat. 1188.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, popularly known as the Federal Meat Inspection Act, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

A prior § 410 of Act March 4, 1907, ch 2907, which appears as 21 USCS § 680, was redesignated § 411 of such Act by Act April 4, 1996, P. L. 104-127, Title IX, Subtitle B, § 918(a)(1)(A), 110 Stat. 1188.

§ 680. Authorization of appropriations

There are hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

(March 4, 1907, ch 2907, Title IV, § 411 [410], as added Dec. 15, 1967, L. 90-201, § 16, 81 Stat. 600; April 4, 1996, P. L. 104-127, Title IX, Subtitle B, § 918(a)(1)(A), 110 Stat. 1188.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act March 4, 1907, ch 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

21 USCS § 680

FOOD AND DRUGS

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

Redesignation:

This section, enacted as § 410 of Act March 4, 1907, ch. 2907, was redesignated § 411 of such Act by Act April 4, 1996, P. L. 104-127, Title IX, Subtitle B, § 918(a)(1)(A), 110 Stat. 1188.

MISCELLANEOUS PROVISIONS

§ 691. Reports to Congressional committees

The Secretary shall annually report to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate with respect to the slaughter of animals subject to this Act, and the preparation, storage, handling and distribution of carcasses, parts thereof, meat and meat food products, of such animals, and inspection of establishments operated in connection therewith, including the operations under and effectiveness of this Act.
(Dec. 15, 1967, P. L. 90-201, § 17, 81 Stat. 600; Nov. 2, 1994, P. L. 103-437, § 8(3), 108 Stat. 4588.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act Dec. 15, 1967, P. L. 90-201, 81 Stat. 584, which enacted this section, among other things. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section was enacted as part of Act Dec. 15, 1967, P. L. 90-201, and not as part of Act March 4, 1907, ch. 2907, which generally comprises this chapter.

Effective date of section:

Act Dec. 15, 1967, P. L. 90-201, § 20, 71 Stat. 601, which appears as 21 USCS § 601 note, provided that this section is effective on enactment on Dec. 15, 1967.

Amendments:

1994, Act Nov. 2, 1994, substituted "Agriculture, Nutrition, and Forestry" for "Agriculture and Forestry".

CROSS REFERENCES

This section is referred to in 21 USCS § 661.

RESEARCH GUIDE

Federal Procedure L Ed:

13 Fed Proc L Ed, Health, Education, and Welfare § 42:1071.

Am Jur:

61 Am Jur 2d, Plant and Job Safety § 22.

MEAT INSPECTION

21 USCS § 69.

Annotations:

Federal pre-emption of state food labeling legislation or regulation. 79 ALR Fed 181.

§ 692. Inspection extended to reindeer

The provisions of the meat-inspection law may be extended to the inspection of reindeer.
(June 30, 1914, ch. 131, 38 Stat. 420.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"The meat-inspection law", referred to in this section, is contained in Act March 4, 1907, ch. 2907, 34 Stat. 1258, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section was enacted as part of Act June 30, 1914, ch. 131, and not as part of Act March 4, 1907, ch. 2907, which generally comprises this chapter.

This section formerly appeared as 21 USCS § 94.

§ 693. Inspection of dairy products for export

The Act of March 3, 1891, as amended March second, 1895, for the inspection of live cattle and the products thereof shall be deemed to include dairy products intended for exportation to any foreign country, and the Secretary of Agriculture may apply, under rules and regulations to be prescribed by him, the provisions of said Act for inspection and certification appropriate for ascertaining the purity and quality of such products, and may cause the same to be so marked, stamped, or labeled as to secure their identity and make known in the markets of foreign countries to which they may be sent from the United States their purity, quality, and grade; and all the provisions of said Act relating to live cattle and products thereof for export shall apply to dairy products so inspected and certified.
(May 23, 1908, ch. 192, 35 Stat. 254.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"The Act of March 3, 1891, as amended March second, 1895" and "said Act", referred to in this section, are references to Act March 3, 1891, ch. 555, 26 Stat. 1089, which formerly appeared as 21 USC §§ 71 et seq., and which was superseded by Act March 4, 1907, 34 Stat. 1260, as amended June 29, 1938, ch. 810, 52 Stat. 1235; Act March 4, 1907, was generally amended by Act Dec. 15, 1967, P. L. 90-201, 81 Stat. 584 and appears as 21 USCS §§ 601 et seq. For full classification of such Acts, consult USCS Tables volumes.

21 USCS § 693

FOOD AND DRUGS

Explanatory notes:

This section was enacted as part of Act May 23, 1908, ch. 192, and not as part of Act March 4, 1907, ch. 2907, which generally comprises this chapter.

This section formerly appeared as 21 USCS §§ 94a, 132.

§ 694. Authorization of appropriations

Annual appropriations of the sum of \$3,000,000 from the general fund of the Treasury are authorized for the expenses of the inspection of cattle, sheep, swine, and goats and the meat and meat food products thereof which enter into interstate or foreign commerce and for all expenses necessary to carry into effect the provisions of this Act relating to meat inspection, including rent and the employment of labor in Washington and elsewhere, for each year, and in addition there is authorized to be appropriated such other sums as may be necessary in the enforcement of the meat inspection laws. (June 30, 1906, ch. 3913, 34 Stat. 679; June 26, 1934, ch. 756, § 2, 48 Stat. 1225.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

References in text:

"This Act", referred to in this section, is Act June 30, 1906, ch. 3913, 34 Stat. 669, which enacted this section and made appropriations for the Department of Agriculture for the fiscal year ending June 30, 1907. For full classification of such Act, consult USCS Tables volumes.

"The meat inspection laws", referred to in this section, is a reference to Act March 4, 1907, ch. 2907, 34 Stat. 1258, which formerly appeared as 21 U.S.C. §§ 71 et seq. and was generally amended by Act Dec. 15, 1967, P. L. 90-201, 81 Stat. 584, which appears generally as 21 USCS §§ 601 et seq. For full classification of such Act, consult USCS Tables volumes.

Explanatory notes:

This section appears in the language of the compilers of the United States Code. For the status of the Code as evidence of Law, see 1 USCS § 204. Act June 30, 1906, ch. 3913, made a permanent appropriation of \$3,000,000 for the purposes stated and for carrying into effect the provisions of "this Act, relating to meat inspection." Act June 26, 1934, § 2, which formerly appeared as 31 USCS § 725a, repealed the permanent appropriation and authorized in lieu thereof an annual appropriation in identical terms and amounts as provided in the permanent appropriation. Said act also provided that in addition to the amount in lieu of the permanent appropriation "there is authorized to be appropriated such other sums as may be necessary in the enforcement of the meat inspection laws."

This section was enacted as part of Act June 30, 1906, ch. 3913, and not as part of Act March 4, 1907, ch. 2907, which generally comprises this chapter.

This section formerly appeared as 21 USCS § 95.

§ 695. Payment of cost of meat-inspection service; exception

The cost of inspection rendered on and after July 1, 1948, under the require-

MEAT INSPECTION

21 USCS § 696

ments of law relating to Federal inspection of meat and meat food products shall be borne by the United States except the cost of overtime pursuant to the Act of July 24, 1919 (7 U.S.C. 394) [7 USCS § 394]. (June 5, 1948, ch. 423, 62 Stat. 344.)

HISTORY; ANCILLARY LAWS AND DIRECTIVES

Explanatory notes:

This section was enacted as part of Act June 5, 1948, ch. 423, and not as part of Act March 4, 1907, ch. 2907, which generally comprises this chapter.

This section formerly appeared as 21 USCS § 98.

CODE OF FEDERAL REGULATIONS

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Definitions, 9 CFR Part 301.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Exports, 9 CFR Part 322.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Transportation, 9 CFR Part 325.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Imported products, 9 CFR Part 327.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Detention; seizure and condemnation; criminal offenses, 9 CFR Part 329.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Special provisions for designated States and territories; and for designation of establishments which endanger public health and for such designated establishments, 9 CFR Part 331.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Rules of practice governing proceedings under the Federal Meat Inspection Act, 9 CFR Part 335.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Fees and charges for inspection services and laboratory accreditation, 9 CFR Part 391.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Sanitation, 9 CFR Part 416.

Food Safety and Inspection Service, Meat and Poultry Inspection, Department of Agriculture—Hazard analysis and critical control point (HACCP), 9 CFR Part 417.

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Chapter 1

INTRODUCTION

OVERVIEW AND PURPOSE

The mission of the Food Safety and Inspection Service (FSIS) is to assure that meat, meat food, poultry, and poultry food products distributed in interstate commerce are wholesome, not adulterated, and properly marked, labeled, and packaged. FSIS enforces the Federal Meat Inspection Act (FMIA), the Poultry Products Inspection Act (PPIA), and the regulations implementing these laws. Documents such as the FSIS Directives, FSIS Notices, and the Meat and Poultry Inspection (MPI) Manual provide inspection personnel with specific instructions and policies to help them enforce the laws and regulations.

Whether meat and poultry products are in compliance with the laws and regulations is often determined by how the products are formulated and processed. Careful attention to the kind and amount of ingredients, their conditions of use, and the standards of product identity and composition are necessary to assure compliance.

The meat and poultry inspection regulations provide specific information on the permitted amounts and uses of various substances that are allowed to be used in meat and poultry products. These substances must not be used in a manner that would deceive the consumer by concealing spoilage or inferiority, or by causing the products to appear of a different size, weight, or quality than they actually are.

The regulations and policy memorandums also prescribe definitions and standards of identity, or composition, for certain meat and poultry products. Standards of identity set specific requirements for a product's make-up. For instance, these standards may specify the kind and amount of meat or poultry, the maximum amount of non-meat and non-poultry ingredients, and any other ingredients allowed, or expected, in the final product. Meat and poultry product standards are established to assure that consumer expectations are met for a product that is labeled with a certain name. Additional policies have been established to guide inspection personnel in determining whether products are being prepared in accordance with the laws and regulations.

FSIS inspectors carry out monitoring activities, including checks on product preparation, to assure that official establishments are maintaining control of their processes. Among the monitoring activities are food ingredient calculations, which are intended to help ensure that meat and poultry products are not adulterated or misbranded. From time to time, questions have been raised, and criticisms voiced, about the accuracy, reliability, and consistency of FSIS calculation methods. In some cases, the questions and criticisms--by field personnel, label reviewers, headquarters staff, and industry personnel--have resulted from the fact that different terminology was used in the regulations that were written and promulgated at different times. Of course, the meat and poultry industry has changed over the years, and the regulations have been updated to accommodate new products and processes. But whatever the reason for the inconsistencies, if they appear to impair the Agency's ability to administer the meat and poultry inspection program nationally in a uniform and equitable way, they must be reduced, explained, or eliminated.

Previous editions of the Processing Inspectors' Calculations Handbook have amounted to little more than grab bags of sample calculations, formula, and definitions to help inspectors of processed foods in their work. This new edition is more thematic and has a threefold purpose. First, it is an expanded collection of sample calculation methods. Second, it identifies in a single document the various regulatory limitations on the use of restricted ingredients (e.g., cure agents, cure accelerators, binders and extenders, phosphates, antioxidants, and flavorings) in meat and poultry products, and illustrates the calculation method or methods for each specific ingredient. Third, it standardizes the interpretation of the regulations for calculation purposes and establishes consistent calculation methods for inspection and establishment personnel.

While the Handbook may refer to or reiterate Agency policy, it is not intended to replace it. The Handbook is intended primarily as a reference or aid to learning how to perform various calculations. It should also help provide insight into the reason why a given policy is needed and its relative importance in a science-based food safety program.

The Handbook is divided into chapters which cover specific subjects and calculation types. Several chapters have been broken down into subject matter sections that have an introduction, a formula (if applicable) and at least one procedure table.

The procedure table contains the steps to be taken in performing the calculations presented in that section. In some sections, comments have been provided to further clarify the interpretation of the pertinent regulation or policy.



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BACKGROUND

Restricted ingredients are controlled on an "ingoing basis" (at formulation), rather than waiting until the end of the process to check the finished product through laboratory analysis, so that the process can be controlled when the ingredients are added to the product. For some added ingredients, laboratory tests are nonexistent and others are unreliable because the results vary depending upon when the samples were taken (before cooking, after cooking, etc.).

Restricted ingredient calculation policies should not be confused with the policies for labeling meat and poultry products that contain added solutions or ingredients. Restricted ingredients are calculated the same way for cooked or uncooked products, regardless of the label statement. Added solution and added ingredient calculations *for labeling purposes* do depend on whether or not the product is cooked or uncooked. Refer to Chapter 10, PRODUCTS LABELED--"X% WATER" AND "X% OF WEIGHT IS ADDED INGREDIENTS".

One obstacle that inspection personnel encounter in ascertaining restricted ingredient compliance with the regulations, is that calculations for allowable ingoing amounts could be based on one of five different weights, all of which are referred to in various places in the MPI regulations. These different weights vary according to the type of ingredient, type of product, and purpose of the ingredient's use in the product. The five weights (or bases for restricted ingredient calculations) are:

- The "*green weight*" of the meat and/or poultry and/or meat and/or poultry byproduct (*meat block*) component of the product at formulation.

Example:

The ingoing amount of nitrite and nitrate used in comminuted, pumped, injected, massaged, dry-cured, and immersion-cured products is based on the weight of the meat, poultry, meat byproduct, or poultry byproduct at the time of formulation and are controlled on an ingoing basis.

- The "*formulated weight*" of the meat or poultry product.

Example:

Poultry products (e.g., poultry meat, poultry, and poultry byproducts) may be added to certain cooked sausage products at a rate not to exceed 15 percent of the total weight of all the ingredients at the time of formulation, excluding the water and ice.

- The "*finished weight*" of the entire meat or poultry product.

Example:

The amount of batter and breading used as a coating for breaded products shall not exceed 30 percent of the weight of the finished breaded meat or poultry product.

- The "*projected finished weight*" of the entire meat or poultry product.

Example:

The ingoing amounts of binders and extenders, such as nonfat dry milk (NFDM), soy flours, and cereals are calculated on the basis of the projected finished weight.

- The "*weight of the fat content*" of a fresh meat or poultry product.

Example:

The ingoing amount of an individual antioxidant used in a fresh sausage product shall not exceed 0.01 percent of the fat content of the product.

Depending upon which weight base is used, the same restricted ingredient calculation could give a different result for the allowable ingoing amount. Therefore, it is imperative that inspection personnel use the correct weight base when checking compliance.



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ESTABLISHMENT RESPONSIBILITIES

When Federal inspection is granted to an establishment, a responsible plant official signs a statement agreeing to conform strictly to all Federal regulations and orders pertaining to inspection. This statement emphatically establishes that the establishment management has the responsibility to produce a product that is safe, wholesome, unadulterated, and properly labeled. This also includes cooperating with inspection personnel and providing information necessary for them to do a proper inspection job.

Establishment management is expected to have process control procedures and checks in place to identify, correct, and prevent any conditions that could lead to violations. For example, the establishment:

- Will assign a competent individual(s) to be responsible for product formulation.
- Will use and adhere to specific tested and proven formulas that will produce products in compliance.
- Will accurately measure and identify all ingredients, mixtures, and emulsions through all phases of production.
- Should maintain formulation records of meat and poultry products.



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INSPECTION RESPONSIBILITIES

The Food Labeling Division's (FLD) Label Review Staff is responsible for checking formulations before approving product labels.

Inspection personnel assigned to the establishment are responsible for:

- Evaluating formulation records and verifying the weighing and addition of ingredients at the time of formulation.
- Monitoring fat content of various products. If a product has less than its standard of identity fat content or targeted fat content, but the antioxidant calculations were based on the standard of identity fat content or targeted fat content, then the product would be out of compliance for antioxidants.
- Performing calculations for ingredients permitted in meat and poultry products to determine compliance with the product standard, or approved formula, at the time of formulation.



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Chapter 2

CONVERSION TO PARTS PER MILLION (PPM)

Limits for restricted ingredients permitted in meat and poultry products are expressed in terms of ounces (oz) or pounds (lb) per pounds of the meat/poultry or gallons of pickle solution, or as percentages (%) in the Tables of Approved Substances shown in the MPI Regulations, sections 318.7(c)(4) and 381.147(f)(4). The same limits are expressed in parts per million (ppm) in other references where there is a need to express very small quantities of food additives in more convenient units.

Ppm may be easily converted to percent (parts per hundred) as follows:

$$\begin{aligned}
 1 \text{ ppm} &= 1/1,000,000 = 0.000001 = 0.0001\% \\
 10 \text{ ppm} &= 10/1,000,000 = 0.00001 = 0.001\% \\
 200 \text{ ppm} &= 200/1,000,000 = 0.0002 = 0.02\% \\
 5000 \text{ ppm} &= 5000/1,000,000 = 0.005 = 0.5\% \\
 20,000 \text{ ppm} &= 20,000/1,000,000 = 0.02 = 2.0\%
 \end{aligned}$$

Conversely, the conversion of percent (parts per hundred) to ppm is performed as follows:

$$\begin{aligned}
 0.02\% &= 0.0002 \\
 0.0002 \times 1,000,000 &= 200 \text{ ppm}
 \end{aligned}$$

The calculations in Table 1 illustrate that the amounts of the various restricted ingredients shown as weight and percentages in both of the Tables of Approved Substances for meat and poultry products are equivalent to the amounts shown as ppm in other references. One gallon of water weighs 8.33 pounds, but 1 gallon of pickle weighs more, because of the added weight per volume of other ingredients in the solution. When the regulations were written, a weight estimate of 10 pounds was used for 1 gallon of pickle--partly to make illustrative calculations easy. However, the true weight of any volume of pickle can be easily and accurately determined by adding the weights of actual ingredients and the water (8.33 lb/gal) listed in the pickle formulation. This actual weight of the pickle, probably somewhat less than 10 pounds per gallon, should be used for all calculations.

**TABLE I
CONVERSION OF RESTRICTED INGREDIENT WEIGHT OR PERCENT
LIMITATIONS TO PPM LIMITATIONS**

Nitrite in Regulations	Converted to ppm
2 lb to 100 gal pickle at 10% pump	If 1 gal pickle weighs 10 lb 100 gal pickle weighs 1000 lbs $\frac{2 \times 0.10 \times 1,000,000}{1000} = 200 \text{ ppm}$
1 oz to 100 lb meat or poultry product (dry curc)	$1 \text{ oz} = 1/16 = 0.0625 \text{ lb}$ $\frac{0.0625 \times 1,000,000}{100} = 625 \text{ ppm}$

<p>¼ oz to 100 lb chopped meat and/or meat byproduct or poultry meat</p>	<p>¼ oz = .25/16 = 0.0156 lb $\frac{0.0156 \times 1,000,000}{100} = 156 \text{ ppm}$</p>
<p>Nitrate in Regulations</p> <p>7 lb to 100 gal pickle at 10% pump</p> <p>3 ½ oz to 100 lb meat or poultry product (dry cure)</p> <p>2 ¾ oz to 100 lb chopped meat or poultry meat</p>	<p>Converted to ppm</p> <p>If 1 gal pickle weighs 10 lb 100 gal pickle weighs 1000 lbs $\frac{7 \times 0.10 \times 1,000,000}{1000} = 700 \text{ ppm}$</p> <p>3 ½ oz = 3.5/16 = 0.2187 lb $\frac{0.2187 \times 1,000,000}{100} = 2187 \text{ ppm}$</p> <p>2 ¾ oz = 2.75/16 = 0.1718 lb $\frac{0.1718 \times 1,000,000}{100} = 1718 \text{ ppm}$</p>
<p>Cure Accelerators in Regulations</p> <p>Ascorbic Acid and Erythorbic Acid</p> <p>75 oz to 100 gal pickle at 10% pump</p> <p>¾ oz to 100 lb meat or meat byproduct or poultry product</p>	<p>Converted to ppm</p> <p>If 1 gal pickle weighs 10 lb 100 gal pickle weighs 1000 lbs 75 oz. = 75/16 = 4.687 lb $\frac{4.687 \times 0.10 \times 1,000,000}{1000} = 469 \text{ ppm}$</p> <p>¾ oz = .75/16 = .04687 lb $\frac{.04687 \times 1,000,000}{100} = 469 \text{ ppm}$</p>
<p>Ascorbate and Erythorbate</p> <p>87.5 oz to 100 gal pickle at 10% pump</p> <p>7/8 oz to 100 lb meat or meat byproduct or poultry product</p>	<p>Converted to ppm</p> <p>If 1 gal pickle weighs 10 lb 100 gal pickle weighs 1000 lbs 87.5 oz = 87.5/16 = 5.468 lb $\frac{5.468 \times 0.10 \times 1,000,000}{1000} = 547 \text{ ppm}$</p> <p>7/8 oz = .875/16 = 0.0547 lb $\frac{0.0547 \times 1,000,000}{100} = 547 \text{ ppm}$</p>
<p>Fumaric Acid</p> <p>0.065 percent</p> <p>&nbsp;por 1 oz to 100 lb meat or poultry or meat byproducts or poultry byproducts</p>	<p>Converted to ppm</p> <p>0.065% = 0.00065 $0.00065 \times 1,000,000 = 650 \text{ ppm}$</p> <p>&nbsp;por 1 oz = 1/16 = 0.0625 lb $\frac{0.0625 \times 1,000,000}{100} = 625 \text{ ppm}$</p>
<p>Glucono delta-lactone</p> <p>8 oz to 100 lb meat or meat byproducts</p> <p>16 oz (1 lb) to 100 lb meat or 1%</p>	<p>Converted to ppm</p> <p>8 oz = 8/16 = 0.5 lb $\frac{0.5 \times 1,000,000}{100} = 5000 \text{ ppm}$</p> <p>16 oz = 1 lb</p>

(Genoa salami only)	$\frac{1 \times 1,000,000}{\text{nbsp}100} = 10,000 \text{ ppm}$
Sodium Acid Pyrophosphate 8 oz in 100 lb meat or meat and meat byproducts	Converted to ppm 8 oz = 8/16 = 0.5 lb $\frac{0.5 \times 1,000,000}{\text{nbsp}100} = 5000 \text{ ppm}$ (reminder: 5000 ppm = 0.005 = 0.5%)
Phosphates in Regulations <i>Used to decrease cooked out juices:</i> 5 percent of phosphate in pickle at 10% pump (meat regulations) 0.5% of total product (poultry regulations) 0.5% of phosphate in product (meat regulations) <i>Used to protect flavor:</i> 0.5% of total product (meat regulations)	Converted to ppm 5% in pickle = 5 lb in 100 lb $\frac{5 \times 0.10 \times 1,000,000}{\text{nbsp}100} = 5000 \text{ ppm}$ 5000 ppm = 0.005 = 0.5% 5000 ppm = 0.005 = 0.5% 5000 ppm = 0.005 = 0.5%
Flavorings in Regulations Corn Syrup and Similar Flavorings 2% (dry basis) (meat regulations) = 2 ½% (wet basis - 80% solids) (meat regulations) levels sufficient for purpose (poultry regulations) Sorbitol 2% (dry basis) (meat regulations) = 2.86% (wet basis - 70% solids) (meat regulations)	Converted to ppm 2% = .02 × 1,000,000 = 20,000 ppm 20,000 ÷ .80 = 25,000 ppm 2% = .02 × 1,000,000 = 20,000 ppm 20,000 ÷ .70 = 28,600 ppm
Binders and Extenders in Regulations 3 ½%, 8%, or 12% individually or collectively depending on the type of meat food product, except for isolated soy protein (ISP) and sodium caseinate, which are limited to 2% in certain meat products 1 ½% or 2% individually in certain cured pork products levels sufficient for purpose except for sodium caseinate which is limited to 3% in cooked product and 2% in raw product (poultry regulations)	Not Converted to ppm

Note: If you are unable to convert units of measurement, e.g., ounces to pounds, turn to the Appendix, Converting Units of

Measurement.



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Chapter 3

CURING AGENT (NITRITE AND NITRATE) CALCULATIONS

INTRODUCTION

Calculations for curing agents are based on the *green weight of the meat and/or poultry and/or meat/poultry byproducts (meat block)*, used in the formulation of the product. Because nitrite and nitrate, after being converted to nitric oxide, function by reacting chemically with the meat or poultry myoglobin, the amounts of nitrite or nitrate permitted in the cure must be based on the meat block used in the formulation, *not* the finished weight of the product. Using finished weight as the weight base for these calculations would be unacceptable because more curing agent than is allowed could be added to the product. Excess nitrite or nitrate can be toxic.

Either the sodium or the potassium salt of nitrite may be used for curing products, but the weight limitation (based on sodium) is the same for both salts. This limitation was established when the sodium salt was the only one permitted. Later, the potassium salt was allowed to be added at the same level. This level is safe, but rather conservative because potassium is a heavier element than sodium and a greater weight of a potassium salt must be used for the equivalent amount of nitrite or nitrate to be in the product. The bacon regulation, which is more recent than those governing other cured products, also permits both salts, but at different limits for each salt.

There are some recently introduced processes, such as injecting emulsion into the meat or poultry; and there are processes not specifically addressed in the regulations (such as immersion curing of products other than bacon). Nevertheless, the amount of curing solution permitted in these processes is also based on the green weight of the meat or poultry because FSIS believes that all the curing agent used is taken up by the meat or poultry. Table II, on the next page, lists the maximum parts per million (ppm) for each of the four curing agents permitted in products, based on the curing method used. The limits vary among curing methods because the methods differ in the efficiency with which the curing agent is brought in contact with the meat and/or poultry. Limits for nitrite/nitrate combinations and combination procedures (such as pumping and dry curing) are discussed on pages 32 and 33. Bacon, with respect to both curing ingredients and cure accelerators, is discussed on pages 27-31.

**TABLE II
MAXIMUM INGOING NITRITE AND NITRATE LIMITS (IN PPM)
FOR MEAT AND POULTRY PRODUCTS***

Curing Agent	Curing Method			
	Immersion Cured	Massaged or Pumped	Comminuted	Dry Cured
Sodium Nitrite	200	200	156	625
Potassium Nitrite	200	200	156	625
Sodium Nitrate	700	700	1718	2187
Potassium Nitrate	700	700	1718	2187

* There are more stringent limits for curing agents in bacon to reduce the formation of nitrosamines. For this same reason, nitrate is no longer permitted in any bacon (pumped and/or massaged, dry cured, or immersion cured). Refer to page 27, Nitrite used in Bacon, for specific information.

As a matter of policy, the Agency requires a *minimum* of 120 ppm of ingoing nitrite in *all* cured "Keep Refrigerated" products, unless the establishment can demonstrate that safety is assured by some other preservation process, such as thermal processing, pH or moisture control. This 120 ppm policy for ingoing nitrite is based on safety data reviewed when the bacon standard was developed.

There *is no* regulatory minimum ingoing nitrite level for cured products that have been processed to ensure their shelf stability (such as having undergone a complete thermal process, or having been subjected to adequate pH controls, and/or moisture controls in combination with appropriate packaging). However, 40 ppm nitrite is useful in that it has some

preservative effect. This amount has also been shown to be sufficient for color-fixing purposes and to achieve the expected cured meat or poultry appearance. Some thermally processed shelf-stable (canned) products have a minimum ingoing nitrite level that must be monitored because it is specified as a critical factor in the product's process schedule.

Nitrite and nitrate are not permitted in baby, junior or toddler foods.



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NITRITE USED IN CURED, COMMUNUTED PRODUCTS

Introduction

The amount of ingoing nitrite permitted in comminuted products, such as bologna, specific and nonspecific loaves, salami, etc., is based on the green weight of the meat and/or poultry and/or meat/poultry byproducts (meat block) used in the product formulation. Shrinkage is not a factor in the calculation. If nitrate is used in conjunction with nitrite, the limits of the two compounds are calculated separately and the permitted maximum of each may be used.

Nitrite Used in Pure Form

- **Calculation Formula**

$$\frac{\text{lb nitrite} \times 1,000,000}{\text{green weight of meat block}} = \text{ppm}$$

In comminuted products, this formula can be used to determine:

1. The permitted weight of the nitrite, if you know the weight of the meat block.
2. The minimum weight of the meat block that must be used in the formula, if you know the weight of the nitrite being used.
3. Whether or not a formula will be in compliance with the regulations, if you know the weight of the nitrite and the weight of the meat block.

Procedure Table

By using the procedure table below, one can determine the amount of nitrite and/or the ppm of ingoing nitrite allowed in a comminuted product.

STEP	PROCEDURE	EXAMPLE																								
1	Determine the weight of the nitrite in the formulation and identify the meat and/or poultry and/or meat/poultry byproducts that make up the meat block from the label transmittal form or establishment formulation records.	<p style="text-align: center;">Wiener Formula</p> <table border="0"> <tr><td>Beef</td><td style="text-align: right;">230.00 lb</td></tr> <tr><td>Pork</td><td style="text-align: right;">230.00 lb</td></tr> <tr><td>Water</td><td style="text-align: right;">70.00 lb</td></tr> <tr><td>Rework (has nitrite and erythorbate)</td><td style="text-align: right;">50.00 lb</td></tr> <tr><td>Chicken</td><td style="text-align: right;">40.00 lb</td></tr> <tr><td>NFDM</td><td style="text-align: right;">18.00 lb</td></tr> <tr><td>Corn Syrup Solids (CSS)</td><td style="text-align: right;">15.00 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">5.00 lb</td></tr> <tr><td>Flavorings</td><td style="text-align: right;">4.50 lb</td></tr> <tr><td>Sodium Erythorbate</td><td style="text-align: right;">0.422 lb (6.75 oz.)</td></tr> <tr><td>Sodium Nitrite</td><td style="text-align: right;"><u>0.078 lb (1.25 oz.)</u></td></tr> <tr><td>Total Batch Weight</td><td style="text-align: right;">663.00 lb</td></tr> </table>	Beef	230.00 lb	Pork	230.00 lb	Water	70.00 lb	Rework (has nitrite and erythorbate)	50.00 lb	Chicken	40.00 lb	NFDM	18.00 lb	Corn Syrup Solids (CSS)	15.00 lb	Salt	5.00 lb	Flavorings	4.50 lb	Sodium Erythorbate	0.422 lb (6.75 oz.)	Sodium Nitrite	<u>0.078 lb (1.25 oz.)</u>	Total Batch Weight	663.00 lb
Beef	230.00 lb																									
Pork	230.00 lb																									
Water	70.00 lb																									
Rework (has nitrite and erythorbate)	50.00 lb																									
Chicken	40.00 lb																									
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Sodium Nitrite	<u>0.078 lb (1.25 oz.)</u>																									
Total Batch Weight	663.00 lb																									
2	<p>Determine the weight of the meat block.</p> <p>The following example will illustrate the use of this calculation formula.</p> <p>We know the weight of the meat block and that sodium nitrite is limited to 156 ppm in comminuted products (see Table II). Substitute these values into the formula and solve for <i>n</i>, the weight of the sodium nitrite.</p>	<table border="0"> <tr><td>Beef</td><td style="text-align: right;">230 lb</td></tr> <tr><td>Pork</td><td style="text-align: right;">230 lb</td></tr> <tr><td>Chicken</td><td style="text-align: right;"><u>+ 40 lb</u></td></tr> <tr><td>Total Meat Block</td><td style="text-align: right;">500 lb</td></tr> </table> <p>We have a 500 lb meat block. What is the maximum amount of sodium nitrite that can be added to the formula without exceeding the 156 ppm limit?</p> $n \times \frac{1,000,000}{500} = 156 \text{ ppm}$ $n = \frac{156 \times 500}{1,000,000}$ <p>n = 0.078 lb of nitrite is the maximum amount that could be used in this formula</p>	Beef	230 lb	Pork	230 lb	Chicken	<u>+ 40 lb</u>	Total Meat Block	500 lb																
Beef	230 lb																									
Pork	230 lb																									
Chicken	<u>+ 40 lb</u>																									
Total Meat Block	500 lb																									
3	<p>When both factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the product is in compliance.</p> <p>The product <i>is</i> in compliance.</p>	<p>We have 0.078 lb of sodium nitrite being added to a sausage formula that has a 500 lb meat block. Will this product be in compliance?</p> $n = \frac{0.078 \times 1,000,000}{500}$ <p>n = 156 ppm</p>																								

Note: If you are unable to solve equations with one unknown, turn to the Appendix, Solving Equations that Have an Unknown Value

- **Calculation Formula** (using nitrite limit of ¼ oz per 100 lb of meat block)

Alternatively, one could use the following calculation formula that uses the nitrite limit of ¼ ounce/100 lb of meat and/or poultry and/or meat/poultry byproduct (meat block) to determine the maximum amount of nitrite that can be added to a known amount of meat block.

$$\frac{\text{green weight of meat block}}{100} \times 0.25 = \text{lb nitrite}$$

Procedure Table

The procedure table below may also be used for determining the amount of nitrite allowed in a comminuted product.

STEP	PROCEDURE	EXAMPLE								
1	Determine the weight of the meat block.	<p>Sausage Formula</p> <table> <tr> <td>Beef</td> <td>230 lb</td> </tr> <tr> <td>Pork</td> <td>230 lb</td> </tr> <tr> <td>Chicken</td> <td>+ 40 lb</td> </tr> <tr> <td>Total Meat Block</td> <td>500 lb</td> </tr> </table>	Beef	230 lb	Pork	230 lb	Chicken	+ 40 lb	Total Meat Block	500 lb
Beef	230 lb									
Pork	230 lb									
Chicken	+ 40 lb									
Total Meat Block	500 lb									
2	Convert this figure into 100 lb units by dividing by 100.	500 lb ÷ 100 = 5.0 units								
3	Determine the weight of sodium nitrite allowed by multiplying these units by the decimal equivalent of nitrite allowed per 100 lb. (¼ oz = .25 oz nitrite allowed)	5.0 × 0.25 oz = 1.25 oz or 0.078 lb of nitrite is the maximum amount that can be used with 500 lb of meat and poultry.								

• **Comment**

Any rework in the formulation already containing nitrite shall not be added to the meat block. On the other hand, if the rework does not contain nitrite, the green weight of the meat and/or poultry portion of the rework may be added to the meat block total.

Nitrite in Curing Compounds or Mixes

When curing agents, nitrites and nitrates, are brought into the establishment, they may already be mixed with salt, sugar, corn syrup solids, or monosodium glutamate. If curing agents are mixed with these ingredients, the result is commonly referred to as a curing compound or mix. The curing compound or mix must have the percentage of nitrite and/or nitrate indicated on the container.

• **Calculation Formula**

$$\frac{\text{lb cure mix} \times \% \text{ nitrite in mix} \times 1,000,000}{\text{green weight of meat block}} = \text{ppm}$$

In comminuted products, this formula can be used to determine:

1. The permitted weight of the cure mix, if you know the weight of the meat block.
2. Whether or not a formula will be in compliance with the regulations, if you know the weight of the cure mix, % of the nitrite in the mix, and the weight of the meat block.

• **Procedure Table**

Use the following procedure table to determine the amount of cure mix allowed in a comminuted product and/or the ppm of ingoing nitrite in a comminuted product when nitrite is added via a cure mix.

STEP	PROCEDURE	EXAMPLE																										
1	Determine the weight of the cure mix added to the formula and identify the meat block from the label transmittal form or establishment formulation records. Identify the percentage of nitrite in the cure mix (the cure mix label may need to be examined).	<p style="text-align: center;">Cotto Salami Formula</p> <table border="0"> <tr><td>Pork</td><td style="text-align: right;">220.00 lb</td></tr> <tr><td>Beef hearts</td><td style="text-align: right;">100.00 lb</td></tr> <tr><td>Beef</td><td style="text-align: right;">60.00 lb</td></tr> <tr><td>Water</td><td style="text-align: right;">50.00 lb</td></tr> <tr><td>Rework (has nitrite)</td><td style="text-align: right;">50.00 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">7.50 lb</td></tr> <tr><td>CSS</td><td style="text-align: right;">4.00 lb</td></tr> <tr><td>Flavorings</td><td style="text-align: right;">3.00 lb</td></tr> <tr><td>Dextrose</td><td style="text-align: right;">2.00 lb</td></tr> <tr><td>Sodium phosphates</td><td style="text-align: right;">2.00 lb</td></tr> <tr><td>Cure Mix (6.25% sodium nitrite w/salt carrier)</td><td style="text-align: right;">1.30 lb</td></tr> <tr><td>Sodium Erythorbate</td><td style="text-align: right;"><u>0.20 lb (3.20 oz)</u></td></tr> <tr><td>Total Batch Weight</td><td style="text-align: right;">500.00 lb</td></tr> </table>	Pork	220.00 lb	Beef hearts	100.00 lb	Beef	60.00 lb	Water	50.00 lb	Rework (has nitrite)	50.00 lb	Salt	7.50 lb	CSS	4.00 lb	Flavorings	3.00 lb	Dextrose	2.00 lb	Sodium phosphates	2.00 lb	Cure Mix (6.25% sodium nitrite w/salt carrier)	1.30 lb	Sodium Erythorbate	<u>0.20 lb (3.20 oz)</u>	Total Batch Weight	500.00 lb
Pork	220.00 lb																											
Beef hearts	100.00 lb																											
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Sodium Erythorbate	<u>0.20 lb (3.20 oz)</u>																											
Total Batch Weight	500.00 lb																											
2	<p>Determine the weight of the meat block.</p> <p>The following example will illustrate the use of this formula.</p> <p>We know the weight of the meat block, the percentage of sodium nitrite in the cure mix (6.25%), and that sodium nitrite is limited to 156 ppm in comminuted products. Substitute these values into the calculation formula and solve for <i>n</i>, the weight of the cure mix.</p>	<table border="0"> <tr><td>Pork</td><td style="text-align: right;">220 lb</td></tr> <tr><td>Beef hearts</td><td style="text-align: right;">100 lb</td></tr> <tr><td>Beef</td><td style="text-align: right;"><u>+ 60 lb</u></td></tr> <tr><td>Total Meat Block</td><td style="text-align: right;">380 lb</td></tr> </table> <p>If we have a 380 lb meat block, what is the maximum amount of cure mix that can be added to the formula without exceeding the 156 ppm limit?</p> $n \times 0.0625 \times 1,000,000 = 156 \text{ ppm}$ $\qquad \qquad \qquad \times 380$ $n = \frac{156 \times 380}{0.0625 \times 1,000,000}$ <p>n = 0.94 lb of cure mix is the maximum amount that could be used in this formula</p>	Pork	220 lb	Beef hearts	100 lb	Beef	<u>+ 60 lb</u>	Total Meat Block	380 lb																		
Pork	220 lb																											
Beef hearts	100 lb																											
Beef	<u>+ 60 lb</u>																											
Total Meat Block	380 lb																											
3	<p>When all factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the product is in compliance.</p> <p>The product <i>is not</i> in compliance.</p>	<p>We have 1.30 lb of cure mix being added to a sausage formula that has a 380 lb meat block. Will this product be in compliance?</p> $n = \frac{1.30 \times 0.0625 \times 1,000,000}{380}$ $n = 213.81 \text{ ppm nitrite}$																										

• **Comment**

The maximum amount of cure mix allowed in a specified amount of meat block can also be determined by first calculating the maximum amount of nitrite permitted in *pure form*, and then dividing this amount by the percentage of the nitrite in the cure mix.

Remember that nitrite is limited to 156 ppm or a ¼ oz (0.25 oz) per 100 lb of meat block. Therefore, the maximum amount of nitrite allowed in a 380 lb (from above) meat block would be 0.95 oz (380 ÷ 100 × 0.25) which is equivalent to 0.059 lb (0.95 oz ÷ 16 oz per lb).

Take the percentage of the nitrite in the cure mix and express it as a decimal (move the decimal two places to the left). For example, the cure mix containing 6.25% sodium nitrite would be expressed as 0.0625.

Next, divide the amount of pure nitrite allowed by the percentage of the nitrite in the cure mix. In this case,

$$0.059 \text{ lb} \div 0.0625 = 0.94 \text{ lb cure mix}$$

0.94 lb of the cure mix would be allowed in this batch containing 380 lb of meat or meat byproducts.

Nitrite in Liquid Curing Compounds or Mixes

Liquid cures are a combination of a basic cure mix (dry form) and water. To determine the maximum amount of liquid cure mix permitted in a product formula or whether a product formulated with a liquid cure mix is in compliance, you use the same calculation formula as that in the description for nitrite in cure (dry form) mixes. However, you will first need to calculate the percentage of nitrite present in such a solution.

• **Procedure Table**

STEP	PROCEDURE	EXAMPLE
1	Examine the cure mix formula to determine the percentage of nitrite it contains.	450 lb Salt - 90% 50 lb Sodium Nitrite - 10%
2	Now examine the makeup of the cure solution.	90 lb Water 25 lb Cure Mix 115 lb Total
3	Find the weight of the nitrite used in the liquid cure solution by multiplying the cure mix weight in the solution by the percentage of nitrite it contains.	25 lb Cure Mix × .10 2.5 lb Nitrite
4	Compute the percentage of nitrite in the solution by dividing the weight of the nitrite by the total weight of the solution and then multiply the result by 100.	2.5 ÷ 115 = .0217 (2.17% sodium nitrite in the solution)
5	Now that we know the percentage of sodium nitrite in the liquid cure mix, it can be inserted into the calculation formula (refer to <u>Nitrite in Curing Compounds or Mixes</u>) and we can solve for <i>n</i> , the weight of the liquid cure mix.	Using the cotto salami example given earlier, we have a 380 lb meat block. What is the maximum amount of liquid cure mix that can be added to the formula without exceeding the 156 ppm limit? $n \times 0.0217 \times 1,000,000 = 156 \text{ ppm}$ $\qquad \qquad \qquad \times 380$ $n = \frac{156 \times 380}{0.0217 \times 1,000,000}$ $n = 2.73 \text{ lb of liquid cure mix is the maximum amount that can be used with a 380 lb meat block.}$



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NITRITE USED IN CURED, PICKLED PRODUCTS

Introduction

The amount of ingoing nitrite used in pumped, massaged, injected, or immersion-cured products, such as hams, poultry breasts, poultry rolls, corned beef, etc., is based on the green weight of the meat and/or poultry used in the product formulation. Shrinkage is not a factor in the calculation. If nitrate is used in conjunction with nitrite, the limits of the two compounds are calculated separately and the permitted maximum of each may be used (see pages [32](#) and [33](#)).

Nitrite in Pumped or Massaged Products

- **Calculation Formula**

$$\frac{\text{lb nitrite} \times \% \text{ pump} \times 1,000,000}{\text{lb pickle}} = \text{ppm}$$

In pumped products, this formula can be used to determine:

1. The permitted weight of nitrite allowed, if you know the weight of the pickle solution and the percent pump to be used.
2. The minimum weight of the pickle solution that can be made, if you know the weight of the nitrite and the percent pump to be used.
3. The maximum percent pump, if you know the weight of the nitrite and the weight of the pickle solution (refer to [Chapter 11](#) for this type of calculation).
4. Whether or not a procedure will be in compliance with the regulations, if you know the weight of the nitrite, the weight of the pickle solution, and the percent pump to be used.

- **Procedure Table**

The procedure table below may be used for determining the amount of nitrite allowed in a pumped or massaged product and/or the ppm of ingoing nitrite in a pumped or massaged product. It may also be used to determine the minimum pounds of pickle necessary to produce a pumped or massaged product in compliance with the 200 ppm nitrite limit.

STEP	PROCEDURE	EXAMPLE														
1	<p>Determine the weight of the nitrite added to the pickle solution, the total weight of the pickle solution, and the percent pump from the label transmittal form or establishment formulation records. <i>If any two of these quantities are known, the third can be calculated by substituting the known values into the calculation formula.</i></p>	<p style="text-align: center;">Pickle Formula</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 80%;">Water</td> <td style="text-align: right;">1310.00 lb</td> </tr> <tr> <td>Salt</td> <td style="text-align: right;">132.00 lb</td> </tr> <tr> <td>Dextrose</td> <td style="text-align: right;">18.00 lb</td> </tr> <tr> <td>Phosphate</td> <td style="text-align: right;">35.00 lb</td> </tr> <tr> <td>Sodium Erythorbate</td> <td style="text-align: right;">3.25 lb</td> </tr> <tr> <td>Sodium Nitrite</td> <td style="text-align: right;"><u>1.75 lb</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">1500.00 lb</td> </tr> </table>	Water	1310.00 lb	Salt	132.00 lb	Dextrose	18.00 lb	Phosphate	35.00 lb	Sodium Erythorbate	3.25 lb	Sodium Nitrite	<u>1.75 lb</u>	Total	1500.00 lb
Water	1310.00 lb															
Salt	132.00 lb															
Dextrose	18.00 lb															
Phosphate	35.00 lb															
Sodium Erythorbate	3.25 lb															
Sodium Nitrite	<u>1.75 lb</u>															
Total	1500.00 lb															
2	<p>Two examples will illustrate the use of this formula.</p> <p>We know the weight of the nitrite, the percent pump, and that nitrite is limited to 200 ppm in pumped products (See Table II). Substitute these values into the formula and solve for <i>n</i>, the lb of pickle.</p> <p>We know the percent pump and the weight of the pickle. Substitute these values into the formula and solve for <i>n</i>, the weight of the sodium nitrite.</p>	<p>(A) We have 1.75 lb of sodium nitrite and we want to pump semi-boneless hams at 25%. How much pickle must be made?</p> $200 = \frac{1.75 \times 0.25 \times 1,000,000}{n}$ $n = \frac{1.75 \times 0.25 \times 1,000,000}{200}$ <p>n = 2,187.50 lb of pickle solution</p> <p>(B) We want to pump at 25% level and make 1,500 lb of pickle. What is the maximum amount sodium nitrite that may be added to the pickle without exceeding the 200 ppm limit?</p> $200 = \frac{n \times 0.25 \times 1,000,000}{1500}$ $n = \frac{200 \times 1500}{0.25 \times 1,000,000}$ <p>n = 1.2 lb of nitrite is the maximum amount that can be added to 1500 lb of pickle that will be pumped into product at a level of 25%.</p>														
3	<p>If all 3 factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the procedure is in compliance.</p> <p>Since only 200 ppm sodium nitrite is permitted, this procedure is not in compliance.</p>	<p>We have 1.75 lb of sodium nitrite and want to make 1,500 lb of pickle and pump at the 25% level. Is this in compliance?</p> $n = \frac{1.75 \times 0.25 \times 1,000,000}{1500}$ $n = \frac{437,500}{1500}$ <p>n = 291.66 ppm nitrite</p>														

Note: If you are unable to solve equations with one unknown, turn to the Appendix, Solving Equations that Have an Unknown Value.

Nitrite in Immersed Products

In immersion curing, the submerged meat or poultry absorbs the cover pickle solution, slowly, over a long period of time. There are two recognized methods for calculating the allowable ingoing amount of nitrite in immersion cured products. The method used depends on the mechanism of movement of nitrite within the meat and/or poultry/pickle system and into the meat, meat byproduct, or poultry tissue itself.

• Method One

The first method assumes that the meat or poultry absorbs not more than the level of nitrite in the cover pickle. Hence, the calculation for nitrite is based on the green weight of the meat or poultry (as is the case with pumped products), but

uses percent pick-up as the percent pump. The percent pick-up is the total amount of cover pickle absorbed by the meat or poultry. It is used in the calculation for immersion cured products in the same way percent pump is used in the (previous) calculation for pumped products.

Calculation Formula (using % pick-up)

$$\frac{\text{lb nitrite} \times \% \text{ pick-up} \times 1,000,000}{\text{lb pickle}} = \text{ppm}$$

• **Method Two**

The second method assumes that the submerged meat, meat byproduct, or poultry and the cover pickle act as a single system. Over time, the ingredients in the pickle, such as nitrite and salt, migrate into the meat, meat byproduct, and poultry until levels in the tissue and in the pickle are balanced. This system is actually very complex and dynamic, with components in constant motion, but it will reach and maintain a state of equilibrium. Therefore, the calculation for ingoing nitrite is based on the green weight of the meat block, using the percent added as a relevant amount.

Calculation Formula (using the green weight and pickle weight)

$$\frac{\text{lb nitrite} \times 1,000,000}{\text{green weight (lb) meat block} + \text{lb pickle}} = \text{ppm}$$

In immersion cured products, this formula can be used to determine:

1. The permitted weight of nitrite, if you know the green weight of the meat block and the weight of the pickle solution.
2. The minimum weight of the meat block that can be submerged in the cover pickle, if you know the weight of the nitrite and the weight of the pickle solution.
3. Whether or not a procedure will be in compliance with the regulations, if you know the weight of the nitrite, the green weight of the meat block to be immersed, and the weight of the pickle solution.

Note: Method One is used for hams, shoulders, bellies, etc., because it takes weeks for these large items to reach equilibrium. Method Two is primarily used with small items with large surface areas such as pigs' ears, tails, snouts, etc.

Procedure Table

Use the following procedure table to determine the maximum amount of nitrite allowed in a cover pickle used to cure small items with large surface areas and/or the ingoing ppm of nitrite in a small item with a large surface area that has been submerged in a cover pickle.

STEP	PROCEDURE	EXAMPLE														
1	Determine the weight of the nitrite added to the pickle solution, the green weight of the meat, meat byproduct, or poultry and the weight of the pickle solution from the label transmittal form or establishment formulation records. <i>If any two of these quantities are known, the third can be calculated by substituting the known values into the calculation formula.</i>	<p style="text-align: center;">Cover Pickle Formula</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Water</td> <td style="text-align: right;">700.00 lb</td> </tr> <tr> <td>Salt</td> <td style="text-align: right;">70.00 lb</td> </tr> <tr> <td>Phosphate</td> <td style="text-align: right;">18.00 lb</td> </tr> <tr> <td>Dextrose</td> <td style="text-align: right;">9.75 lb</td> </tr> <tr> <td>Sodium Erythorbate</td> <td style="text-align: right;">2.00 lb</td> </tr> <tr> <td>Sodium Nitrite</td> <td style="text-align: right;"><u>0.25 lb</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">800.00 lb</td> </tr> </table>	Water	700.00 lb	Salt	70.00 lb	Phosphate	18.00 lb	Dextrose	9.75 lb	Sodium Erythorbate	2.00 lb	Sodium Nitrite	<u>0.25 lb</u>	Total	800.00 lb
Water	700.00 lb															
Salt	70.00 lb															
Phosphate	18.00 lb															
Dextrose	9.75 lb															
Sodium Erythorbate	2.00 lb															
Sodium Nitrite	<u>0.25 lb</u>															
Total	800.00 lb															
2	The following example will illustrate the use of this formula. We know the weight of the cover pickle, the green weight of the meat byproduct, and that nitrite is limited to 200 ppm in immersion cured products (see Table II). Substitute these values into the formula and solve for <i>n</i> , the weight of the sodium nitrite.	We have 800 lb of pickle solution and we want to immersion cure 600 lb of pork snouts. How many pounds of sodium nitrite can be added to the cover pickle without exceeding the 200 ppm limit? $200 = \frac{n \times 1,000,000}{600 + 800}$ $n = \frac{200 \times 1400}{1,000,000}$ $n = 0.28 \text{ lb of nitrite}$														
3	When all 3 factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the procedure is in compliance. This product <i>is</i> in compliance	We have 0.25 lb of sodium nitrite and want to make 800 lb of cover pickle, and add 600 lb of pork snouts to the cover pickle. Will this product be in compliance? $n = \frac{0.25 \times 1,000,000}{600 + 800}$ $n = 178.57 \text{ ppm nitrite}$														

Note: If you are unable to solve equations with one unknown, turn to the [Appendix, Solving Equations that Have an Unknown Value](#)



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NITRITE USED IN CURED, DRY PRODUCTS

Introduction

The amount of ingoing nitrite used in dry cured products, such as country ham, country style pork shoulder, prosciutto, etc., is based on the green weight of the meat or poultry in the product formulation. These products are prepared from a single intact piece of meat or poultry that has had the curing ingredients directly applied to the surface, and has been dried for a specified period of time. For large pieces of meat, the curing ingredients must be rubbed on the surface several times during the curing period. The rubbed meat or poultry cuts are placed on racks or in boxes and allowed to cure. Nitrite is applied to the surface of the meat or poultry as part of a cure mixture.

- **Calculation Formula** (using lb of cure mix)

Dry cured product formulation compliance can be monitored using the familiar % pump and pounds of pickle equation used in the **Nitrite in Pumped or Massaged Products** section, substituting "% cure mix applied" for "% pump" and "lb cure mix" for "lb pickle".

$$\frac{\text{lb nitrite} \times \% \text{ cure mix applied} \times 1,000,000}{\text{lb cure mix}} = \text{ppm}$$

Procedure Table

STEP	PROCEDURE	EXAMPLE															
1	From establishment formulation records, determine the weight of the dry cure mix that will be applied to the meat or poultry.	<p style="text-align: center;">Dry Cure Mixture</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Salt</td> <td style="width: 30%; text-align: right;">42.5 lb</td> <td style="width: 40%; text-align: right;">85%</td> </tr> <tr> <td>Sugar</td> <td style="text-align: right;">5.0 lb</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>Sodium nitrate</td> <td style="text-align: right;">2.0 lb</td> <td style="text-align: right;">4%</td> </tr> <tr> <td>Sodium nitrite</td> <td style="text-align: right;"><u>0.5 lb</u></td> <td style="text-align: right;"><u>1%</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">50.0 lb</td> <td style="text-align: right;">100%</td> </tr> </table> <p>Use 4 lb of dry cure mix per 100 lb of ham or pork shoulder</p>	Salt	42.5 lb	85%	Sugar	5.0 lb	10%	Sodium nitrate	2.0 lb	4%	Sodium nitrite	<u>0.5 lb</u>	<u>1%</u>	Total	50.0 lb	100%
Salt	42.5 lb	85%															
Sugar	5.0 lb	10%															
Sodium nitrate	2.0 lb	4%															
Sodium nitrite	<u>0.5 lb</u>	<u>1%</u>															
Total	50.0 lb	100%															
2	Convert the amount of dry cure mix per 100 lb of meat or poultry to a percent. Your answer will be the % applied.	$(4 \div 100) \times 100 = 4.0\%$ dry cure applied															
3	When all factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the product is in compliance. Since nitrite is permitted up to a level of 625 ppm in dry cured products, this product <i>is</i> in compliance.	<p>We have 50 lb of dry cure mix containing 0.5 lb nitrite applied to hams or pork shoulders at a rate of 4%. Will the product be in compliance?</p> $n = \frac{0.5 \text{ lb} \times .04 \times 1,000,000}{50 \text{ lb}}$ <p>n = 400 ppm nitrite</p>															

- **Calculation Formula** (using green weight of the meat or poultry)

When checking nitrite compliance in dry cured products, you may also use the same equation given in the **Nitrite in Curing Compounds or Mixes** section.

$$\frac{\text{lb cure mix} \times \% \text{ nitrite in mix} \times 1,000,000}{\text{green weight meat or poultry (meat block)}} = \text{ppm}$$

In dry cured products, this formula can be used to determine:

1. The permitted weight of the cure mix, if you know the green weight of the meat or poultry and the percentage cure agent in the mix.
2. Whether or not a formula will be in compliance with the regulations, if you know the weight of the cure mix, % of the nitrite in the mix, and the green weight of the meat or poultry.

Procedure Table

Use the following procedure table to determine the maximum amount of a cure mix that can be applied to the surface of a dry cured product and/or the ppm of ingoing nitrite in a dry cured product.

STEP	PROCEDURE	EXAMPLE						
1	Determine the weight of the cure mix applied to the meat or poultry and the weight of the meat or poultry from the label transmittal form or establishment formulation records. Identify the percentage of nitrite in the cure mix (the cure mix label may need to be examined). <i>If one of these quantities is known, the other can be calculated by substituting the known value into the equation.</i>	<p style="text-align: center;">Country Ham</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Ham</td> <td style="text-align: right;">500.00 lb</td> </tr> <tr> <td>Cure mix (1.00% sodium nitrite)</td> <td style="text-align: right;">+ 20.00 lb</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">520.00 lb</td> </tr> </table> <p>Use 4 lb of cure mix per 100 lb of meat or poultry.</p>	Ham	500.00 lb	Cure mix (1.00% sodium nitrite)	+ 20.00 lb	Total	520.00 lb
Ham	500.00 lb							
Cure mix (1.00% sodium nitrite)	+ 20.00 lb							
Total	520.00 lb							
2	The following example will illustrate the use of this calculation formula. We know the weight of the meat, the percentage of sodium nitrite in the cure mix, and that sodium nitrite is limited to 625 ppm in dry cured products. Substitute these values into the calculation formula and solve for <i>n</i> , the weight of the cure mix.	<p>If we have 500 lb of ham, what is the maximum amount of cure mix that can be added to the formula without exceeding the 625 ppm limit?</p> $n \times 0.01 \times 1,000,000 = 625 \text{ ppm} \times 500$ $n = \frac{625 \times 500}{0.01 \times 1,000,000}$ <p>n = 31.25 lb of cure mix is the maximum amount that could be used in this formula.</p> <p style="text-align: center;">OR</p> <p>6.25 lb of cure mix per 100 lb of meat or poultry [31.25 ÷ 5 (100 lb units) = 6.25 lb]</p>						
3	When all factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the product is in compliance. Because dry cured products can contain sodium nitrite up to a level of 625 ppm, this product <i>is</i> in compliance.	<p>We have 20 lb of cure mix that has nitrite in it at a level of 1.00% being applied to 500 lb of ham. Will this product be in compliance?</p> $n = \frac{20 \times 0.01 \times 1,000,000}{500}$ <p>n = 400 ppm nitrite</p>						

• Comment

The maximum amount of cure mix allowed in a specified amount of meat or poultry to be dry cured can also be determined by first calculating the maximum amount of nitrite permitted in *pure form*, and then dividing this amount by the percentage of the nitrite in the cure mix.

Remember that nitrite is limited to 625 ppm or 1 oz per 100 lb of meat or poultry. Therefore, the maximum amount of nitrite allowed in 500 lb of hams (from page 26) would be 5 oz [(500 ÷ 100) × 1.0] which is equivalent to 0.312 lb (5 oz ÷ 16 oz per lb).

Take the percentage of the nitrite in the cure mix and express it as a decimal. For example, the cure mix containing 1.00% sodium nitrite would be expressed as 0.01.

Then divide the amount of pure nitrite allowed by the percentage of the nitrite in the cure mix. In this case,

$$0.3125 \text{ lb} \div 0.01 = 31.25 \text{ lb maximum cure mix}$$

31.25 lb of the cure mix (nitrite 1.00%) would be allowed in the batch containing 500 lb of hams.



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NITRITE USED IN BACON

Introduction

Because of problems associated with nitrosamine formation in bacon, MPI Regulations, section 318.7(b)(1) and (3) prescribe the amounts of nitrite and sodium ascorbate or sodium erythorbate (isoascorbate) to be used in pumped and massaged bacon. For the immersion curing and dry curing of bacon, maximum amounts of sodium and potassium nitrite are prescribed in section 318.7(b)(5) and (6) of the MPI Regulations.

Establishment management must submit pickle formulas and the method(s) of preparing *pumped and/or massaged bacon* to the processing staff officer at the appropriate regional office. The pickle formula and targeted percent pump or pick-up must meet the limits listed below. Once the procedure is approved, production may begin.

Regardless of the curing method used, restricted ingredient calculations for bacon are based on the *green weight* of the skinless belly. For rind-on bacon, e.g., where the skin is sold as part of the finished product, a restricted ingredient conversion calculation is necessary. *Nitrate is no longer permitted in any curing method for bacon.*

- **Ingredient Limits**

Pumped and/or Massaged Bacon (rind-off): An amount of 120 ppm sodium nitrite (or 148 ppm potassium nitrite), ingoing, is required in pumped and/or massaged bacon, except that 100 ppm sodium nitrite (or 123 ppm potassium nitrite) is permitted with an appropriate partial quality control program, and except that 40 - 80 ppm sodium nitrite (or 49 - 99 ppm potassium nitrite) is permitted if sugar and a lactic acid starter culture are used. ***550 ppm sodium ascorbate or sodium erythorbate (isoascorbate), ingoing, is required in pumped and massaged bacon, in addition to any prescribed amount of nitrite.***

Immersion Cured Bacon (rind-off): A maximum of 120 ppm of nitrite or equivalent of potassium nitrite (148 ppm) can be used in immersion cured bacon. ***Note: the calculation method for nitrite in immersion cured bacon is the same as that for nitrite in other immersion cured products. Refer to pages 21-24.***

Dry Cured Bacon (rind-off): A maximum of 200 ppm of nitrite or equivalent of potassium nitrite (246 ppm) can be used in dry cured bacon. ***Note: the calculation method for nitrite in dry cured bacon is the same as that for nitrite in other dry cured products. Refer to pages 24-27.***

Pumped, Massaged, Immersion Cured, or Dry Cured Bacon (rind-on): The maximum limit for ingoing nitrite and sodium ascorbate or sodium erythorbate must be adjusted if bacon is prepared from pork bellies with attached skin (rind-on). A pork belly's weight is comprised of approximately 10 percent skin. Since the skin retains practically no cure solution or cure agent, the maximum ingoing nitrite and sodium ascorbate or erythorbate limits must be reduced by 10 percent. For example, the maximum ingoing limit for nitrite and sodium ascorbate or erythorbate for pumped pork bellies with attached skin would be 108 ppm [120 ppm 12 ppm (120 × .10)] and 495 ppm [550 ppm 55 ppm (550 × .10)], respectively.

When determining *pumped and/or massaged* product compliance with the nitrite and ascorbate (or erythorbate) limits, the Agency allows a ***plus or minus*** 20% ppm allowance at the time of injecting or massaging due to variables in pumping procedures, draining, purge, etc.

For example: 20% = 0.20, thus 0.20 × 120 ppm nitrite = 24 ppm

$$\begin{array}{r}
 \text{ 120 ppm} \\
 - \text{24 ppm} \\
 \hline
 \text{ 96 ppm minimum nitrite}
 \end{array}
 \qquad
 \begin{array}{r}
 \text{ 120 ppm} \\
 + \text{24 ppm} \\
 \hline
 \text{ 144 ppm maximum nitrite}
 \end{array}$$

The same calculation can be done for ascorbate or erythorbate (440 ppm minimum, 660 ppm maximum).

Note: *The additional solution added to the product from the higher effective or actual % pump than the establishment's target % pump would be considered negligible because the finished product weight must return to green weight.*

- **Calculation Formula**

The formula for determining nitrite compliance in a proposed pumped or massaged bacon processing procedure is:

$$\frac{\text{lb nitrite} \times \% \text{ pump} \times 1,000,000}{\text{lb pickle}} = \text{ppm}$$

In pumped and/or massaged bacon, this formula can be used to determine:

1. The permitted weight of nitrite allowed, if you know the weight of the pickle solution and the targeted percent pump to be used.
2. The minimum weight of the pickle solution that can be made, if you know the weight of the nitrite and the targeted percent pump to be used (refer to the Procedure Table on page 20 for this type of calculation).
3. The maximum percent pump, if you know the weight of the nitrite and the weight of the pickle solution (refer to Chapter 11 for this type of calculation).
4. Whether or not a procedure will be in compliance with the regulations, if you know the weight of the nitrite, the weight of the pickle solution, and the targeted percent pump to be used.

To determine nitrite compliance based on the *effective or actual % pump*, you can use the formula above by replacing the targeted pump with the effective or actual % pump. *Alternatively*, you could use the following variations to the formula on the previous page:

$$\frac{\text{lb nitrite} \times 1,000,000}{\text{lb pickle}} = \text{ppm nitrite in the pickle}$$

$$\text{ppm nitrite in the pickle} \times \text{effective or actual \% pump} = \text{ppm nitrite in the bacon}$$

• **Procedure Tables**

Use the following procedure table to determine compliance of a proposed bacon processing procedure.

STEP	PROCEDURE	EXAMPLE														
1	Determine the weight of the nitrite added to the pickle solution, the total weight of the pickle solution, and the targeted % pump from the FSIS Form 10,520-1 that the establishment has prepared.	<p style="text-align: right;">Pickle Formula</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Water</td> <td style="text-align: right;">1996.3 lb</td> </tr> <tr> <td>Salt</td> <td style="text-align: right;">302.2 lb</td> </tr> <tr> <td>Sugar</td> <td style="text-align: right;">156.3 lb</td> </tr> <tr> <td>Sodium Phosphate</td> <td style="text-align: right;">31.3 lb</td> </tr> <tr> <td>Sodium Erythorbate</td> <td style="text-align: right;">11.4 lb</td> </tr> <tr> <td>Sodium Nitrite</td> <td style="text-align: right;"><u>2.5 lb</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">2500 lb</td> </tr> </table> <p><i>Targeted pump is 12%</i></p>	Water	1996.3 lb	Salt	302.2 lb	Sugar	156.3 lb	Sodium Phosphate	31.3 lb	Sodium Erythorbate	11.4 lb	Sodium Nitrite	<u>2.5 lb</u>	Total	2500 lb
Water	1996.3 lb															
Salt	302.2 lb															
Sugar	156.3 lb															
Sodium Phosphate	31.3 lb															
Sodium Erythorbate	11.4 lb															
Sodium Nitrite	<u>2.5 lb</u>															
Total	2500 lb															
2	<p>If all three factors are known, one can just solve for <i>ppm</i> and compare the answer with the regulation to determine if the procedure is in compliance.</p> <p><i>Note: The ingoing ppm of sodium erythorbate can be determined by replacing the pounds of nitrite with the pounds of sodium erythorbate and performing the mathematics.</i></p>	<p>We have 2.5 lb of nitrite and want to make 2500 lb of pickle and pump at a level of 12%. Is this in compliance?</p> $n = \frac{2.5 \times 0.12 \times 1,000,000}{2500}$ <p>n = 120 ppm nitrite (in compliance)</p>														

Use the following procedure table to determine the compliance of bacon at the time of pumping and/or massaging. The pickle formula in the procedure table on the previous page will be used as the example in this procedure table.

STEP	PROCEDURE	EXAMPLE
1	Multiply the weight of the sodium nitrite by 1,000,000.	2.5 lb sodium nitrite \times 1,000,000 = 2,500,000 ppm nitrite.
2	Divide this figure by the weight of the pickle solution.	2,500,000 \div 2,500 = 1000 ppm nitrite in the pickle solution.
3	Multiply this figure by effective or actual % pump to obtain ppm. Refer to Chapter 11 to learn how to determine the effective or actual % pump (percent gain).	1000 ppm \times 0.096 (9.6 % effective pump) = 96 ppm ingoing nitrite in the pork bellies. Product <i>is</i> in compliance with the 20% ppm allowance.



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NITRATE USED IN CURED COMMINUTED, PICKLED, AND DRY PRODUCTS

Introduction

Nitrate is used as a source of nitrite. If nitrate is used as the curing agent, the conversion (reduction) of nitrate to nitrite by bacteria in the meat or poultry is a necessary step in the development of the cured color. The amount of nitrate that is reduced to nitrite is dependent upon the numbers of nitrate-reducing bacteria and several environmental conditions such as temperature, moisture content, salt content, and pH. Hence, the conversion rate and subsequent amount of nitrite that is formed is difficult to control. Similarly, the further reduction of nitrite to nitric oxide, which reacts with myoglobin (muscle pigment) to produce the cured color, is also affected by the same environmental conditions. If nitrite is used as the curing agent, there is no need for the nitrate reduction step, and the development of the cured color is much more rapid.

The poor control associated with the reduction of nitrate to nitrite, coupled with the fact that most processors today demand faster curing methods, has lead to the diminished use of nitrate in meat and poultry products.

Calculations for nitrate are the same as those for nitrite described on [pages 11 through 27](#). Different limits apply, depending upon the curing method used, and are illustrated in [Tables I and II](#).

- **Example**

Using the same cure mix formula for dry cured hams or pork shoulders shown in the [Procedure Table on page 25](#), calculate the amount of sodium nitrate. There are 2 pounds of sodium nitrate in 50 pounds of cure mix and the curc mix is applied at the level of 4 pounds per 100 pounds of ham or pork shoulder, or at a 4% level.

Calculation

$$\frac{\text{lb sodium nitrate} \times \% \text{ cure mix applied} \times 1,000,000}{\text{lb cure mix}} = \text{ppm}$$

$$\frac{2 \times 0.04 \times 1,000,000}{50} = 1600 \text{ ppm sodium nitrate}$$


Since the 1600 ppm is less than 2187 ppm (the maximum permitted), the amount of sodium nitrate *is* in compliance.



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NITRITE AND NITRATE USED TOGETHER IN A SINGLE CURING METHOD

Introduction

When nitrite and nitrate are used together in a single curing method, each one is calculated independently and each one is permitted to be used up to the maximum individual limits listed in [Table II](#).

- **Limit**

Although nitrite and nitrate are calculated on an ingoing basis and the calculations are based on the green weight of the meat/poultry, the use of nitrites, nitrates, or a combination *must not* result in more than 200 ppm of nitrite, calculated as sodium nitrite, in the *finished product*. Therefore, establishment operators using both compounds must take care to observe this limit. Violations are determined by laboratory analysis.

- **Control**

Laboratory analyses for nitrite yield varying results because the nitrite reacts at varying rates depending on a number of factors, such as temperature, pH, and duration of storage, and thus becomes unavailable and undetectable by current analytical methods. Also, sodium ascorbate interferes with nitrite analysis. Formulation is therefore the primary control. However, sampling for residual nitrite is still performed, especially where both nitrite and nitrate have been added to the formulation.

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NITRITE AND NITRATE USED TOGETHER WITH MORE THAN ONE CURING METHOD

Introduction

Some processors use *both* nitrite and nitrate in a cure mix and more than *one* curing method for a single product. In these situations, nitrite and nitrate are first calculated independently for each curing method. Each curing agent must be calculated as a percentage of the maximum permitted for the method of curing used, and the total percentage of each curing agent *cannot* exceed 100% (see [Table II](#)).

- **Example One**

Westphalian Style Hams are dry cured and then immersed in a cover pickle solution. The sodium nitrite limit for dry curing is 625 ppm and for immersion curing the limit is 200 ppm; and the sodium nitrate limit is 2187 ppm for dry curing and 700 ppm for immersion curing.

If the establishment dry cured the hams with 400 ppm nitrite (see [page 27](#)), it has used $400 \div 625$ or 64% of the maximum amount of nitrite that is permitted in the drying procedure. Since 200 ppm is the maximum amount of nitrite permitted in immersion curing, the establishment can only use 36% (100% - 64%) of that amount of nitrite, or $(200 \text{ ppm} \times .36)$ 72 ppm nitrite in the immersion cure. If the establishment dry cured the same hams with 1600 ppm nitrate (see [page 32](#)), it has used $1600 \div 2187$ or 73.15% of the maximum amount of nitrate that is permitted in the drying procedure. Since 700 ppm is the maximum amount of nitrate permitted in immersion curing, the establishment can only use 26.85% (100% - 73.15%) of that amount of nitrate, or $(700 \text{ ppm} \times .2685)$ 187.95 ppm nitrate in the immersion cure.

- **Example Two**

In Black Forest Brand Hams that are pumped and then immersed in a cover pickle solution, the limits are the same (200 ppm for nitrite, 700 ppm for nitrate). Therefore, if 200 ppm nitrite is used in the pumping process, no additional nitrite is permitted in the cover pickle. If 350 ppm nitrate (or 50% of that permitted) is added to the pump cure, up to 350 ppm nitrate (the other 50%) is permitted in the cover pickle.



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Chapter 4

CURE ACCELERATOR CALCULATIONS

INTRODUCTION

Cure accelerators speed up the color development (color fixing) of cured products by accelerating the chemical conversion of nitrite to nitric oxide. In addition, cure accelerators aid in keeping myoglobin (muscle pigment) in the reduced state so that it can readily combine with nitric oxide to form nitric oxide myoglobin. During heating, nitric oxide myoglobin is converted to nitrosohemochrome, which is responsible for the bright pink color characteristic of cured meat. Since cure accelerators aid the curing agents in cure color development, they may only be used in combination with the curing agents.

The amounts of curing accelerators are calculated on the basis of the *green weight of the meat and/or poultry and/or meat/poultry byproducts* in the formulation and are controlled on an ongoing basis. *All the methods for calculating nitrite and nitrate amounts also apply in the calculation of cure accelerator amounts.* When a product undergoes two curing methods, the maximum amount of cure accelerators that may be used in the product may be no greater than the greater of the two single cure accelerator maximums associated with the curing methods. The calculation method used will be the same as that applied for nitrite and nitrate in Chapter 3, pages 32 and 33.



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CURE ACCELERATOR LIMITS

The amounts listed in Table III, on the next page, are the permitted maximums for accelerators used alone *and* in combination in the curing of pumped, massaged, immersed, comminuted, and dried meat or poultry products other than bacon. Maximums for sodium ascorbate and sodium erythorbate (isoascorbate) in bacon are given in [Chapter 3](#). The cure accelerators listed in Table III are also permitted in a 10% solution (up to the stated limit) to spray surfaces of cured cuts prior to packaging, as long as the use of the solution does not result in the addition of a significant amount of moisture to the product.

**TABLE III
MAXIMUM INGOING CURE ACCELERATORS (IN PPM)
FOR MEAT AND POULTRY PRODUCTS**

Cure Accelerator	Maximum Limit
Ascorbic Acid	469 ppm
Erythorbic Acid	469 ppm
Sodium Ascorbate	547 ppm
Sodium Erythorbate (isoascorbate)	547 ppm
Citric Acid or Sodium Citrate	may replace up to half of any one of the above

Fumaric acid is permitted as a cure accelerator at the maximum level of 650 ppm *only* in cured, comminuted meat and poultry products.

Glucono delta-lactone (GDL) and sodium acid pyrophosphate (SAPP) are each permitted as cure accelerators at the maximum level of 5000 ppm of the finished product in cured, comminuted *meat products only*. *Note: SAPP is limited to 5000 ppm either alone or in combination with other cure accelerators. GDL is limited to 1% or 10,000 ppm in Genoa salami.*



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CURE ACCELERATORS USED IN CURED, COMMUNUTED PRODUCTS

Introduction

The amount of ingoing cure accelerator used in comminuted products, such as bologna, specific and nonspecific loaves, salami, etc., is based on the green weight of the meat and/or poultry and/or meat/poultry byproducts (meat block) used in the product formulation. Shrink is not a factor. Calculations for cure accelerators are the same as those for nitrite described in Chapter 3, [pages 12-19](#). Different limits apply, depending upon which cure accelerator is used.

- **Example**

Using the same wiener formula in the [Procedure Table](#) on page 13, calculate the amount of ingoing sodium erythorbate. The batch weighs 663 lb, and contains 0.422 lb of sodium erythorbate. The meat block weighs 500 lb.

Calculation

$$\frac{\text{lb sodium erythorbate} \times 1,000,000}{\text{green weight of meat block}} = \text{ppm}$$

$$\frac{0.422 \times 1,000,000}{500} = 844 \text{ ppm sodium erythorbate}$$

This formulation *is not* in compliance because the permitted limit for sodium erythorbate is 547 ppm.

Alternatively, one could use the following calculation formula that uses the sodium erythorbate limit of 7/8 ounce/100 lb of meat and/or poultry and/or meat/poultry byproduct (meat block) to determine the maximum amount of sodium erythorbate that can be added to a known amount of meat block.

$$\frac{\text{green weight of meat block}}{100} \times 0.875 \text{ oz (} 7/8 \text{ oz)} = \text{lb sodium erythorbate}$$

$$\frac{500 \text{ lb}}{100} \times .875 \text{ oz} = 4.375 \text{ oz or } 0.273 \text{ lb maximum amount of sodium erythorbate}$$

Comment


Any rework that already contains sodium erythorbate is not added to the green weight of the meat or poultry, since the weight of the sodium erythorbate has already been controlled in that previous batch.



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CURE ACCELERATORS USED IN CURED, PICKLED PRODUCTS

Introduction

The amount of ingoing cure accelerators used in cured, pickled products, such as ham, corned beef, turkey ham, etc., is based on the *green weight of the meat and/or poultry and/or meat/poultry byproducts (meat block)* used in the product formulation. Shrinkage is not a factor in the calculation. Calculations for cure accelerators are the same as those for nitrite described in Chapter 3, pages 19-24. Different limits apply, depending upon which cure accelerator is used.

- Example

Using the same cover pickle formula in the Procedure Table on page 23, determine whether the product is in compliance for sodium erythorbate. The pickle solution weighs 800 lb, and contains 2 lb of sodium erythorbate. Hams that are immersed in the cover pickle-pickup 10% solution.

Calculation

$$\frac{\text{lb sodium erythorbate} \times \% \text{ pick-up} \times 1,000,000}{\text{lb pickle}} = \text{ppm}$$

$$\frac{2 \text{ lb} \times .10 \times 1,000,000}{800 \text{ lb}} = 250 \text{ ppm sodium erythorbate}$$

This formulation *is* in compliance; the permitted limit is 547 ppm for sodium erythorbate.



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REPLACING CURE ACCELERATORS WITH CITRIC ACID OR SODIUM CITRATE


Introduction

Citric acid or sodium citrate may replace up to 50% of cure accelerators (ascorbic acid, erythorbic acid, sodium ascorbate, or sodium erythorbate) used in the preparation of cured, pumped, massaged, immersed, comminuted, and dried meat and poultry products. Citric acid and sodium citrate cannot be used if no cure accelerators are being used.

- Procedure Table

The procedure table below will allow you to determine how much citric acid or sodium citrate can be used in place of a cure accelerator listed in Table III.

STEP	PROCEDURE	EXAMPLE
1	Determine the amount of cure accelerator being used in the product formulation, pickle solution, cure mix, etc.	3.6 lb (57.6 oz) of ascorbic acid in a pickle solution.
2	Determine the maximum amount of sodium citrate or citric acid that can be used to replace the cure accelerator by multiplying the amount of accelerator by 0.50 (50%).	$\begin{array}{r} \text{\ 3.6 lb} \\ \times 0.50 \\ \hline \text{\ 1.8 lb (28.8 oz) citric acid or} \\ \text{sodium citrate allowed} \end{array}$
3	Subtract the permitted amount of citric acid or sodium citrate from the amount of cure accelerator being used, to determine the maximum amount of the cure accelerator permitted with the citric acid or sodium citrate.	$\begin{array}{r} \text{\ 3.6 lb} \\ - 1.8 \text{ lb (50\%)} \\ \hline \text{\ 1.8 lb (28.8 oz) ascorbic acid} \\ \text{allowed.} \end{array}$

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Chapter 5

PHOSPHATE CALCULATIONS

INTRODUCTION

Phosphates are frequently added to curing solutions and cured product formulations because of the numerous beneficial effects they have in meat and poultry curing. Phosphates increase the water retention (water binding capacity) of the meat and poultry, which reduces the shrinkage (moisture loss) and purge (cook-out) of pickle-cured and cured comminuted products during further processing. The improved water binding results from the reaction of the phosphate ions with the meat and poultry proteins. Phosphates also improve the sensory characteristics of the product (texture, juiciness, and tenderness), improve the stability and uniformity of the cure color, and suppress the development of rancidity in cured products.

There are several phosphates approved for use in meat and poultry products. They appear in the Tables of Approved Substances for meat and poultry [MPI Regulations sections 318.7(c)(4) and 381.147(f)(4)]. All of the phosphates are limited to 5000 ppm. There are no provisions in the regulations for variances from the 5000 ppm limit based on differences in the amount of dissociation among the various phosphate compounds.



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PHOSPHATE LIMITS

Phosphates are permitted to be used at the level of "Sufficient for Purpose" as denuding agents, hog scald agents, and rendering agents in the meat regulations and as poultry scald agents in the poultry regulations. It is not necessary to calculate the amount of phosphate when it is used for these purposes.

Sodium acid pyrophosphate (SAPP), when used to accelerate color fixing in cured, comminuted meat and meat food products, is permitted at a level no greater than 8 ounces per 100 pounds of meat or meat byproduct content of the formula. (*Note: SAPP cannot be used to accelerate color fixing in a cured poultry product.*) When SAPP, or any other approved phosphate, is used to decrease the amount of cooked-out juices from a meat or poultry product, it is limited to a maximum of 5% in a pickle at a 10% pump level. Calculations of these two limits are based on the **green weight of the meat block** component of the product formulation. Shrink is not a factor in the calculation. The calculation methods are the same as that for nitrite in comminuted products and nitrite in pickle-cured products (refer to [Chapter 3](#)).

A phosphate used as a cure accelerator in a meat product is limited to 0.5% of the finished product. If used to protect flavor, it is limited to 0.5% of the total product. If used to decrease cooked-out juices in a meat product, it is limited to 0.5% in the final product, and if used to decrease cooked-out juices in poultry products, it is limited to 0.5% of the total product. Calculation of the phosphate maximums for these uses is based on the **projected finished weight (PFW) of the product**.

If requirements in the previous paragraphs apply to the same product, the product must comply with whichever requirement is the most restrictive.

Note: As stated in the regulations, phosphates are limited to "5% in a pickle at a 10% pump level", "0.5% in the finished product", "0.5% in the product", and "0.5% of the total product". As illustrated in [Table 1](#), pages 7 through 10, these limits are equivalent to 5000 ppm.

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PHOSPHATES USED IN COMMINUTED PRODUCTS

Introduction

Phosphates are permitted in meat and poultry products, unless otherwise prohibited by the regulations, to reduce the amount of cooked-out juices. For instance, phosphates are permitted in cooked sausage, but are not permitted in fresh sausage. Comminuted meat and poultry products such as cooked sausage, luncheon meat, specific and nonspecific loaves, etc., may contain 0.5% phosphates in the **total or final** product. The **PFW** is an acceptable basis for this calculation. The procedure tables below explain how to determine the maximum amount of phosphates allowed in such products. In order to determine phosphate compliance with the regulations at the time of formulation, you will need to determine a PFW. Refer to Chapter 14, pages 100-102, if you do not know how to calculate a PFW.

- Procedure Table (meat product)

STEP	PROCEDURE	EXAMPLE
1	Using establishment formulation records, calculate the projected finished weight for the product.	The PFW for the bologna product in Chapter 14, <u>page 101</u> , is 607.14 lb.
2	Determine the maximum amount of phosphates allowed by multiplying the PFW by the percent of phosphates allowed. Since 3 pounds of phosphates were used in the formula, this product <i>is</i> in compliance.	$\begin{aligned} & \text{607.14 lb} \\ & \times \text{.005 (0.5\%)} \\ & \hline & \text{3.03 lb is the maximum amount of} \\ & \text{phosphates allowed.} \end{aligned}$

- Procedure Table (poultry product)

STEP	PROCEDURE	EXAMPLE																		
1	<p>Determine the total batch weight of the establishment's formulation. This weight represents 100% of the product ingredients (if no "like product" rework is in the formula).</p> <p><i>Note: Because of the "Binders Added" statement, ISP is not restricted in this product. If the statement was not on the label, then the weight of the ISP and its percent limit (3%) would also need to be subtracted in Step 2.</i></p>	<p>Cooked White Turkey Rolls with Broth -- Isolated Soy Protein Added</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>Turkey Breast Meat</td><td style="text-align: right;">300 lb</td></tr> <tr><td>Turkey White Trim Meat</td><td style="text-align: right;">300 lb</td></tr> <tr><td>Water</td><td style="text-align: right;">90 lb</td></tr> <tr><td>Turkey Skin</td><td style="text-align: right;">80 lb</td></tr> <tr><td>ISP</td><td style="text-align: right;">30 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">15 lb</td></tr> <tr><td>Seasoning</td><td style="text-align: right;">10 lb</td></tr> <tr><td>Sodium Phosphates</td><td style="text-align: right;"><u>5 lb</u></td></tr> <tr><td>Total Batch Weight</td><td style="text-align: right;">830 lb</td></tr> </table>	Turkey Breast Meat	300 lb	Turkey White Trim Meat	300 lb	Water	90 lb	Turkey Skin	80 lb	ISP	30 lb	Salt	15 lb	Seasoning	10 lb	Sodium Phosphates	<u>5 lb</u>	Total Batch Weight	830 lb
Turkey Breast Meat	300 lb																			
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Turkey Skin	80 lb																			
ISP	30 lb																			
Salt	15 lb																			
Seasoning	10 lb																			
Sodium Phosphates	<u>5 lb</u>																			
Total Batch Weight	830 lb																			
2	<p>From this weight and percentage, subtract the weight and maximum percentage of the phosphate.</p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">830 lb</td><td style="width: 50%; text-align: right;">100%</td></tr> <tr><td>- 5 lb Phosphates</td><td style="text-align: right;">- 0.5%</td></tr> <tr><td>825 lb</td><td style="text-align: right;">99.5%</td></tr> </table>	830 lb	100%	- 5 lb Phosphates	- 0.5%	825 lb	99.5%												
830 lb	100%																			
- 5 lb Phosphates	- 0.5%																			
825 lb	99.5%																			
3	<p>To find the PFW, divide this weight by the percentage of the formula weight that it represents.</p> <p><i>Note: The PFW could also have been determined by subtracting the expected pounds of shrink from the batch weight. Refer to page 101.</i></p>	<p>$825 \div .995 = 829.14$ lb PFW</p>																		
4	<p>Determine whether or not the phosphates are in compliance by multiplying the PFW by the maximum percentage allowed and comparing the answer to the formula.</p> <p style="text-align: center;">OR</p> <p>Determine the percentage of the phosphates in the finished product by dividing the weight of the phosphates in the formula by the PFW, and then multiply the result by 100.</p>	<p>829.14 lb PFW $\times .005$ (0.5%) 4.14 lb phosphates allowed</p> <p>Since 5 pounds of phosphates were used in the formula, this product <i>is not</i> in compliance.</p> <p>$(5 \text{ lb} \div 829.14) \times 100 = 0.6\%$ phosphates in the finished product.</p>																		



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PHOSPHATES USED IN PICKLED PRODUCTS

Introduction

Phosphates are permitted in meat and poultry products, unless otherwise prohibited by the regulations, to reduce the amount of cooked-out juices. Phosphates in pickle-cured meat and poultry products such as ham, corned beef, bacon, turkey ham, etc., are limited to 5% in a pickle at a 10% pump level, which is equivalent to 5000 ppm ingoing. The maximum phosphate limit is based on the green weight of the meat, meat byproduct, or poultry in the product formulation. Calculations for phosphate(s) are the same as those for nitrite in pickle-cured products. Refer to Chapter 3, [pages 19-24](#).

- Example

Using the same pickle formula in the [Procedure Table](#) on page 20, calculate the amount of ingoing phosphate. The pickle solution weighs 1500 lb and contains 35 lb of phosphate. Semi-boneless hams are pumped at a level of 25%.

Calculation

$$\frac{\text{lb phosphate(s)} \times \% \text{ pump}}{\text{ lb pickle}} \times 1,000,000 = \text{ppm}$$

$$\frac{35 \text{ lb} \times 0.25 \times 1,000,000}{\text{ 1500 lb}} = 5833.33 \text{ ppm phosphate}$$

This product *is not* in compliance because the permitted limit for ingoing phosphate is 5000 ppm.



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Chapter 6

BINDER AND EXTENDER CALCULATIONS

INTRODUCTION

Binders and extenders are used by the meat and poultry industry because they improve product quality and yield. Binders and extenders improve the sensory characteristics of the product (texture, juiciness, and flavor). Like phosphates, binders and extenders increase the water retention of the meat and poultry which reduces the shrinkage of cured comminuted products and purge of pickle-cured products during further processing. Improved water retention leads to higher product yields. When binders and extenders are included in a product's formulation, a higher product yield is attained because more pounds of product can be produced for a given weight of meat or poultry.

There are several binders and extenders approved for use in meat and poultry products. They appear in the Tables of Approved Substances for meat and poultry [MPI Regulations sections 318.7(c)(4) and 381.147(f)(4)]. Because binders and extenders affect the entire product and not just the meat and poultry portion, most calculations are based on the *finished weight* of the product. A *projected finished weight (PFW)* is an acceptable basis for calculation.

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BINDER AND EXTENDER LIMITS

Various binders and extenders are permitted, individually or collectively, in comminuted meat products (sausages and bockwurst in Part 319 of the regulations) at a **maximum level of 3.5% of the finished product weight**. Because of their high protein content, isolated soy protein (ISP) and sodium caseinate are limited to 2% of the finished product weight. Policy Memo 123 allows the use of water and binders and extenders ("fat reducing" ingredients) at higher levels in modified, substitute versions of standardized or traditional cooked, fermented, and breakfast sausages that have been formulated and processed to reduce the fat content to qualify for the use of a nutrient content claim, e.g., "Reduced Fat Frankfurter".

Various binders and extenders are permitted, individually or collectively, in comminuted meat products such as meat loaf, meat balls, and Salisbury steak at a **maximum level of 12% of the finished product weight**. Because of its high protein content, ISP is limited to 6.8% of the finished product weight.

Carrageenan is permitted in cured pork products labeled "Ham--Water Added" and "Ham and Water Product--X% of Weight is Added Ingredients" at a **maximum level of 1.5% of the product formulation**. Modified food starch, sodium caseinate, and ISP are permitted in cured pork products labeled "Ham--Water Added" and "Ham and Water Product--X% of Weight is Added Ingredients" at a **maximum level of 2% of the product formulation**. These binders and extenders **cannot** be used in combination.

Several binders may be individually or collectively added to **poultry rolls** in amounts **not to exceed 3% (cooked rolls) or 2% (raw rolls)** of the **finished product weight**. When binders are added in excess of these levels, a product name qualifier is required (refer to section 381.159).

Sodium caseinate is permitted in various cooked poultry products at a **maximum level of 3% of the finished product weight**. It is permitted in various raw poultry products at a **maximum level of 2% of the finished product weight**. Other binders and extenders are permitted in various **poultry products** at levels **sufficient for purpose** (unrestricted).



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BINDERS AND EXTENDERS USED IN COMMINUTED MEAT PRODUCTS

Introduction

The procedure for determining compliance with the restrictions on binders and extenders in comminuted meat products is the same as that for phosphates. The procedure tables below explain how to determine the maximum amount of binders and extenders in comminuted meat products. In order to verify binder and extender compliance with the regulations at the time of formulation, you will need to determine a PFW. Refer to Chapter 14, [pages 100-102](#), to learn how to calculate a PFW.

- **Procedure Table** (cured comminuted product)

STEP	PROCEDURE	EXAMPLE
1	Using the formulation record(s), calculate the projected finished weight for the product.	The PFW for the bologna product in Chapter 14, page 101 , is 607.14 lb
2	<p>Determine the maximum amount of binders and extenders by multiplying the PFW by the percent of binders and extenders allowed.</p> <p style="text-align: center;">OR</p> <p>Determine the percentage of the binders and extenders in the finished product by dividing the weight of the binder(s) and extender(s) in the formula by the PFW, and then multiply the result by 100.</p>	<p>&nbsp;607.14 lb × .035 (3.5% NFDM) &nbsp;21.24 lb is the maximum amount of NFDM allowed.</p> <p>Since 18 lb of NFDM was used in the formula, this product <i>is</i> in compliance.</p> <p>$(18 \div 607.14) \times 100 = 2.96\%$ NFDM in the finished product.</p>

- **Procedure Table** (fresh comminuted product)

STEP	PROCEDURE	EXAMPLE																								
1	Determine the total batch weight of the establishment's formulation. This weight represents 100% of the product ingredients.	<p style="text-align: center;">Bratwurst Sausage</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>Pork Lean Trimmings</td><td style="text-align: right;">200 lb</td></tr> <tr><td>Pork Jowls (skinned)</td><td style="text-align: right;">100 lb</td></tr> <tr><td>Pork Fat</td><td style="text-align: right;">25 lb</td></tr> <tr><td>Water</td><td style="text-align: right;">10 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">8 lb</td></tr> <tr><td>ISP</td><td style="text-align: right;">3 lb</td></tr> <tr><td>White Pepper</td><td style="text-align: right;">1 lb</td></tr> <tr><td>Sage</td><td style="text-align: right;">8.00 oz</td></tr> <tr><td>Ground Celery Seed</td><td style="text-align: right;">4.00 oz</td></tr> <tr><td>Mace</td><td style="text-align: right;">3.75 oz</td></tr> <tr><td>BHA</td><td style="text-align: right;"><u>0.25 oz</u></td></tr> <tr><td>Total batch weight</td><td style="text-align: right;">348 lb</td></tr> </table>	Pork Lean Trimmings	200 lb	Pork Jowls (skinned)	100 lb	Pork Fat	25 lb	Water	10 lb	Salt	8 lb	ISP	3 lb	White Pepper	1 lb	Sage	8.00 oz	Ground Celery Seed	4.00 oz	Mace	3.75 oz	BHA	<u>0.25 oz</u>	Total batch weight	348 lb
Pork Lean Trimmings	200 lb																									
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Mace	3.75 oz																									
BHA	<u>0.25 oz</u>																									
Total batch weight	348 lb																									
2	From this weight and percentage, subtract the weight and the maximum percentage allowed of the restricted ingredient for which you are checking the product's compliance. <i>Note: When determining the projected finished weight, always subtract the weight of all the restricted ingredients that are based on finished product weight and the maximum percentage allowed of each ingredient.</i>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 50%;">&nbsp;348 lb</td><td style="width: 50%; text-align: right;">100%</td></tr> <tr><td>- &nbsp;10 lb Water</td><td style="text-align: right;"><u>&nbsp;3%</u></td></tr> <tr><td>&nbsp;338 lb</td><td style="text-align: right;">97%</td></tr> <tr><td>&nbsp;338 lb</td><td style="text-align: right;">97%</td></tr> <tr><td>- &nbsp;3 lb ISP</td><td style="text-align: right;"><u>&nbsp;2%</u></td></tr> <tr><td>&nbsp;335 lb</td><td style="text-align: right;">95%</td></tr> </table>	 348 lb	100%	- 10 lb Water	<u>&nbsp;3%</u>	 338 lb	97%	 338 lb	97%	- 3 lb ISP	<u>&nbsp;2%</u>	 335 lb	95%												
 348 lb	100%																									
- 10 lb Water	<u>&nbsp;3%</u>																									
 338 lb	97%																									
 338 lb	97%																									
- 3 lb ISP	<u>&nbsp;2%</u>																									
 335 lb	95%																									
3	To find the PFW, divide this weight by the percentage of the formula weight that it represents.	$335 \div 0.95 (95\%) = 352.63 \text{ lb PFW}$																								
4	Determine whether or not the ISP is in compliance by multiplying the PFW by the maximum percentage allowed and comparing the answer to the formula. OR Determine the percentage of the ISP in the finished product by dividing the weight of the ISP in the formula by the PFW, and then multiply the result by 100.	<p>$352.63 \text{ lb PFW} \times 0.02 (2.0\%) = 7.05 \text{ lb ISP allowed}$</p> <p>Since 3 pounds of ISP were used in the formula, this product is in compliance.</p> <p>$(3 \text{ lb} \div 352.63 \text{ lb}) \times 100 = 0.85\% \text{ ISP in the finished sausage.}$</p>																								

• ISP/Sodium Caseinate and Other Binders and Extenders Used in Combination

Because ISP and sodium caseinate contain more protein than other binders/extendors, 2% of ISP or sodium caseinate is equivalent to 3.5% of other binders and extendors. The regulations specify binders and extendors, singly or in combination, are limited to 3.5% of the finished product weight. Therefore, when ISP or sodium caseinate is used in addition to other binders and extendors in a formula, an adjustment must be made for the ISP or sodium caseinate.

Binders/Extendors Substituted for a Portion of ISP/Sodium Caseinate

Suppose the establishment uses another binder in place of the other 4.05 lb of ISP allowed (7.05 lb allowed 3 lb used) in the Bratwurst sausage formula on the previous page. To check compliance, you will need to convert the amount of binder to an equivalent amount of ISP. By dividing the amount of binder allowed (3.5%) by the amount of ISP allowed (2.0%), you obtain a constant value (1.75) that can be used to determine binder/ISP equivalency. Therefore, the binder equivalent of 4.05 lb ISP is:

$$\text{ 4.05 lb ISP} \times 1.75 = 7.08 \text{ lb of another 3.5\% limit binder is allowed}$$


If the establishment formulates the bratwurst sausage with 3 lb of ISP, they could use up to 7.08 lb of another binder (except sodium caseinate) and not violate the 3.5% binder limit in the finished product.

ISP/Sodium Caseinate Substituted for Portion of Another Binder(s)/Extender(s)

Suppose the establishment uses 10 lb of the 21.24 lb of NFDM allowed in the formula of the bologna product in the Procedure Table on page 43. How much ISP or sodium caseinate could be used in the formula in place of the 11.24 lb of NFDM (21.24 lb - 10 lb) not used in the formula and be in compliance with the 3.5% limit? To check compliance, you will need to convert the amount of ISP or sodium caseinate to an equivalent amount of NFDM. By dividing the amount of ISP or sodium caseinate allowed (2.0%) by the amount of NFDM allowed (3.5%), you obtain a constant value (.57) that can be used to determine ISP/sodium caseinate/NFDM equivalency. Therefore, the ISP or sodium caseinate equivalent of 11.24 lb NFDM is:

$$\text{11.24 lb NFDM} \times 0.57 = 6.40 \text{ lb ISP/sodium caseinate allowed}$$

If the establishment formulates the bologna with 10 lb of NFDM, they can use up to 6.40 lb of ISP/sodium caseinate and not violate the 3.5% binder limit in the finished product.

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BINDERS USED IN PICKLE-CURED MEAT PRODUCTS

Introduction

Many meat and poultry products are pumped with a pickle solution in an amount equal to various percentages of the green weight. These products are normally packaged in clear plastic and enclosed by a vacuum seal. As the brine drains from the product, it settles in the package around the product. This drained brine solution may appear to consumers as excessive and may create an aesthetically unappealing product. As a result, some retailers remove and discard these products well before their shelf life expiration date, creating economic losses for both industry and consumers. None of the ingredients in the brine solution, either alone or in combination, serves to completely control the purging of the moisture in these products.

FSIS permits the use of modified food starch, sodium caseinate, isolated soy protein, and carrageenan as binders individually, but not in combination, in cured pork products labeled as "Ham Water Added" and "Ham and Water Product--X% of Weight is Added Ingredients." The use of such binders reduces purging of the pumped brine solution from these products. Calculations for these binders are based on total product formulation.

Calculation Formula

$$\frac{\% \text{ binder in pickle solution} \times \text{effective or actual \% pump}}{\% \text{ yield}} = \% \text{ binder in the product formulation}$$

Note: % pick-up or % gain could be substituted for effective or actual % pump in the above formula depending upon the method in which the pickle solution is applied.

Procedure Table

The procedure for determining compliance with the restrictions on binders in pickle-cured meat products *is not* the same as that for comminuted meat and poultry products. The procedure table on the next page explains how to determine the percentage of binder in a pickle-cured meat product. In order to determine binder compliance with the regulations at the time of formulation, you will need to determine the effective or actual % pump, the % yield, and the % of the binder in the pickle formula. Refer to Chapter 11, [page 78](#), if you need assistance in calculating an effective or actual % pump. Refer to Chapter 13, [pages 88-90](#), if you need assistance in calculating a % yield. Refer Chapter 14, [page 91](#), if you need assistance in calculating the % of an ingredient in a formula.

STEP	PROCEDURE	EXAMPLE
1	Using establishment formulation records, calculate the percentage of the binder in the pickle formula.	ISP is added to the pickle formula in Chapter 14, page 91 , at a level of 11%.
2	Determine the effective % pump, actual % pump, % pick-up, or % gain.	The effective % pump for the fifteen boneless hams in Chapter 11, page 78 , is 19.11%.
3	Add the effective % pump, actual % pump, or % pick-up to 100% to obtain the % yield for the cured product.	Applying the pickle solution to the boneless hams increases their weight by 19.11% over the weight of the fresh uncured hams (100%). Therefore, the % yield for the cured boneless hams is: 19.11% + 100% = 119.11% yield
4	Substitute the % binder in the pickle formula, effective % pump, and the % yield into the calculation formula to solve for the % binder in the formulated product.	$11\% \times 119.11\% = 1.76\% \text{ ISP}$ $\quad \quad \quad \ \ 119.11\%$ There is 1.76% ISP in the boneless ham formulation.
<p>Note: Since 2% ISP is allowed in the boneless ham formulation, this product <i>is</i> in compliance.</p>		



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Chapter 7

FLAVORING CALCULATIONS

INTRODUCTION

Flavor is of great concern to the meat and poultry processor. Spices, sweeteners, and liquid smoke added to meat and poultry mixtures impart flavor characteristics which make each product unique. Some sweeteners contribute more than just flavor. In cured meat or poultry products, sweeteners not only counteract the harshness of salt, but sweeteners such as corn syrup (CS) and corn syrup solids (CSS--dehydrated form of corn syrup) also increase water holding capacity (water retention) and casing peelability. Sugars (sucrose and dextrose) are the primary food source for starter cultures (lactic acid-producing bacteria) that produce the characteristic tangy flavor of fermented sausages. Hence, the primary function of sugar in these products is to drive the fermentation process.

There are several flavorings approved for use in meat and poultry products. They appear in the Tables of Approved Substances for meat and poultry [MPI Regulations, sections 318.7(c)(4) and 381.147(f)(4)]. Because flavorings affect the entire product and not just the meat and poultry portion, calculations for restricted flavorings are based on the *finished weight* of the product. A *projected finished weight (PFW)* is an acceptable basis for calculation.

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FLAVORING LIMITS

Sugars (sucrose and dextrose) are not limited because adding excessive amounts would make the product unpalatable (too sweet). Other sweeteners such as CS, CSS, malt syrup (MS), glucose syrup (GS) and sorbitol have restrictions on their use because they are not as sweet as sucrose or dextrose.

CS, CSS, MS, or GS are permitted, individually or collectively, in pickle-cured meat products not Protein Fat Free (PFF)-controlled or controlled by percent-added-solution ("X% Added Ingredients") labeling, and comminuted meat products (MS is allowed in *cured* comminuted meat products only), at a maximum level of 2% (dry basis), or 20,000 ppm of the *finished weight* of the product. Since CS and MS are 80% solids, they are permitted at the 2½% level ($2\% \div .8$) or 25,000 ppm.

$$\text{2\%} = 0.02 \times 1,000,000 = 20,000 \text{ ppm}$$

$$\text{2\%} \div .80 \text{ (80\% solids)} = 2.5\% = 0.025 \times 1,000,000 = 25,000 \text{ ppm}$$

CS, CSS, MS, and GS are permitted in pickle-cured red meat products, such as hams. There are *no restrictions* on these sweeteners when they are used in PFF-controlled pork products or in meat products controlled by a percent-added-solution ("X% Added Ingredients") label statement. The finished product control on the added ingredients makes restrictions on individual ingredients unnecessary (refer to Chapter 10, [pages 72-75](#)).

CS, CSS, MS, and GS are permitted in various *poultry products* at levels *sufficient for purpose* (unrestricted).


As an exception to the rule, sorbitol is permitted for use in cooked comminuted red meat products at a maximum of 2% (dry basis) based on the *weight of the formulation, excluding the water/ice*. Sorbitol in solution is 70% solids. Therefore, the limit on sorbitol solids is 2% (20,000 ppm) of the formulated weight, excluding the water, and the limit on sorbitol in solution is 2.86% ($2 \div 7$) or 28,600 ppm of the formulated weight, excluding the water. *Sorbitol is not permitted in poultry products.*




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FLAVORINGS USED IN COMMINGED MEAT PRODUCTS

Introduction

The procedure for determining compliance with the 2% (dry basis) restriction on sweeteners (except sorbitol) in comminged meat products is the same as that for phosphates and binders and extenders. The procedure tables below explain how to determine the maximum amount of CS, CSS, MS, and GS in comminged meat products. In order to verify CS, CSS, MS, and GS compliance with the regulations at the time of formulation, you will need to determine a PFW. Refer to Chapter 14, pages 100-102, to learn how to calculate a PFW.

- Procedure Table (cured comminged product)

STEP	PROCEDURE	EXAMPLE
1	Using the formulation record(s), calculate the projected finished weight for the product.	The PFW for the bologna product in Chapter 14, page 101, is 607.14 lb.
2	<p>Determine the maximum amount of restricted flavoring(s) by multiplying the PFW by the percent of flavoring(s) allowed.</p> <p style="text-align: center;">OR</p> <p>Determine the percentage of the flavoring(s) in the finished product by dividing the weight of the flavoring(s) in the formula by the PFW, and then multiply the result by 100.</p>	<p>$607.14 \text{ lb} \times .02 \text{ (2\% CSS)}$ $= 12.14 \text{ lb}$ is the maximum amount of CSS allowed.</p> <p>Since 15 lb of CSS was used in the formula, this product <i>is not</i> in compliance.</p> <p>$(15 \text{ lb} - 607.14 \text{ lb}) \times 100 = 2.47\% \text{ CSS}$ in the finished product.</p>

- Procedure Table (fresh comminged product)

STEP	PROCEDURE	EXAMPLE																						
1	Determine the total batch weight of the establishment's formulation. This weight represents 100% of the product ingredients.	<p style="text-align: center;">Italian Sausage</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>Pork Trimmings</td><td style="text-align: right;">260 lb</td></tr> <tr><td>Pork Jowls (skinned)</td><td style="text-align: right;">140 lb</td></tr> <tr><td>Pork Fat</td><td style="text-align: right;">25 lb</td></tr> <tr><td>Water</td><td style="text-align: right;">12 lb</td></tr> <tr><td>Spice Mix (0.11% BHA)</td><td style="text-align: right;">11 lb</td></tr> <tr><td>Green Peppers</td><td style="text-align: right;">10 lb</td></tr> <tr><td>CS</td><td style="text-align: right;">6 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">3 lb</td></tr> <tr><td>Paprika</td><td style="text-align: right;">2 lb</td></tr> <tr><td>Dehydrated Parsley</td><td style="text-align: right;"><u>1 lb</u></td></tr> <tr><td>Total batch weight</td><td style="text-align: right;">470 lb</td></tr> </table>	Pork Trimmings	260 lb	Pork Jowls (skinned)	140 lb	Pork Fat	25 lb	Water	12 lb	Spice Mix (0.11% BHA)	11 lb	Green Peppers	10 lb	CS	6 lb	Salt	3 lb	Paprika	2 lb	Dehydrated Parsley	<u>1 lb</u>	Total batch weight	470 lb
Pork Trimmings	260 lb																							
Pork Jowls (skinned)	140 lb																							
Pork Fat	25 lb																							
Water	12 lb																							
Spice Mix (0.11% BHA)	11 lb																							
Green Peppers	10 lb																							
CS	6 lb																							
Salt	3 lb																							
Paprika	2 lb																							
Dehydrated Parsley	<u>1 lb</u>																							
Total batch weight	470 lb																							
2	From this weight and percentage, subtract the weight and the maximum percentage allowed of the ingredient in which you are checking compliance. <i>Note: When determining the projected finished weight, always subtract the weight of all of the restricted ingredients that are based on finished product weight and the maximum percentage allowed of each ingredient.</i>	<table style="width: 100%; border-collapse: collapse;"> <tr><td> 470 lb</td><td style="text-align: right;">100%</td></tr> <tr><td>- <u>12 lb</u> Water</td><td style="text-align: right;"><u>3%</u></td></tr> <tr><td> 458 lb</td><td style="text-align: right;">97%</td></tr> <tr><td> 458 lb</td><td style="text-align: right;">97.0%</td></tr> <tr><td>- <u>6 lb</u> CS</td><td style="text-align: right;"><u>2.5%</u></td></tr> <tr><td> 452 lb</td><td style="text-align: right;">94.5%</td></tr> </table>	470 lb	100%	- <u>12 lb</u> Water	<u>3%</u>	458 lb	97%	458 lb	97.0%	- <u>6 lb</u> CS	<u>2.5%</u>	452 lb	94.5%										
470 lb	100%																							
- <u>12 lb</u> Water	<u>3%</u>																							
458 lb	97%																							
458 lb	97.0%																							
- <u>6 lb</u> CS	<u>2.5%</u>																							
452 lb	94.5%																							
3	To find the PFW, divide this weight by the percentage of the formula weight that it represents.	$452 \text{ lb} \div 0.945 (94.5\%) = 478.30 \text{ lb PFW}$																						
4	Determine whether or not the CS is in compliance by multiplying the PFW by the maximum percentage allowed and comparing the answer to the formula. <p style="text-align: center;">OR</p> Determine the percentage of the corn syrup in the finished product by dividing the weight of the corn syrup in the formula by the PFW, and then multiply the result by 100.	<p>$478.30 \text{ lb PFW} \times 0.025 (2.5\%) = 11.95 \text{ lb corn syrup allowed}$</p> <p>Since 6 pounds of corn syrup were used in the formula, this product <i>is</i> in compliance.</p> <p>$(6 \text{ lb} \div 478.30 \text{ lb}) \times 100 = 1.25\% \text{ corn syrup in the finished sausage.}$</p>																						

• **CSS and CS Used in Combination**

Because it contains no water, 2% CSS alone is equivalent to 2½% CS in function. The regulations state that *flavorings, singly or in combination, are limited to 2% (dry basis) of the finished product weight.* Therefore, when CSS are used in a formula, in addition to CS, an adjustment must be made for the CSS.

CSS Substituted for a Portion of CS

Suppose the establishment uses CSS in place of the other 5.95 lb of CS allowed (11.95 lb allowed 6 lb used) in the Italian sausage formula on the previous page. To check compliance, you will need to convert the amount of CSS to an equivalent amount of CS. By dividing the amount of CSS allowed (2%) by the amount of CS allowed (2.5%), you obtain a constant value (0.80) that can be used to determine CSS/CS equivalency. Therefore, the CSS equivalent of 5.95 lb CS is:

$$5.95 \text{ lb CS} \times 0.80 = 4.76 \text{ lb CSS is the maximum allowed}$$

If the establishment formulates the Italian sausage with 6 lb of CS, they could use up to 4.76 lb of CSS and not violate the 2% (20,000 ppm) flavoring limit in the finished product.

CS Substituted for a Portion of CSS

Suppose the establishment uses 6 lb of the 12.14 lb of CSS allowed in the formula of the bologna product in the Procedure Table on page 50. How much CS could be used in the formula in place of the 6.14 lb of CSS (12.14 lb 6 lb) not used in the formula and be in compliance with the 2% (20,000 ppm) limit? To check compliance, you will need to convert the amount of

CS to an equivalent amount of CSS. By dividing the amount of CS allowed (2.5%) by the amount of CSS allowed (2.0%), you obtain a constant value (1.25) that can be used to determine CS/CSS equivalency. Therefore, the CS equivalent of 6.14 lb CSS is:

$$\text{6.14 lb CSS} \times 1.25 = 7.67 \text{ lb CS is the maximum allowed}$$

If the establishment formulates the bologna with 6 lb of CSS, they can use up to 7.67 lb of CS and not violate the 2% (20,000 ppm) flavoring limit in the finished product.



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Chapter 8

ANTIOXIDANT CALCULATIONS

INTRODUCTION


Oxidative rancidity occurs when the double bonds of polyunsaturated meat and poultry fats are exposed to oxygen (present in air) and undergo oxidation (breakdown) to form aldehydes, acids, and ketones. This process results in the development of "off" odors and flavors in the cooked product. Antioxidants are chemicals that react with oxygen before it can react with meat and poultry fats, and thereby retard oxidative rancidity and protect the flavor.

Antioxidants are normally added to food products as part of a mixture of specific antioxidants, a synergist, and a carrier. This mixture may be added in a dry form, for example, to a fresh sausage product or in a liquid form, for example, to a rendered product.

The base of control for antioxidant use varies with the product. For animal fats, dry sausage and dried meats, the amount of antioxidants (except for tocopherols) used is based on the *total weight* of the product. When antioxidants are added to fresh sausage and other fresh products, the amount is based on the *weight of the fat content* of the product at the time of formulation. A synergist, such as citric acid, may be used with antioxidants to increase their effectiveness.

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ANTIOXIDANT LIMITS


As detailed in the MPI Regulations, section 318.7(c)(4), butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT), tertiary butylhydroquinone (TBHQ), and propyl gallate are permitted in dry sausage singly at 0.003% on the basis of the **total weight** or 0.006% in combination. In rendered fat they are limited to 0.01% singly, or 0.02% in combination. Margarine may contain 0.02% antioxidants (singly or in combination). Dried meats may only contain 0.01% (singly or in combination), on the basis of the **total weight**. **Total weight** has been interpreted to mean the weight of the formulation or batch weight.

In fresh sausage, other fresh meat products, and poultry products [MPI Regulations, sections 318.7(c)(4) and 381.147 (f)(4)], these antioxidants are limited to 0.01% singly, or 0.02% in combination, on the basis of the **fat content of the product at the time of formulation**. The establishment's **target fat content** of a product at the time of formulation is used for this calculation.

Tocopherols, as listed in section 318.7(c)(4) of the MPI Regulations, are limited to 0.03% in dry sausage, dried products, fresh sausage, and other fresh products on the basis of the **fat content of the product at the time of formulation**. They **cannot** be used in combination with other antioxidants. In section 381.147(f)(4) of the MPI Regulations, tocopherols are limited to 0.03% in various poultry products on the basis of the **fat content of the product** at the time of formulation. They **can** be used with any other approved antioxidant, but their limit is reduced to 0.02%. The establishment's **target fat content** for the product at the time of formulation is used for this calculation.

Note: When antioxidants are part of a mixture, it is not necessary to calculate for each one. One calculation will be sufficient if the following rules are followed:

1. *If no individual antioxidant or synergist is 50% or more of the total antioxidants in the mix, calculate for the total of all antioxidants using the .02% limit (.006% for dry sausage).*
2. *If one individual antioxidant or synergist is 50% or more of the total antioxidants in the mix, calculate for that individual antioxidant or synergist using the .01% limit (.003% for dry sausage).*

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ANTIOXIDANTS INDIVIDUALLY ADDED TO MEAT AND POULTRY PRODUCTS

Procedure Table

The procedure below explains how to determine the maximum amount of an *individual* antioxidant allowed in products that have antioxidant restrictions based on the target fat content (fresh sausage, meatballs, etc.).

STEP	PROCEDURE	EXAMPLE										
1	Determine the amount of product to which the antioxidant will be added and the target fat content of the product. <i>Note: If a fat target is not given by the establishment or the fat percentage cannot be computed from the meat or poultry ingredients used in the product's formulation (see pages 92 and 93), use the official fat analysis result of the product that had the lowest percent fat content as the target.</i>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Pork Sausage</td> </tr> <tr> <td>Pork trimmings</td> <td style="text-align: right;">525 lb</td> </tr> <tr> <td>Water</td> <td style="text-align: right;">16 lb</td> </tr> <tr> <td>Spice mixture (contains 0.40 oz BHA)</td> <td style="text-align: right;"><u> 9 lb</u></td> </tr> <tr> <td>Total batch weight</td> <td style="text-align: right;">550 lb</td> </tr> </table> Sausage is formulated to contain 40% fat.	Pork Sausage		Pork trimmings	525 lb	Water	16 lb	Spice mixture (contains 0.40 oz BHA)	<u> 9 lb</u>	Total batch weight	550 lb
Pork Sausage												
Pork trimmings	525 lb											
Water	16 lb											
Spice mixture (contains 0.40 oz BHA)	<u> 9 lb</u>											
Total batch weight	550 lb											
2	Determine the amount of fat in the product at the time of formulation by multiplying the batch weight by the fat target percentage.	$550 \text{ lb} \times .40 (40\%) = 220 \text{ lb}$ of fat in the product formulation.										
3	To determine the maximum amount of antioxidant allowed, multiply the amount of fat by the antioxidant limit.	220 lb of fat $\times \text{.0001 (.01\%)}$ $\text{0.022 lb maximum BHA allowed}$										
4	Convert the pounds of antioxidant to ounces by multiplying the answer in Step 3 by 16 (16 oz/lb).	$\text{0.022 lb maximum BHA allowed}$ $\times \text{16}$ $\text{0.352 oz maximum BHA allowed}$ Because the establishment used 0.40 oz of BHA, this formula <i>is not</i> in compliance.										

Comment

To determine the *maximum* amount of an *individual* antioxidant allowed in products that have antioxidant restrictions based on the *total weight of the product*, multiply the batch weight by the antioxidant limit.



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ANTIOXIDANTS ADDED TO MEAT AND POULTRY PRODUCTS AS A MIXTURE

Procedure Table

The procedure below explains how to determine the maximum amount of an *antioxidant mix* allowed in products that have antioxidant restrictions based on the total weight of the product (animal fats, dry sausage, dried meats, etc.). The product used for the example in the procedure table is rendered fat. Other products, such as dry sausage, will have different antioxidant allowances in Step 4.

STEP	PROCEDURE	EXAMPLE										
1	Determine the amount of product to which the antioxidant is to be added.	1000 lb of lard										
2	Determine the total content of the antioxidant/synergist mixture and the percentage of each ingredient. Ingredients and their percentages are usually listed on the label of the antioxidant container.	BHA 25% BHT 8% Glycine 7% Propyl Gallate 7% Citric Acid 10% Carrier 43%										
3	Determine what percentage of this mixture is made up of antioxidants.	<table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">BHA</td> <td style="text-align: right;">25%</td> </tr> <tr> <td>BHT</td> <td style="text-align: right;">8%</td> </tr> <tr> <td>Glycine</td> <td style="text-align: right;">7%</td> </tr> <tr> <td>Propyl Gallate</td> <td style="text-align: right;"><u>7%</u></td> </tr> <tr> <td></td> <td style="text-align: right;">47%</td> </tr> </table>	BHA	25%	BHT	8%	Glycine	7%	Propyl Gallate	<u>7%</u>		47%
BHA	25%											
BHT	8%											
Glycine	7%											
Propyl Gallate	<u>7%</u>											
	47%											
4	<p style="text-align: center;">CASE 1</p> <p>If any one of the antioxidants or synergists makes up 50% or more of the antioxidant total, multiply the product weight by .0001 (.01%) to determine the amount of antioxidant allowed.</p> <p style="text-align: center;">CASE 2</p> <p>If no single antioxidant or synergist makes up 50% of the antioxidant total, multiply the product weight by .0002 (.02%) to determine the amount of antioxidant allowed.</p>	<p style="text-align: center;">CASE 1</p> <p>BHA (25%) makes up more than half of the antioxidant total (47% ÷ 2 = 23.5%).</p> <p>1000 total weight × .0001 = 0.1 lb of antioxidant allowed</p> <p style="text-align: center;">CASE 2 (different antioxidant mixture)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">BHA</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>BHT</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>Glycine</td> <td style="text-align: right;">10%</td> </tr> <tr> <td>Propyl Gallate</td> <td style="text-align: right;"><u>8%</u></td> </tr> <tr> <td></td> <td style="text-align: right;">48%</td> </tr> </table> <p>No single antioxidant makes up half of the antioxidant total (48% ÷ 2 = 24%).</p> <p>1000 total weight × .0002 = 0.2 lb of antioxidant allowed</p>	BHA	20%	BHT	10%	Glycine	10%	Propyl Gallate	<u>8%</u>		48%
BHA	20%											
BHT	10%											
Glycine	10%											
Propyl Gallate	<u>8%</u>											
	48%											
5	CASE 1	CASE 1										
	Divide the amount of antioxidant allowed by the percent of the major antioxidant to determine the amount of antioxidant mixture that can be used.	0.1 lb ÷ 0.25 (25% BHA) = 0.4 lb (6.4 oz) maximum antioxidant mix allowed										

CASE 2	CASE 2
Divide the amount of antioxidant allowed by the percent of total antioxidants to determine the amount of antioxidant mixture that can be used.	$0.2 \text{ lb} \div 0.48 \text{ (48\% total antioxidants)} = 0.4166 \text{ lb}$ (6.66 oz) maximum antioxidant mix allowed

Comments

- To determine the *maximum* amount of an *antioxidant mixture* allowed in products that have antioxidant restrictions based on the *weight of the fat content*, determine the amount of fat in the formulation (see Steps 1 and 2 of the first procedure table), then follow Steps 2 through 5 of the second procedure table.
- An antioxidant (BHA, BHT, TBHQ, etc.) can never be added to a product in an amount greater than its individual limit (.01%, .003%, etc.) even when it is used in combination with other antioxidants, i.e., in a mixture. This is why the calculation for an antioxidant mixture is based on the .01% limit anytime an individual antioxidant makes up 50% or more of the total antioxidants in the mixture.
- A mixture of antioxidants prepared for a batch of fresh sausage containing 50% fat cannot be used in a fresh sausage batch of the same size containing 35% fat. The amount of antioxidants would have to be reduced to correspond with the reduced amount of fat.



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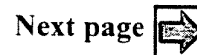
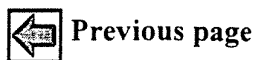


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Chapter 9

MAXIMUM AND MINIMUM MEAT OR POULTRY COMPONENT CALCULATIONS

HOW TO DETERMINE THE MAXIMUM AMOUNT OF BEEF CHEEK MEAT ALLOWED IN GROUND BEEF, HAMBURGER, AND FABRICATED STEAKS

Introduction

When beef cheek meat (trimmed beef cheeks) is used in the preparation of ground beef, hamburger, or fabricated steaks, the amount of cheek meat shall be limited to 25% [MPI Regulations, section 319.15(a)]. If the cheek meat exceeds natural proportions, its presence shall be declared on the label, either in the ingredients statement, or contiguous to the name of the product. Natural proportions is considered to be 2% or two trimmed cheeks per carcass. If the cheek meat is added in excess of 25%, cheek meat must appear in the product name, e.g., "Ground Beef and Beef Cheek Meat" (same size lettering). Heart and tongue meat are not acceptable ingredients in ground beef or hamburger.

Procedure Table

The procedure table below should be used to determine whether or not an establishment's formulation for ground beef, hamburger, or fabricated steaks that contains beef cheek meat is in compliance.

STEP	PROCEDURE	EXAMPLE						
1	Check the formula to determine the weight of the beef cheek meat and other meat ingredients.	Ground Beef 225 lb beef trimmings 90 lb beef cheek meat 315 lb total ingredients						
2	Since beef cheek meat <i>cannot</i> exceed 25% of the ingredients, you know that the other ingredients must constitute at least 75% of the formula. To determine what 100% of the formula would be if the maximum amount of beef cheek meat were to be used, divide by 75% (0.75).	225 lb = 75% 225 lb ÷ 0.75 = 300 lb						
3	Subtract the weight of the other meat ingredients from that of the total ingredients to find the maximum amount of beef cheek meat allowed.	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">300 lb</td> <td style="text-align: right;">100%</td> </tr> <tr> <td style="text-align: right;">- 225 lb</td> <td style="text-align: right;">- &nbsp; 75%</td> </tr> <tr> <td style="text-align: right;">75 lb</td> <td style="text-align: right;">25%</td> </tr> </table> maximum amount of cheek meat	300 lb	100%	- 225 lb	- 75%	75 lb	25%
300 lb	100%							
- 225 lb	- 75%							
75 lb	25%							
Note: Since the establishment had planned to use 90 lb of beef cheek meat, this formula would <i>not</i> be in compliance with beef cheek meat restrictions.								

Comment

This calculation is sometimes performed in a slightly different manner. The establishment may have a certain amount of beef cheek meat on hand and wish to use it up by adding beef to it. In this case your known amount, the weight of the beef cheek meat, is 25% of the formula *at most*. You can divide the weight of the beef cheek meat by 25% (0.25) to get 100% of the formula and then subtract the weight of the beef cheek meat from the weight of the total ingredients to find the *minimum* amount of beef that must be added.

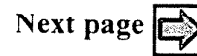


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ADDING SHANK MEAT TO CHOPPED HAM PRODUCTS

Introduction

The MPI Regulation section 319.105(b), Policy Memo (PM) 041B, and FSIS Directive 7124.1, state that the establishment may add ham shank meat to "chopped ham", "pressed ham", and "spiced ham" in the amount of 25% of that shank meat "normally present" in a ham. The amount of shank meat normally present has been set at 12% of the weight of the ham. An additional allowance of 25% would equal 3% ($25 \times .12$) of the whole ham ingredient. Hence, a total of 15% shank meat is permitted in chopped ham products, which is 3% above the normal proportion of shank meat found in a whole ham.

Procedure Table

By using the procedure table below, one can determine if the amount of shank meat added to chopped ham product formulation complies with the regulation.

STEP	PROCEDURE	EXAMPLE
1	Determine the weight of the whole ham ingredient(s) from the label transmittal form or establishment formulation records.	Chopped Ham Formula Boneless hams (shanks attached) 275 lb Boneless shankless hams 275 lb Boneless ham shank meat 125 lb
2	The first component of the formula has shanks attached. Since 12% shank meat is "normally present," only 3% shank meat would be allowed above the total weight of this component (15% permitted minus 12% present equals 3%). Therefore, the 275 lb of meat w/shanks represents 97% of the total weight. To find 100% of the weight, divide 275 lb by 0.97.	$275 \div .97 (97\%) = 283.50 \text{ lb } (100\%)$
3	Subtract the amount of ham w/shank (97%) from the ham w/shank meat and added shank meat to determine the additional 3% shank meat allowed.	$\begin{array}{r} \text{\ }283.50 \text{ lb } (100\%) \\ - \text{\ }275.00 \text{ lb } (97\%) \\ \hline \text{\ }8.50 \text{ lb } (3\%) \end{array}$ -- maximum amount of shank meat that can be added
4	The second component of the formula contains no shank meat. The plant may add 12% shank meat normally present plus an additional 3% of the whole ham ingredient of the second component for a total 15%. The 275 lb of meat here represents 85% (100 - 15) of the total weight of this component. To find 100% of the weight, divide 275 lb by 0.85.	$275 \text{ lb} \div 0.85 (85\%) = 323.52 \text{ lb of ham and shank meat}$
5	The amount of shank meat allowed would be 100% of the weight (with shanks) minus 85% of the weight (without shanks).	$\begin{array}{r} \text{\ }323.52 \text{ lb } (100\%) \\ - \text{\ }275.00 \text{ lb } (85\%) \\ \hline \text{\ }48.52 \text{ lb } (15\%) \end{array}$ --shank meat allowed to be added to 275 lb of ham (without shanks)
6	Thus the total amount of boneless shank meat that can be added is the sum of the answers in Steps 3 and 5. In this case, the amount the establishment planned to use (the third component of the formula) is far in excess of what regulations allow.	$\begin{array}{r} \text{\ }48.52 \text{ lb [added to ham (no shanks)]} \\ + \text{\ }8.50 \text{ lb [added to ham (with shanks)]} \\ \hline \text{\ }57.02 \text{ lb} \end{array}$ --shank meat allowed to be added to the formula



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HOW TO DETERMINE THE MAXIMUM AMOUNT OF POULTRY ALLOWED IN COOKED SAUSAGE PRODUCTS

Introduction

Cooked sausage products identified in section 319.180 of the MPI Regulations may contain poultry products which, individually or in combination, are not in excess of 15 percent of the *total ingredients, excluding water and ice*.

The term "poultry products" includes:

- Poultry meat--MPI Regulations section 319.180(g)
Deboned chicken or turkey meat *without* skin or added fat
- Chicken or turkey--MPI Regulations section 381.118
Includes meat and edible parts such as skin and fat when not in excess of natural proportions
- Poultry byproducts--MPI Regulations section 381.1(c)
Skin, fat, gizzard, heart, and liver

Procedure Table

The procedure below explains how to determine the maximum amount of poultry allowed in a cooked sausage product.

STEP	PROCEDURE	EXAMPLE
1	Determine the total batch weight of the establishment's formulation (from label transmittal form or formulation records) and subtract the water content.	 663 lb wieners (see page 13) - 70 lb water/ice 593 lb
2	Subtract the weight of the poultry ingredients in the formula. Since poultry ingredients may make up to a maximum of 15% of the batch weight (excluding water), the answer in Step 2 must represent a minimum of 85% of the formula (excluding water).	 593 lb (100%) - 40 lb chicken (15%) 553 lb 85%
3	To find the weight of 100% of the formula if the maximum amount of poultry is used, divide your answer by 85% (0.85).	$553 \div 0.85 = 650.58 \text{ lb}$
4	Subtract your answer in Step 2 from that in Step 3 to find the maximum amount of poultry that could be used in this formulation.	 650.58 lb (100%) - 553.00 lb (85%) 97.58 lb 15% maximum weight of poultry allowed
<i>Note:</i> Since the establishment planned to use only 40 lb of chicken, this formula <i>is</i> in compliance with poultry restrictions.		



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MEAT REQUIREMENTS IN CORNED BEEF HASH PRODUCTS

Introduction

MPI Regulation 319.303 is the standard by which corned beef hash is to be produced. This product is prepared with beef, potatoes, curing agents, seasonings, and other ingredients.

Either fresh beef, cured beef, canned corned beef, or a mixture of these ingredients may be used. There are two major meat requirements:

- The finished product **must contain not less** than 35% cooked beef.
- The weight of the cooked beef used in this calculation **cannot exceed** 70% of the weight of the uncooked fresh meat.

Procedure Table


The procedure table below will enable you to determine how much cooked meat must be in the finished product and the correct amount of uncooked fresh meat that should be used.

STEP	PROCEDURE	EXAMPLE
1	Find out how much cooked meat must be in the finished product by multiplying the batch weight by 35% (0.35).	$\begin{aligned} & \text{500 lb batch} \\ & \times \text{0.35} \\ & \hline & \text{175 lb cooked meat necessary} \end{aligned}$
2	Now find out the minimum amount of fresh uncooked meat that must be used. The cooked meat weight can be no more than 70% of the uncooked fresh meat. So divide the weight of the cooked meat by 70% (0.70) to find the weight of the fresh uncooked meat.	$175 \text{ lb cooked meat} \div 0.70 = 250 \text{ lb of fresh meat minimum}$

Comment

In the example above, if cooked meat were to be used at the time of batching, you would know that 175 lb had to be added to the batch. Your only problem would be to make sure that the cooked meat was obtained from at least 250 lb of fresh meat.

If the establishment were to formulate the batch using fresh uncooked beef, you'd know that at **least** 250 lb would need to be added to get the proper percentage of cooked meat.

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MEAT REQUIREMENTS IN SPAGHETTI AND MEAT BALLS WITH TOMATO SAUCE

Introduction

Section 319.306 of the MPI Regulations requires that a container labeled "Spaghetti and Meat Balls with Tomato Sauce" contain not less than 12 percent meat computed on the weight of fresh meat.

Procedure Table

The procedure table below will help you to determine if a formula meets this requirement.

STEP	PROCEDURE	EXAMPLE
1	Using the 12% requirement and the size of the container, determine how much meat is required per container by multiplying the container's net weight or contents by 0.12 (12%).	$\begin{array}{r} \text{15.5 oz can} \\ \times \text{0.12 (12\%)} \\ \hline \text{1.86 oz (meat required per can)} \end{array}$
2	Find what percent of the meat ball formula is meat by dividing the weight of the meat by the weight of the meat ball formula.	$\begin{array}{r} 100 \text{ lb meat} \\ \text{12 lb mix (salt, flour, spices)} \\ \text{3 lb water} \\ \hline 115 \text{ lb meat ball formula weight} \\ \\ 100 \div 115 = 87\% \text{ meat in the batch} \end{array}$
3	To find the required weight of the meat balls in each container, divide the weight of the meat required per container by the percentage of meat in the formula.	$1.86 \text{ oz} \div 0.87 (87\%) = 2.137 \text{ oz of meat balls per container}$ <p>This product is in compliance if the weight of the meat balls in the containers is 2.137 oz or more.</p>



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HOW TO CALCULATE THE FRESH MEAT REQUIRED

Introduction

Several meat food products and poultry food products (chilies, stews, pies, soups, loaves, etc.) must contain a minimum amount of fresh meat or poultry and others require a minimum amount of cooked meat or poultry. Cooked meat or poultry may be substituted for fresh meat or poultry when fresh meat or poultry is not available.

Calculation Formula

$$\text{Batch weight} \times \% \text{ fresh meat or poultry required by standard} = \text{lb fresh meat or poultry required}$$

Procedure Table

Use the procedure table below whenever it is necessary to determine or verify the weight of *fresh* meat or poultry required in a product.

STEP	PROCEDURE
1	Locate the product standard, on the approved label transmittal form, in the MPI regulations, or in the Standards and Labeling Policy Book. Note what percentage of fresh meat or poultry the product requires.
2	Determine the batch weight of the product from establishment formulation records.
3	Calculate the required weight of fresh meat or poultry in each batch by multiplying the batch weight by the percentage of fresh meat or poultry required.

Examples

- Product standard = 25% fresh meat
 Batch weight = 700 lb

 $700 \text{ lb} \times 0.25 = 175 \text{ lb fresh meat required}$
- Product standard = 35% fresh poultry meat
 Batch size = 500 lb

 $500 \text{ lb} \times 0.35 = 175 \text{ lb fresh poultry meat required}$

Comments

- Fresh meat or poultry must always be of the kind specified (beef, pork, mutton, chicken, turkey, etc.) in the product standard.
- Some establishments include a small percentage of meat or poultry in slurries or gravies. Such meat or poultry may be considered as a portion of the product's meat or poultry component.



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SUBSTITUTING COOKED MEAT FOR FRESH MEAT

Introduction

Cooked meat may be used in meat food products although the product standard is stated in terms of fresh meat. The amount of cooked meat that is equivalent to the fresh meat required by a product standard should be determined by inspectional control. Chemical analysis can be used to supplement this control, but cannot be substituted for it.

Decision Table

IF . . .	THEN . . .
The required amount of fresh meat has been weighed and cooked at the processing plant AND you can verify that all the meat components were added to the batch formulation	accept the cooked meat as a replacement for the fresh meat required.
The meat is <i>not</i> cooked at the plant OR you cannot verify the amount of fresh meat represented by the cooked meat	refer to the procedure table on the <u>next page</u> .

Calculation Formula

$$\text{Batch weight} \times \% \text{ fresh meat by standard} = \text{lb fresh meat required}$$

$$\text{lb fresh meat required} \times \% \text{ fresh meat equivalency} = \text{lb cooked meat required}$$

Procedure Table

The procedure table below explains how to determine the cooked meat equivalent of fresh meat.

STEP	PROCEDURE												
1	Obtain the cooked meat sample laboratory analysis results from the establishment.												
2	<p>Compare the percentage of protein in the cooked meat with Table 2 of FSIS Directive 7124.1 and then find the range that it falls into in the first column.</p> <p style="text-align: center;">Table 2 - Cooked Meat Equivalency Table</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Laboratory results cooked meat protein (percent)</th> <th>Fresh meat equivalency of cooked meat (percent)</th> </tr> </thead> <tbody> <tr> <td>23.9 - under</td> <td>100</td> </tr> <tr> <td>24 - 28.9</td> <td>75</td> </tr> <tr> <td>29 - 31.9</td> <td>62.5</td> </tr> <tr> <td>32 - 35.9</td> <td>56.25</td> </tr> <tr> <td>36 - over</td> <td>50</td> </tr> </tbody> </table>	Laboratory results cooked meat protein (percent)	Fresh meat equivalency of cooked meat (percent)	23.9 - under	100	24 - 28.9	75	29 - 31.9	62.5	32 - 35.9	56.25	36 - over	50
Laboratory results cooked meat protein (percent)	Fresh meat equivalency of cooked meat (percent)												
23.9 - under	100												
24 - 28.9	75												
29 - 31.9	62.5												
32 - 35.9	56.25												
36 - over	50												
3	Find the corresponding fresh meat equivalency percentage in the second column of Table 2.												
4	Calculate the amount of cooked meat needed to substitute for fresh meat by multiplying this percentage by the amount of fresh meat required.												

Example One

The product standard calls for 35% fresh meat. The batch weight is 650 lb. The amount of fresh meat required is 227.5 lb (650 lb × 0.35). The establishment wants to substitute cooked meat.

The protein percentage of the cooked meat as shown by the laboratory analysis is 26.2%. This puts it in the 24-28.9% range (column 1 of Table 2 above), which means that the weight of the cooked meat required as a substitute is 75% (column 2) of the fresh meat weight.

Thus 170.63 lb (227.5 lb × 0.75) of cooked meat will be required to substitute for 227.5 lb of fresh meat.

Example Two

The product standard calls for 50% fresh meat. The batch weight is 1000 lb. The amount of fresh meat required is 500 lb (1000 lb × 0.50). The establishment wants to substitute cooked meat. Determine cooked meat equivalence as follows.

The protein percentage of the cooked meat as shown by laboratory analysis is 34.1%. This puts it in the 32-35.9% range, which means that the weight of the cooked meat required (as a substitute) is 56.25% (column 2) of the fresh meat weight.

Thus 281.25 lb or 281 lb 4 oz (500 lb × 0.5625) of cooked meat will be required to substitute for 500 lb of fresh meat.

Comments

- To verify the validity of the establishment's cooked meat sample laboratory analysis, the inspector will send samples to the FSIS contract laboratory as often as deemed necessary.
- The Regulations state that fresh beef, canned corned beef, or cured beef may be used in preparing "corned beef hash." Therefore, inspection personnel must note the source of meat and other protein components on the laboratory forms.

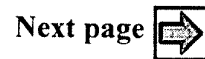
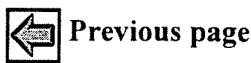



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HOW TO CALCULATE THE REQUIRED AMOUNT OF MEAT OR POULTRY ROLL TO USE

Introduction

Cooked meat or poultry rolls may be used in amounts necessary for cooked meat and poultry products to comply with product standards (FSIS Directive 7124.1).

Calculation Formulae

- The formula for calculating the amount of meat or poultry "roll" to use in a product to comply with a cooked meat or poultry requirement is:

$$\frac{(PR)(CMR)(PY)}{\text{RM}} = \text{the \% of meat or poultry that must be used in the product to comply with the cooked meat requirement}$$

- The formula for calculating the amount of meat or poultry roll required in the batch is:

$$\text{Batch weight} \times \% \text{ of meat/poultry roll required} = \text{lb meat/poultry roll required in the batch}$$

Symbols

- PR = Protein Ratio
- CMR = Cooked Meat Requirements
- PY = Processing Yield (Rolls)
- RM = Raw Meat (percent in roll)

Protein Ratios

Cooked to Raw

Chicken	: 1.39
Turkey	: 1.31
Pork or Beef	: 1.44

Example One

Product - Sliced Beef and Gravy
 Batch Size = 540 lb
 Percent Cooked Meat Requirement = 50
 Percent Processing Yield (meat roll) = 80
 Percent Raw Meat in Roll (meat roll) = 85

$$\text{Formula } \frac{(PR)(CMR)(PY)}{\text{RM}}$$

$$\frac{(1.44)(50)(80)}{85} = 67.76 = \text{the percent of meat roll that must be used in this product to comply with the 50 percent cooked meat requirement}$$

To find the amount of meat roll required in the batch:

$$540 \text{ lb} \times .6776 = 365.9 \text{ lb (or 365 lb 14.4 oz) cooked meat roll required in the 540 lb batch.}$$

Example Two

Product - Sliced Turkey and Gravy
 Batch Size = 750 lb
 Cooked Turkey Meat Requirement = 35 percent
 Processing Yield of Turkey Roll = 85 percent
 Raw Meat in Roll = 90 percent

$$\text{Formula} = \frac{(PR)(CMR)(PY)}{RM}$$

$$\frac{(1.31)(35)(85)}{90} = 43.3 = \text{percent of turkey roll that must be used in this product to comply with the 35 percent cooked turkey meat requirement}$$

To find the amount of turkey roll required in the 750 lb batch:

$$750 \text{ lb} \times .433 = 324.75 \text{ lbs (or 324 lb 12 oz) cooked turkey roll required in the 750 lb batch.}$$



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HOW TO DETERMINE THE MINIMUM MEAT PFF PERCENTAGE

Introduction

Protein Fat-Free (PFF) means the meat protein content expressed as a percent of the nonfat portion of the finished product. This definition allows the control of added ingredients by control of the meat protein in the nonfat portion of the cured pork product because anything added to the product dilutes the natural protein content. The PFF procedure reflects the presence of added ingredients, including water, and relates labeling claims to the percentage of meat protein in the product on a fat-free basis.

All data for monitoring the PFF compliance system will be on a computer that will provide assistance to the inspector. The computer will generate sample request forms, perform calculations, keep track of results, generate mathematical analyses of the process and compliance trends, and allow predictions of the potential for noncompliance. Nevertheless, there are occasions when the inspector must calculate the minimum PFF value. If the establishment is using an accredited laboratory to perform sample analyses, the inspector must calculate the minimum PFF value from the laboratory results. Furthermore, any time an inspector submits an "inspector-generated sample" because he or she has a strong suspicion that the product is adulterated or misbranded, he or she must calculate the minimum PFF value upon receiving the laboratory results.

Calculation Formula

PFF is a figure derived from laboratory analyses for protein and fat. The following formula is used to determine the PFF value of cured pork products from the laboratory results that are received:

$$\frac{\text{Percent Meat Protein by Analysis}}{\text{Percent Fat by Analysis}} \times 100 = \text{PFF}$$


Example

$$\begin{aligned} \text{Meat Protein} &= 18.60 \\ \text{Fat} &= 10.10 \end{aligned}$$

$$\frac{18.60}{100 - 10.1} = .20689 \times 100 = 20.689 \text{ or } 20.7 \text{ (PFF Percentage is rounded to the nearest thousandths, then hundredths, then tenths)}$$

Note: If you need additional information on the PFF compliance system, refer to the PFF Guide.


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Chapter 10

PRODUCTS LABELED-- "X% WATER" OR "X% OF WEIGHT IS ADDED INGREDIENTS"

INTRODUCTION

Cooked cured beef products [covered under the MPI Regulations, sections 319.100-102 and policy memo (PM) 84A], turkey ham products (covered under section 381.171 of the MPI Regulations and PM 57A), pork products (not covered under the PFF regulations, e.g., snouts, hocks, feet, etc.--see PM 84A), and other **cooked uncured meat products** that weigh more than the green weight of the meat article or turkey thigh meat prior to curing and cooking or cooking must be descriptively labeled to indicate the presence and amount of added ingredients (solution) as part of the product name. "Cooked Corned Beef and X% Water", "Turkey Ham and Water Product-- X% of Weight is Added Ingredients", and "After Cooking, Contains X% of a Seasoning Solution of" are examples of acceptable product names. The **percent** of added ingredients in the **finished product** is inserted as the "X" value.

The **percent** of added ingredients in the **finished product** is inserted as the "X" value for **both cooked and uncooked cured pork products** listed in sections 319.104 and 319.105 of the MPI regulations that have the presence and amount of added ingredients declared as part of the product name, e.g., "Ham and Water Product-- X% of Weight is Added Ingredients".

Uncooked cured beef products (covered under the MPI Regulations, sections 319.100, 102, and 103) and pork products not covered under the PFF regulations (PM 66C) may contain up to 10% added ingredients (solution) without a label declaration. If more than 10% added ingredients are added, the presence and amount of the added ingredients must be declared as part of the product name. If more than 20% added ingredients are added to beef brisket (MPI Regulations, section 319.102), the presence and amount of the ingredients must be declared as part of the product name. "Cured Pork and X% Added Water" and "Corned Beef Brisket and Water Product-- X% of Weight is Added Ingredients" are examples of acceptable names. The **percent** of added ingredients or % gain **above the green weight** of the product is inserted as the "X" value.

Inspection personnel are responsible for monitoring the percent of added ingredients inserted into the "X" value of products labeled "X% Water", "X% of Weight is Added Ingredients", etc.


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UNCOOKED MEAT PRODUCTS CONTAINING ADDED INGREDIENTS (SOLUTIONS)

Calculation Formula

Use the following formula to verify that an uncooked (cured or uncured) beef product or uncooked (cured or uncured) pork product not PFF-controlled complies with the label percentage declaration of "Weight is Added Ingredients", etc.

$$\frac{(\text{pumped, massaged, or treated}) \text{ weight} - \text{green weight}}{\text{green weight}} \times 100 = \% \text{ added ingredients}$$

Note: Pumped weight, massaged weight or treated weight could be inserted into the above formula, depending upon the processing procedures performed at the establishment, e.g., *treated weight* is used when the product is dipped or submerged in the solution; *pumped weight* is used when the solution is injected into the product.

Procedure Table (uncooked meat product)

The procedure table below will enable you to determine the percentage of added ingredients in an uncooked (cured or uncured) meat product.

STEP	PROCEDURE	EXAMPLE
1	Determine the green weight of a given number of pieces of fresh uncured product or an amount of fresh uncured product that will represent the lot.	Corned Beef and Water Product--25% of Weight is Added Water, Salt, Sodium Phosphate, and Sodium Nitrite. A vat of fresh uncured beef shoulder clods weighs (less the tare) 127.8 lb.
2	Determine the weight of the <i>same</i> pieces or vat of meat after pumping, massaging, or immersing. If a drain time is listed in the establishment's approved procedure, allow the pumped/treated product to drain for the specified time period and then weigh. If no drain is listed, take the weight directly after pumping, etc. Note: <i>If the product is trimmed after pumping, massaging, or immersing, the weight of the trimmings must be added back to the pumped, massaged, or immersed weight.</i>	After <i>pumping</i> the same vat of beef shoulder clods weigh 159.6 lb.
3	Subtract the green weight of the product from the pumped product weight.	159.6 lb - 127.8 lb = 31.8 lb
4	Divide this weight by the green weight of the product.	31.8 lb ÷ 127.8 lb = 0.2488
5	Convert the decimal answer into the percent of added ingredients by multiplying by 100.	0.2488 × 100 = 24.88% is the amount of added ingredients. Since 25% added ingredients is claimed, this product <i>is</i> in compliance.


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COOKED MEAT AND POULTRY PRODUCTS, AND SPECIFIC COOKED AND UNCOOKED PORK PRODUCTS CONTAINING ADDED INGREDIENTS (SOLUTIONS)

Calculation Formula

Use the following formula to verify that a cooked (cured or uncured) beef product, cooked cured pork product not PFF-controlled, cooked turkey ham product, or cooked or uncooked cured pork product listed in sections 319.104 and 319.105 of the regulations complies with the label percentage declaration of "Weight is Added Ingredients", etc.

$$\frac{\text{finished weight} - \text{green weight}}{\text{finished weight}} \times 100 = \% \text{ added ingredients}$$

Note: For *uncooked* cured pork products listed in sections 319.104 and 319.105 of the regulations, pumped weight, massaged weight, or treated weight will be substituted for finished weight in the above formula, depending upon the processing procedures performed at the establishment.

Procedure Table

The procedure table below will enable you to determine the percentage of added ingredients in the finished product.

STEP	PROCEDURE	EXAMPLE
1	Determine the green weight of a given number of pieces of fresh (unpumped or untreated) meat or turkey (turkey ham product only) or an amount of fresh (unpumped or untreated) meat or turkey product that will represent the lot.	Cooked Corned Beef Brisket and Water Product--10% of Weight is Added Water, Salt, Sodium Phosphate, and Sodium Nitrite. A vat of fresh uncured beef briskets weighs (less the tare) 161.4 lb.
2	Determine the weight of the <i>same</i> product after pumping/treating or chilling. You will need to maintain control of the meat or poultry through pumping, massaging, or immersing, and the subsequent cooking and chilling processes.	After <i>chilling</i> , the <i>same</i> beef briskets weigh 178.7 lb. This is the finished product weight.
3	Subtract the green weight from the finished product weight.	178.7 lb - 161.4 lb = 17.3 lb
4	Divide this weight by the finished product weight.	17.3 lb ÷ 178.7 lb = 0.0968
5	Convert the decimal answer into the percent of added ingredients by multiplying by 100.	0.0968 × 100 = 9.68% is the amount of added ingredients. Since 10% added ingredients is claimed, this product <i>is</i> in compliance.



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Chapter 11

PUMP/PICK-UP/GAIN CALCULATIONS

INTRODUCTION

Water-based and/or oil based solutions (curing, tenderizing, marinating, basting, etc.) can be added to various raw meat and poultry cuts or products. These solutions are added by pumping (injecting), tumbling, massaging, dipping, or immersing to impart favorable quality attributes and sensory characteristics to the finished product. Establishments *must* develop written processing procedures for PFF-controlled *cured* pork products, *cured* beef products, *cured* poultry products, *cured* beef and pork--"X% Added Ingredient" products, pickle-*cured* pork bellies, etc., that at a minimum list the ingredients (names and weights) used to formulate the pickle solution and the *targeted* percent pump/pick-up.

Inspection personnel must perform pump, pick-up, or gain tests to verify that the amount of solution added to the product is in accordance with the regulations, approved procedures, or approved labels. *Percent pump, percent pick-up, and percent gain* are terms that represent the amount of weight gained (above the green weight---- expressed as a percent) by a meat or poultry cut or product when treated with a solution. Which term is used usually depends on the method of applying the solution, e.g., *pick-up* is used when the meat or poultry is submerged in the solution and *pump* is used when the solution is injected into the meat or poultry. *Percent gain* is a general term and is often used in place of percent pump or percent pick-up.

Curing solutions

There are a number of meat products that have specific regulatory limits for the amount of water that can be gained or picked-up from a curing solution. For example:

- The application of curing solution to beef brisket shall not result in an increase (gain) in the weight of the finished cured product of more than 20% over the weight of the fresh uncured brisket--MPI Regulations, section 319.101. In other words, the green weight of the product cannot be increased by more than 20%. Refer to Chapter 10, if the establishment is producing uncooked beef briskets that exceed the 20% limit.
- The application of curing solution to beef cuts (except beef briskets) or beef tongue shall not result in an increase (gain) in the weight of the finished cured product of more than 10% over the weight of the fresh uncured beef cut or tongue--MPI Regulations, sections 319.102 and 319.103. In other words, the green weight of the product cannot be increased by more than 10%. Refer to Chapter 10, if the establishment is producing uncooked beef cuts or beef tongues that exceed the 10% limit.
- The application of curing solution to *dry salt cured* pork bellies/jowls and pork products not covered by the PFF regulations shall not result in an increase (gain) in the weight of the finished cured product of more than 10% over the weight of the fresh uncured pork belly/jowl or pork article. In other words, the green weight of the bellies/jowls or pork article cannot be increased by more than 10%.

Tenderizing (proteolytic enzyme) solutions

A solution consisting of water and an approved proteolytic enzyme(s) applied to or injected into raw meat and poultry cuts shall not result in a gain (pump or pick-up) of more than 3% above the green weight of the cut or product--MPI Regulations, sections 318.7, 381.147, and PM 66C.

Marinating/basting solutions

- Marinating or basting solutions added to raw meat cuts shall not result in a gain (pump or pick-up) of more than 10% above the green weight of the cut or product. If a product is treated with an enzyme solution and a flavoring solution, separately or in one step, the combined tenderization/marination solutions are limited to 10%--PM 66C.
- Marinating or basting solutions added to raw bone-in poultry and boneless poultry cuts shall not result in a gain (pump or pick-up) of more than 3% and 8% above the green weight of the cut or product, respectively--MPI Regulations, section 381.169, PM 42 and 44A.

Note: A qualifying statement that includes the percentage of solution contained in the product must be contiguous to the product name, e.g., "Marinated with Up to 8% of a Solution of Water, Salt, and Sugar."

Miscellaneous Solutions

Water-based and/or oil-based solutions may be added to raw bone-in or boneless meat and poultry cuts at various levels unless such use is forbidden or otherwise restricted by policy or regulation. The product name must be qualified with a statement indicating that the addition of solution has taken place, e.g., "Injected with Up to 12% of a Flavoring Solution." The terms "marinated", "basted", and "for flavoring" cannot be used on the label if the level of solution added is more than needed to marinate, baste, flavor, etc., (see requirements above)--PM 42, 44A and 66C.



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HOW TO DETERMINE PERCENT GAIN

Calculation Formula

$$\frac{(\text{pumped, treated, or massaged}) \text{ weight} - \text{green weight}}{\text{green weight}} \times 100 = \% \text{ gain}$$

Note: Pumped weight, treated weight, or massaged weight can be inserted into the above formula depending upon the method in which the solution is applied, e.g., *treated weight* is used when the product is dipped or submerged in the solution; *pumped weight* is used when the solution is injected into the cut.

Procedure Table

The following procedure allows you to compare a product's green weight with its pumped, treated, or massaged weight to determine the percent gain.

STEP	PROCEDURE	EXAMPLE
1	Determine the green weight of a given number of pieces of fresh (unpumped, untreated, etc.) meat or poultry or an amount of fresh (unpumped, untreated, etc.) meat or poultry product that will represent the lot.	Fifteen boneless hams to be pickle-cured weigh 227.6 lb.
2	If a drain time is listed in the establishment's approved procedure, allow the pumped/treated product to drain for the specified time period and then weigh. If no drain time is listed, take the weight directly after pumping.	After <i>pumping</i> , the <i>same</i> fifteen boneless hams weigh 271.1 lb.
3	Subtract the green weight from the pumped or treated weight to obtain the pounds gained.	$\begin{array}{r} 271.1 \text{ lb} \\ - 227.6 \text{ lb} \\ \hline 43.5 \text{ lb gained} \end{array}$
4	Divide the pounds gained by the green weight.	$43.5 \text{ lb} \div 227.6 \text{ lb} = 0.1911$
5	Convert the decimal answer into the percentage of gain by multiplying by 100.	$0.1911 \times 100 = 19.11\% \text{ gain}$ In this case 19.11% could also be referred to as the <i>effective</i> percent pump (if product is drained) or <i>actual</i> percent pump (if product is not drained). For an explanation of effective or actual percent pump, refer to the Glossary .

Comments

- When performing gain tests to ensure **added solution** compliance, the inspection program employee should use the **same** unpumped or untreated and pumped or treated pieces of meat or poultry to determine the % gain. If the effective or actual % pump/pick-up is greater than the targeted % pump/pick-up, the inspection program employee will retain the product represented by the gain test sample until it is drained to the targeted % pump/pick-up.
- The inspection program employee, under certain circumstances, e.g., the scale and pumping or injecting apparatus are not in the same area or room, **may** select and weigh pumped or treated pieces of meat or poultry before selecting fresh unpumped or untreated pieces **provided** that the pieces have been lotted into 2-to-3 lb weight ranges.
 - For PFF-controlled cured pork products, heat processed pickle-cured pork bellies/jowls, cooked cured beef products, etc., FSIS will permit an **allowance of up to plus or minus 20%** of the **targeted % pump/pick-up** before action is required because different pieces of meat or poultry were used to calculate the effective or actual % pump/pick-up. In addition, FSIS has finished product regulatory requirements and process control procedures in place for these products, e.g., Absolute Minimum PFF value/PFF value cusum charts, bacon yield difference charts, and 100% maximum yield or approved label declaration. For example, if the boneless hams in the

Procedure Table on page 78 were grouped into a 2-to-3 lb weight range and had a 16% targeted pump, they would still be considered in compliance for **added solution** because the effective or actual % pump (19.11%) is less than the adjusted targeted % pump [$16.0 \times .20 (20\%) = 3.2 + 16.0 = 19.2\%$]. However, if a consistent pattern of overpumping or underpumping (indicates lack of process control) is identified, then the inspection program employee shall request that establishment management submit a **new procedure** to reflect the effective or actual pumping percentage. Whenever the effective or actual % pump **is more than 20% above** the targeted % pump/pick-up on the procedure chart, the inspection program employee will retain the product until it is drained to the **targeted** % pump.

- For **"raw"** cured beef products, cured pork products not covered by the PFF regulations, cured pork bellies/jowls, and other meat or poultry products that contain added solutions, FSIS will permit an **allowance of up to plus or minus 20%** of the **targeted % pump/pick-up "provided"** that the 20% allowance **does not** violate the maximum amount of solution allowed in the product, i.e., the standard of identity for the product. Products with an effective or actual % pump/pick-up within the 20% allowance but violate the added solution standard for the product will be retained until they are drained to the percentage required in the standard of identity. For example, if dry salt cured jowls that were targeted to have a 10% pump had an 11.5 % effective pump, they would be out of compliance for **added solution** even though they were within the 20% allowance [$10.0 \times .20 (20\%) = 2.0 + 10.0 = 12\%$] because the standard (10% maximum added solution) for the product was exceeded. The jowls must be retained until they drain to 10% or less added solution.


Whenever the effective or actual % pump **is more than 20% above** the targeted % pump/pick-up without violating the product standard, the inspection program employee will retain the product until it is drained to the target % pump. For example, if beef briskets that were targeted to have a 15% pump had a 19% effective pump, they would be considered out of compliance with the establishment's procedure for the addition of solution and would be retained until they drained to 15% or less added solution. If a consistent pattern of overpumping or underpumping (indicates lack of process control) is identified, then the inspection program employee shall request that establishment management submit a **new procedure** to reflect the effective or actual pumping percentage.



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HOW TO DETERMINE THE MAXIMUM PERCENT PUMP

Introduction

To verify that the level of ingoing restricted ingredients (curing agents, cure accelerators, phosphates, etc.) in a pickle formula are in compliance, one can determine the maximum % pump for each restricted ingredient and compare it to the targeted % pump. The listed target % pump *shall never be greater than* the maximum % pump allowed for any restricted ingredient in the solution. To verify restricted ingredient compliance at the time of pumping, the effective or actual % pump must be compared to the maximum % pump allowed for the pickle solution.

Calculation Formula

$$\frac{\text{lb restricted ingredient} \times \% \text{ pump} \times 1,000,000}{\text{ lb pickle}} = \text{ppm}$$

Procedure Table

The following procedure table may be used for determining the maximum percent pump allowed for each restricted ingredient in a pickle or curing solution.

STEP	PROCEDURE	EXAMPLE														
1	Determine the weight of the nitrite added to the pickle solution, the total weight of the pickle solution, and the percent pump from the label transmittal form or the establishment's approved procedure record/chart. <i>If any two of these quantities are known, the third can be calculated by substituting the known values into the formula.</i>	Pickle Formula <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 80%;">Water</td><td style="text-align: right;">1310.00 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">132.00 lb</td></tr> <tr><td>Dextrose</td><td style="text-align: right;">18.00 lb</td></tr> <tr><td>Phosphate</td><td style="text-align: right;">35.00 lb</td></tr> <tr><td>Sodium Erythorbate</td><td style="text-align: right;">3.25 lb</td></tr> <tr><td>Sodium Nitrite</td><td style="text-align: right;">&nbsp;1.75 lb</td></tr> <tr><td style="border-top: 1px solid black;">Total</td><td style="text-align: right; border-top: 1px solid black;">1500.00 lb</td></tr> </table> Beef briskets are pumped with 16% solution.	Water	1310.00 lb	Salt	132.00 lb	Dextrose	18.00 lb	Phosphate	35.00 lb	Sodium Erythorbate	3.25 lb	Sodium Nitrite	 1.75 lb	Total	1500.00 lb
Water	1310.00 lb															
Salt	132.00 lb															
Dextrose	18.00 lb															
Phosphate	35.00 lb															
Sodium Erythorbate	3.25 lb															
Sodium Nitrite	 1.75 lb															
Total	1500.00 lb															
2	Substitute the weight of the nitrite, the weight of the pickle solution, and the ppm limit for nitrite (200 ppm) into the formula and solve for <i>n</i> , the maximum percent pump. <i>For further explanation of this formula, refer to the Appendix, Solving Equations that Have an Unknown Value, pages 115 to 123.</i>	We have 1.75 lb of nitrite in 1500 lb of solution that is to be pumped into beef briskets at a targeted level of 16%. However, what would be the maximum % pump allowed in the event the establishment exceeded the target % pump? $200 = \frac{1.75 \times n \times 1,000,000}{\text{ 1500}}$ $n = \frac{200 \times 1500}{\text{ 1.75} \times 1,000,000} = 0.1714$														
3	Convert the decimal answer into the percentage of gain by multiplying by 100.	$0.1714 \times 100 = 17.14\%$ is the maximum pump % level for nitrite.														

Comments

- If you substituted the weights and maximum permitted levels (in ppm) of phosphate and sodium erythorbate into the Procedure Table above, you would obtain a maximum % pump of 21.42% for phosphate and 25.24% for sodium erythorbate. Although three different maximum % pump levels exist for this pickle solution, 17.14 % would be the maximum % pump level allowed for this solution because the ingoing nitrite limit would be exceeded at any % pump greater than 17.14%.
- As stated before, restricted ingredient compliance *must be* monitored at the time of pumping. Monitoring at this point

helps assure that the pumping machine is in proper adjustment, draining procedures are followed, etc. This can be done by determining the effective or actual % pump (refer to "How to Determine Percent Gain" of this chapter) and comparing it with the maximum % pump for the pickle solution. For example, if the boneless hams on [page 78](#) were pumped with the pickle solution in Step 1 of the [Procedure Table](#) on [page 81](#), they would be out of compliance for ingoing nitrite because the effective or actual % pump (19.11%) is greater than the maximum % pump (17.14%) for the pickle solution.

When verifying the level of *ingoing restricted ingredients* at the time of pumping, the inspection program employee should use the *same* unpumped and pumped pieces of meat or poultry to determine the effective or actual percent pump. The inspection program employee, under certain circumstances, e.g., the scale and pumping or injecting apparatus are not in the same area or room, may select and weigh pumped pieces of meat or poultry before selecting fresh unpumped pieces provided that the pieces have been lotted into 2-to-3 lb weight ranges. In this case, FSIS will permit an *allowance of up to plus or minus 20%* of the *maximum % pump* before action is required because different pieces of meat or poultry were used to calculate the effective or actual % pump. For instance, if the boneless hams in the [Procedure Table](#) on [page 78](#) were grouped into a 2-to-3 lb weight range and pumped with the pickle solution in Step 1 of the [Procedure Table](#) on [page 81](#), they would still be in compliance for *ingoing nitrite* because the effective or actual % pump (19.11%) is less than the adjusted maximum % pump [$17.14 \times .20 (20\%) = 3.42 + 17.14 = 20.56\%$]. However, if a consistent pattern of underpumping or overpumping (indicates lack of process control) is identified, then the inspection program employee shall request that establishment management submit a *new procedure* to reflect the new pickle formula and/or the effective or actual pumping percentage. Whenever the effective or actual % pump *is more than 20% above* the maximum % pump, the inspection program employee will retain the product until it is drained to the *targeted % pump*.

- Each restricted ingredient's compliance at the time of pumping could also be verified by inserting its weight, *the effective or actual % pump*, and the weight of the pickle solution into the formula in Step 2 of the [Procedure Table](#) on the previous page and solving for ppm.



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HOW TO DETERMINE THE MAXIMUM AMOUNT OF GAIN

Introduction

Meat or poultry cuts dipped or submerged into, or injected with, tenderizing, marinating, and/or flavoring solutions *must not* gain more than the percentage (3%, 8%, 10%, etc.) allowed by regulation or on the approved label over the untreated product weight (green weight).

Procedure Table

The procedure table below will assist you in determining the maximum amount of gain.

STEP	PROCEDURE	EXAMPLE
1	Multiply the green weight of the meat or poultry to be pumped/treated by the allowed amount of gain -- 3% (.03), 10% (.10), 15% (.15).	Ten 16-oz T-Bone steaks--"Tenderized with Papain" $\begin{array}{r} \text{\ 160 oz meat (10 \times 16 oz = 160 oz)} \\ \times \text{\ .03 (3\%)} \\ \hline \text{\ 4.8 oz gain permitted} \end{array}$
2	Add the untreated (green) weight and the permitted gain to get the total maximum weight of the treated product.	$\begin{array}{r} \text{\ 160.0 oz} \\ + \text{\ 4.8 oz} \\ \hline \text{\ 164.8 oz or (10.3 lb) would be the maximum amount the ten steaks could weigh after being treated.} \end{array}$



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HOW TO DETERMINE THE GREEN WEIGHT WHEN THE PUMPED/TREATED WEIGHT AND PERCENT GAIN ARE KNOWN

Introduction

When corned (cured) beef products and cured pork products (not covered by PFF regulations) are cooked, the weight of the finished product *shall not* exceed the weight of the fresh uncured beef or pork cut, unless the presence and amount of added ingredients is indicated on the label. Inspection personnel will verify that the cooked weight does not exceed the green weight for those products that do not carry a qualifying statement in or contiguous to the product name.

Some establishments are pickle curing bone-in meat cuts, subsequently boning them, and using the boned materials (e.g., whole muscle, trimmings, and fat) in various products. Anytime a portion of muscle is removed from a pumped or treated bone-in meat cut and used in a cooked or uncooked meat product with the presence and amount of added ingredients indicated on the label, inspection personnel will need to calculate the green weight of the muscle that has been removed in order to verify the label claim. Once the green weight has been determined, one can insert it into one of the formulae in [Chapter 10](#) to verify the compliance of the percentage ("X" value) in the qualifying statement.

When cured pork or beef trimmings are ingredients in sausage formulations that also contain ingredients that are limited on the basis of projected finished weight such as corn syrup and various binders and extenders, the pork or beef trimmings' green weight must be calculated so that the amount of water from the curing solution can be removed when determining the sausage's projected finished weight (refer to [pages 100-102](#)).

Calculation Formula

$$\frac{(\text{pumped, massaged, or treated}) \text{ weight}}{\% \text{ gain} + 100\%} = \text{green weight}$$

Note: Pumped weight, treated weight, or massaged weight can be inserted into this formula depending upon the method in which the solution is applied. Likewise, % pump or % pick-up could be inserted for % gain.

Procedure Table

The following procedure allows you to find a product's green weight when the pumped weight and percent gain are known.

In this example, the pumped weight is 220 lb and the percent gain is 10%.

STEP	PROCEDURE	EXAMPLE
1	The pumped or treated weight represents 100% of the green weight plus the percent gain. So, to find the percentage represented by the pumped or treated weight, simply add the percent gain to 100%.	10% (percent gain) + 100% (green weight) is 110% (pumped weight).
2	Convert the pumped or treated weight percentage to a decimal.	1.10 (110% ÷ 100)
3	Divide the pumped or treated weight by this decimal to determine the green weight.	220 lb (pumped weight) ÷ 1.10 = 200 lb (green weight) and 20 lb (solution)




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Chapter 12

SHRINKAGE CALCULATIONS


INTRODUCTION

Inspection personnel are responsible for monitoring the shrinkage of various meat and poultry products. For example:

- Barbecued meat must shrink a minimum of 30%-- MPI Regulations, section 319.80.
- Cooked bacon bits or crumbles must shrink a minimum of 60%--Standards and Labeling Policy Book.
- Dry-cured hams and pork shoulders must shrink a minimum of 18%--MPI Regulations, section 319.106.
- Product shrink, cook shrink, and/or chill shrink that are part of quality control programs or systems must remain within established shrinkage limits.
- Cook and/or chill shrinks for pickle cured pork products must be in accordance with the establishment's approved processing procedure(s).

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HOW TO DETERMINE A PRODUCT'S REQUIRED SHRINK

Calculation formula

Use the following formula to verify the percent shrink compliance of dry cured hams and pork shoulders, bacon bits, barbecued meat, etc.


$$\frac{\text{green weight meat or poultry} - \text{finished weight}}{\text{green weight meat or poultry}} \times 100 = \% \text{ shrink}$$

Note: Bacon bits are usually produced from bacon ends and pieces. Although the bacon ends and pieces contain curing ingredients and have been smoked, the use of green weight, which is actually the uncooked weight, in the formula would still be applicable because the weight of the cured bellies must not exceed the green (uncured) weight of the pork bellies.

Procedure Table

The following procedure table should be used when you want to find a product's percent shrink.

STEP	PROCEDURE	EXAMPLE
1	Determine the green weight of the meat or poultry.	Dry-Cured Pork Shoulders Pork shoulders 500 lb
2	Determine the weight of the product after processing (cooking, drying, etc).	After the specified curing period, the pork shoulders weigh 395 lb.
3	Subtract the weight of the product after processing (finished weight) from the green weight of the meat or poultry to find the amount the product shrunk.	$\begin{array}{r} 500 \text{ lb} \\ - 395 \text{ lb} \\ \hline 105 \text{ lb} \end{array}$
4	Divide the number of pounds the product has shrunk by the green weight of the meat or poultry.	$105 \text{ lb} \div 500 \text{ lb} = 0.21$
5	Convert the decimal answer into the percentage of shrink by multiplying by 100.	$0.21 \times 100 = 21\% \text{ shrink (in compliance)}$

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HOW TO DETERMINE COOK AND CHILL SHRINKS

Calculation Formula

Use the following formula to determine the percent cook shrink or chill shrink of cooked sausages, bacon, PFF-controlled cured pork products, etc.

$$\frac{\text{weight in (smokehouse/oven/cooler)} - \text{weight out (smokehouse/oven/cooler)}}{\text{weight in (smokehouse/oven/cooler)}} \times 100 = \% \text{ shrink}$$

Procedure Table

The following procedure should be used when you want to determine the percentage of cook or chill shrink.

STEP	PROCEDURE	EXAMPLE
1	Determine the weight of the product (less tare) going into the smokehouse, oven, cooler, etc.	1000 lb of Franks
2	Determine the weight of the product (less tare) coming out of the smokehouse, oven, cooler, etc.	927 lb of franks after cooking and smoking
3	Subtract the weight coming out from the weight going in to find the amount of product shrink.	$\begin{array}{r} \text{1000 lb} \\ - \text{927 lb} \\ \hline \text{73 lb} \end{array}$
4	Divide the number of pounds shrunk by the product weight going into the smokehouse, oven, cooler, etc.	$73 \text{ lb} \div 1000 \text{ lb} = 0.073$
5	Convert this decimal answer into the percentage of shrink by multiplying by 100.	$0.073 \times 100 = 7.3\% \text{ shrink}$

COMMENTS

- Shrink calculations should be conducted on entire lots of product. However, in many instances it is not feasible to perform shrink tests with the entire weight of the lot (inspection personnel time constraints, extremely large lot size, etc.). Therefore, weighing a large enough portion (sample) to represent the lot would be acceptable.
- Shrink limitations and yield limitations are interrelated. For instance, barbecued meat must shrink at least 30%. The same requirement is expressed in MPI Regulations, section 319.80, as "the weight of the barbecued meat shall not exceed 70% of the weight of the fresh uncooked meat", which means "the barbecued meat shall not have a yield greater than 70%".


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Chapter 13

YIELD CALCULATIONS

INTRODUCTION

Inspection personnel are responsible for monitoring the yields of various meat and poultry products. Yield determinations preclude, among other things, economic fraud from the use of added ingredient solutions, specifically excess added water. Examples of products with yield limitations:

- Brown-and-serve sausage formulated with no more than 8.8% or 10% added water must have a yield no greater than 85% and 80%, respectively--Standards and Labeling Policy Book.
- Cooked bacon bits or crumbles must have a yield no greater than 40% --Standards and Labeling Policy Book.
- The weight of pork bellies cured by pumping, immersing, massaging, or tumbling that are ready for slicing and labeling as "bacon" shall not exceed the weight of the fresh uncured pork bellies. In other words, the cured pork bellies must have a yield no greater than 100%--MPI Regulations, section 319.107.
- Various products that have a yield standard established as part of an establishment's approved quality control program or system.

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HOW TO DETERMINE A PRODUCT'S YIELD

Calculation formulae

- The following formula can be used to determine percent yield for a product prepared from a whole piece of meat or poultry (pumped hams or pork bellies, steaks or breasts pumped with, or immersed in ingredient solutions, etc.).

$$\frac{\text{finished weight}}{\text{green weight meat or poultry}} \times 100 = \% \text{ yield}$$

Note: Pumped weight, cooked weight, dried weight, treated weight, etc., could be substituted for finished weight in the above formula, depending upon the processing procedures performed at the establishment and/or the form in which the products are packaged and labeled for sale.

Procedure Table

By using the following procedure table, you can determine the percent yield for a product prepared from a whole piece of meat or poultry.

STEP	PROCEDURE	EXAMPLE
1	Determine the green weight of the meat or poultry.	Fifty skinned and trimmed pork bellies (10- to-12 lb weight range) weigh 551.90 lb.
2	Determine the weight of the product after processing (cooking, drying, etc.).	Fifty processed pork bellies (10- to-12 lb weight range) ready for slicing weigh 546.40 lb.
3	Divide the weight of the product after processing (finished weight) by the green weight of the meat or poultry.	546.40 lb ÷ 551.90 lb = 0.9900
4	Convert this decimal answer into the percent yield by multiplying by 100.	0.9900 × 100 = 99% yield

- The following formula can be used to determine percent yield for a cooked comminuted product, such as brown-and-serve sausage.

$$\frac{\text{cooked weight}}{\text{uncooked weight}} \times 100 = \% \text{ yield}$$

Note: Formulated weight or batch weight could be substituted for uncooked weight in the above formula.

Procedure Table

By using the following procedure table, you can determine the percent yield for a cooked comminuted product.

STEP	PROCEDURE	EXAMPLE
1	Determine the weight of enough product to represent the lot before cooking (uncooked weight).	Ten brown-and-serve pork sausage patties (3 to 4 ounce range) weigh 35.7 oz.
2	Determine the weight of the same amount of product after cooking (cooked weight).	After cooking, ten brown-and-serve sausage patties (3 to 4 ounce range) weigh 28.6 oz.
3	Divide the weight of the product after cooking by the weight of the product before cooking.	28.6 oz ÷ 35.7 oz = 0.8011
4	Convert this decimal answer into the percent yield by multiplying by 100.	0.8011 × 100 = 80.1% yield

COMMENT

Yield limitations and pump/pick-up limitations are interrelated. For instance, corned beef brisket can be pumped with a curing solution up to 20% . The same requirement is expressed in MPI Regulations, section 319.101, as "the application of curing solution to beef brisket shall not result in an increase in the weight of the finished cured product of more than 20% over the weight of the fresh uncured brisket". In other words, the finished cured product shall not have a yield greater than 100% + 20% or 120%.



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Chapter 14

MISCELLANEOUS CALCULATIONS

HOW TO DETERMINE THE PERCENT OF AN INGREDIENT IN A FORMULA

Calculation Formula

$$\frac{\text{ingredient weight in the formula}}{\text{total formula or batch weight}} \times 100 = \% \text{ of ingredient}$$

Procedure Table

The procedure table below will assist you in determining the percentage of any formula ingredient (pickle solution ingredient, cure mix ingredient, or product ingredient) when the ingredient weights are known.

STEP	PROCEDURE	EXAMPLE														
1	Total the weights of all items in the mix, formula, batch, solution, etc.	Pickle Formula <table style="margin-left: auto; margin-right: auto; border: none;"> <tr><td style="padding-right: 20px;">Water</td><td style="text-align: right;">740.00 lb</td></tr> <tr><td>ISP</td><td style="text-align: right;">110.00 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">105.00 lb</td></tr> <tr><td>Sugar</td><td style="text-align: right;">41.00 lb</td></tr> <tr><td>Sodium Ascorbate</td><td style="text-align: right;">2.96 lb</td></tr> <tr><td>Sodium Nitrite</td><td style="text-align: right;">&nbsp; 1.04 lb</td></tr> <tr><td>Total</td><td style="text-align: right; border-top: 1px solid black;">1000.00 lb</td></tr> </table>	Water	740.00 lb	ISP	110.00 lb	Salt	105.00 lb	Sugar	41.00 lb	Sodium Ascorbate	2.96 lb	Sodium Nitrite	 1.04 lb	Total	1000.00 lb
Water	740.00 lb															
ISP	110.00 lb															
Salt	105.00 lb															
Sugar	41.00 lb															
Sodium Ascorbate	2.96 lb															
Sodium Nitrite	 1.04 lb															
Total	1000.00 lb															
2	Take the weight of the ingredient, for which you want to determine the percentage, and divide it by the total weight.	ISP: 110 lb $110 \text{ lb} \div 1000 \text{ lb} = 0.11$														
3	Convert your decimal answer to a percentage by multiplying by 100 (i.e., move the decimal point 2 places to the right).	$0.11 \times 100 = 11\%$ ISP makes up 11% of this pickle formula by weight.														



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HOW TO DETERMINE THE FAT CONTENT OF A COMMINUTED PRODUCT FORMULA

Introduction

To monitor the compliance of a restricted ingredient that has a regulatory limit based on the fat content of the product, e.g., an antioxidant, inspection personnel must be able to calculate the amount of fat in the product. A product's laboratory fat analysis history or the establishment's target fat content for the product is used as the basis for determining the maximum level of antioxidants allowed in the product. If a product has less fat in it than its targeted fat content, but the antioxidant level is based on the targeted fat content, then the product is out of compliance for antioxidants. Therefore, inspection must verify that the amount of fat in the product at the time of formulation is equal to or more than the establishment's target fat content, but not more than the amount of fat allowed in the product.

The inspector's fat content verification can also be used as an *indicator* of the establishment's compliance or noncompliance with the standard (requirement) for the amount of fat allowed in the product. A fat standard noncompliance at the time of formulation should be confirmed through laboratory analysis. Regulatory action for fat content noncompliance *must* be based on the laboratory result.

Procedure Table

When the percentage of fat for each meat, poultry, meat byproduct, or poultry byproduct in a formula is known, the procedure table below can be used to determine the percentage of fat in the total formula.


STEP	PROCEDURE	EXAMPLE																								
1	From establishment formulation records, determine the batch weight, % fat content of each meat, meat byproduct, poultry, or poultry byproduct item, and the targeted fat % in the finished product.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Breakfast Sausage</td> </tr> <tr> <td style="width: 70%;">Cow meat (40% fat)</td> <td style="text-align: right;">140.0 lb</td> </tr> <tr> <td>Beef plates (50% fat)</td> <td style="text-align: right;">125.0 lb</td> </tr> <tr> <td>Pork trimmings (70% fat)</td> <td style="text-align: right;">125.0 lb</td> </tr> <tr> <td>Beef hearts (25% fat)</td> <td style="text-align: right;">20.0 lb</td> </tr> <tr> <td>Water</td> <td style="text-align: right;">12.0 lb</td> </tr> <tr> <td>Salt</td> <td style="text-align: right;">4.0 lb</td> </tr> <tr> <td>Dextrose</td> <td style="text-align: right;">1.0 lb</td> </tr> <tr> <td>Flavorings</td> <td style="text-align: right;">31.7 oz</td> </tr> <tr> <td>BHA</td> <td style="text-align: right;"><u>&nbsp; 0.3 oz</u></td> </tr> <tr> <td>Total batch weight</td> <td style="text-align: right;">429.0 lb</td> </tr> <tr> <td colspan="2" style="padding-top: 10px;">48% target fat level in the finished product</td> </tr> </table>	Breakfast Sausage		Cow meat (40% fat)	140.0 lb	Beef plates (50% fat)	125.0 lb	Pork trimmings (70% fat)	125.0 lb	Beef hearts (25% fat)	20.0 lb	Water	12.0 lb	Salt	4.0 lb	Dextrose	1.0 lb	Flavorings	31.7 oz	BHA	<u>&nbsp; 0.3 oz</u>	Total batch weight	429.0 lb	48% target fat level in the finished product	
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Total batch weight	429.0 lb																									
48% target fat level in the finished product																										
2	Determine the amount of fat (in pounds) permitted in the total formula.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">&nbsp; 429 lb batch weight</td> <td></td> </tr> <tr> <td>× &nbsp; 0.48 (48% fat)</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;"><u>&nbsp; 205.92 lb of fat permitted</u></td> </tr> </table>	 429 lb batch weight		× 0.48 (48% fat)			<u>&nbsp; 205.92 lb of fat permitted</u>																		
 429 lb batch weight																										
× 0.48 (48% fat)																										
	<u>&nbsp; 205.92 lb of fat permitted</u>																									
3	Determine the weight of the fat in each meat, poultry, meat byproduct, or poultry byproduct item in the formula by multiplying the total weight of each ingredient by the decimal equivalent of its fat percentage.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Cow meat (40%) Fat</td> <td style="text-align: right;">&nbsp; 140 lb × 0.40 &nbsp; 56 lb fat</td> </tr> <tr> <td>Beef plates (50%) Fat</td> <td style="text-align: right;">&nbsp; 125 lb × 0.50 &nbsp; 62.5 lb fat</td> </tr> <tr> <td>Pork trimmings (70%) Fat</td> <td style="text-align: right;">&nbsp; 125 lb × 0.70 &nbsp; 87.5 lb fat</td> </tr> </table>	Cow meat (40%) Fat	 140 lb × 0.40 56 lb fat	Beef plates (50%) Fat	 125 lb × 0.50 62.5 lb fat	Pork trimmings (70%) Fat	 125 lb × 0.70 87.5 lb fat																		
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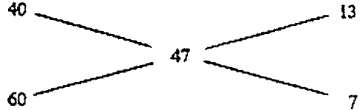
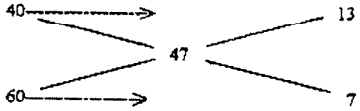
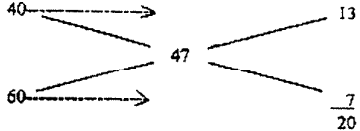
		 87.5 lb fat Beef hearts (cap off) 20 lb (25%) Fat $\times 0.25$ 5 lb fat
4	Total the weight of the fat.	 56.0 lb 62.5 lb 87.5 lb + 5.0 lb 211.0 lb total fat added
5	Divide the weight of the fat added by the batch weight.	$211 \text{ lb} \div 429 \text{ lb} = 0.4918$
6	To determine the percentage of fat in the formula convert your decimal answer to a percentage by multiplying by 100 (i.e., move the decimal point 2 places to the right).	$0.4918 \times 100 = 49.18\%$ fat (as formulated) in the finished breakfast sausage

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7	Subtract the lesser amount from the greater amount along each diagonal line and enter the answers on the right corners on the same line.					
8	By reading across, you can now tell how many parts of each lot must be used. In this case, the formula will contain 13 parts of the 40% fat trimmings to 7 parts of the 60% fat pork trimmings.					
9	To determine how many pounds of each lot will be required, first add the total number of parts. In this case, $13 + 7 = 20$					
10	Divide the meat block weight by the total number of parts. This will give the number of pounds per part.	$410 \text{ lb} \div 20 \text{ parts} = 20.5 \text{ lb per part}$				
11	Now simply multiply the number of parts of each lot called for by the pounds per part.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> $\begin{array}{r} \text{\&nbsp;20.5 lb} \\ \times 13 \text{ parts} \\ \hline \text{\&nbsp;266.5 lb} \end{array}$ </td> <td style="width: 50%; vertical-align: top;"> $\begin{array}{r} \text{\&nbsp;20.5 lb} \\ \times \text{\&nbsp;7 parts} \\ \hline \text{\&nbsp;143.5 lb} \end{array}$ </td> </tr> <tr> <td colspan="2" style="padding-top: 10px;"> <p>This formula requires 266.5 lb of the 40% fat pork trimmings and 143.5 lb of the 60% fat pork trimmings. Since this batch of pork sausage is not formulated with the proper amounts of raw material, the fat content <i>may</i> violate the fat limitation given in the product standard. In fact, this pork sausage is formulated with a 51.2% fat content.</p> </td> </tr> </table>	$\begin{array}{r} \text{\ 20.5 lb} \\ \times 13 \text{ parts} \\ \hline \text{\ 266.5 lb} \end{array}$	$\begin{array}{r} \text{\ 20.5 lb} \\ \times \text{\ 7 parts} \\ \hline \text{\ 143.5 lb} \end{array}$	<p>This formula requires 266.5 lb of the 40% fat pork trimmings and 143.5 lb of the 60% fat pork trimmings. Since this batch of pork sausage is not formulated with the proper amounts of raw material, the fat content <i>may</i> violate the fat limitation given in the product standard. In fact, this pork sausage is formulated with a 51.2% fat content.</p>	
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Note: The Pearson Square method cannot be used if the establishment has not provided the fat content of each raw meat or meat byproduct used in the product formula.



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HOW TO DETERMINE BRINE CONCENTRATION

Introduction

MPI Regulations [section 318.10(c)(3)(iv)] identify two curing methods that an establishment may use to destroy trichinae in hams. When either method is used, the concentration of the brine remaining in the hams at the end of the drying period must be 6 percent or more. The establishment must establish and maintain compliance by taking samples, having them analyzed for salt and water content by an accredited laboratory, and performing brine calculations. Brine extracts are taken from the biceps femoris muscle and analyzed for salt content.

Cured meat or poultry products such as boneless pork shoulders, pork loins, hams, meat loaves, luncheon meats, poultry loaves, etc., formulated without cereal or starch may be packaged in a hermetically sealed container, heated, and labeled "Perishable, Keep Under Refrigeration", provided the finished product has a brine concentration of not less than 3.5%. Meat loaves, nonspecific loaves, and similar cured products formulated with cereal, starch, or other extenders must have a brine concentration not less than 6 %.

Calculation Formula

When the data from a laboratory sample analysis is available, the formula below may be used to determine the brine concentration.


$$\frac{\text{Total Salt}}{\text{Total Salt and Total Water}} = \% \text{ Brine Concentration}$$

Example

The laboratory sample results indicate that the total salt in a canned mortadella formulated with extenders is 4.1% and the total water 62%.

$$\begin{aligned} \% \text{ Brine Concentration} &= \frac{0.041}{0.041 + 0.62} \\ &= \frac{0.041}{0.661} \\ &= 6.2 \% \text{ Brine Concentration} \end{aligned}$$


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HOW TO DETERMINE THE COMPLIANCE OF BREADED PRODUCT

Introduction

In a battering and breading operation, the meat and poultry product may be dusted with a flour mix, battered, breaded, and further processed. Battering and breading may be done in one operation or separately. The automated battering and breading operation is a timed process that allows excess batter to drip from the product. The amount of batter and breading on the finished breaded product is dependent upon the type of product (chicken breast, corn dog, fritter, etc.) and the consistency and formulation of the batter. After the establishment batters and breads the product, the breaded product may be frozen in a raw, blanched and raw, or blanched and cooked state; cooked or blanched and cooked; or sold refrigerated in a raw, prebrowned raw, or cooked form to consumers.

To assure compliance with the regulations, inspection personnel monitor the process by sampling raw and battered and breaded product. Compliance of product with batter and breading limits is determined by weighing the finished product before freezing; blanching and freezing; blanching and cooking; or blanching, cooking, and freezing. ***The weight of batter and breading used as a coating for breaded product must not exceed 30% of the weight of the finished breaded meat or poultry product.*** The meat portion of the product thus represents 70% of the finished product. The 30% breading limitation applies to the combination of the weights of the battering and the breading operation(s).

Although FSIS has a 30% breading limitation for products label as "breaded", fritters and corn dogs are permitted to have up to 65% batter and breading *on* the finished product. A fritter must contain at least 35% fresh meat or poultry. The frankfurter must comprise at least 35% of the corn dog.

A fritter is a product manufactured from meat or poultry whole muscle. If the product is formed by chopping or grinding, the name must be qualified to indicate the process such as "chopped and formed". Textured vegetable protein, soy derivatives, water, or other approved extenders can be included in a fritter formulation if the product is properly labeled. Proper labeling means that the name of the product must meet a definition or a standard of identity. These products are "patties" and must be labeled accordingly [e.g., "(Species) Patty Fritter"]. If a patty (***meat food product***) is made into a fritter, the patty (***meat food***) must comprise at least 35% of the fritter and the batter and breading cannot exceed 65% of the finished weight.

Calculation Formulae

- To determine the maximum amount of batter and breading allowed, use the following formula.

$$\text{meat/poultry portion} \div \% \text{ finished product} = \text{finished (breaded) product}$$

$$\text{finished (breaded) product} \times \% \text{ finished product} = \text{maximum amount breading}$$

- To determine the percentage of breading use the following formula.

$$\frac{\text{breaded weight} - \text{unbreaded (green) weight}}{\text{breaded weight}} \times 100 = \% \text{ breading}$$

Procedure Tables

The procedure tables below explain how to determine the maximum amount of batter and/or breading that can be added to raw meat or poultry products.

- If the product is uniform in size and weight:

STEP	PROCEDURE	EXAMPLE
1	Determine the weight of a given number of pieces of product before they are breaded.	20 boneless chicken breasts = 80 oz
2	This weight <i>must</i> total at least 70% of the finished product weight of these pieces. Therefore, you can determine the finished (breaded) weight by dividing this weight by 70% (0.70).	$80 \text{ oz} \div 0.70 = 114.2 \text{ oz}$ finished (breaded) weight
3	Subtract the weight of the unbreaded pieces from the finished (breaded) weight to determine the maximum amount of breading allowed.	$114.2 \text{ oz} - 80 \text{ oz} = 34.2 \text{ oz}$ of breading allowed We could also say that "to be in compliance, the 20 unbreaded chicken breasts cannot weigh more than 114.2 oz after breading".

- If the product is nonuniform in size and weight:

STEP	PROCEDURE	EXAMPLE
1	Determine the weight of the total unbreaded amount of meat or poultry.	200 lb of veal
2	This weight <i>must</i> total at least 70% of the finished product weight. Therefore you can determine the finished (breaded) weight by dividing this weight by 70% (0.70).	$200 \text{ lb} \div 0.70 = 285.7 \text{ lb}$ finished (breaded) weight
3	Subtract the weight of the unbreaded pieces from the finished (breaded) weight to determine the maximum amount of breading allowed.	$285.7 \text{ lb} - 200 \text{ lb} = 85.7 \text{ lb}$ of breading allowed To be in compliance, finished product weight cannot exceed 285.7 lb.

- The procedure table below explains how to determine the percentage of breading.

STEP	PROCEDURE	EXAMPLE
1	Determine the weight of a given number of pieces of product before they are breaded.	20 chicken wings = 59.3 oz
2	Weigh the same pieces of product after breading.	After breading, the 20 chicken wings weigh 82.4 oz.
3	Subtract the unbreaded (green) weight from the breaded weight to obtain the amount of breading.	82.4 oz $- 59.3 \text{ oz}$ 23.1 oz breading
4	Divide the amount of breading by the breaded weight.	$23.1 \text{ oz} \div 82.4 \text{ oz} = 0.2803$
5	Convert this decimal answer into the percent breading by multiplying by 100.	$0.2803 \times 100 = 28.03\%$ breading

Comments

- Mixtures for batter and breading may be prepared from individual ingredients or commercial mixtures (ready-mixed) may be purchased. Commercial mixtures are restricted to those on the label transmittal form. Ingredients used in mixtures formulated at the establishment are strictly limited to those listed in the formula.
- When unbreaded product is uniform in size (4 oz patties, 1 oz finger steaks, etc.) inspection personnel are not required to weigh the unbreaded pieces every time. To conduct a compliance test, select breaded pieces, weigh them, subtract the unbreaded weight (number of pieces times the product weight), and divide the difference by the breaded weight to determine the percent breading in the finished product.



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HOW TO DETERMINE A PROJECTED OR CALCULATED FINISHED WEIGHT

Introduction

Calculations for the ingoing amount of binders and extenders, and any restricted flavorings are based on the finished weight of the product. These ingredients function by affecting the entire product, not just the meat or poultry portion. In addition, binders and extenders are potential economic adulterants, not potential health hazards like nitrite and nitrate. Therefore, **projected finished weight is an acceptable basis for calculation.** The projected finished weight (PFW) is the calculated weight a product is expected to have after it is processed. A PFW can be calculated for either raw or cooked products.

Procedure Tables

The procedure table below explains how to *calculate* the finished weight of a raw comminuted red meat product. By determining this projected or calculated finished weight, inspection personnel can estimate whether or not the amount of binders, extenders, phosphates, and/or flavorings in a formula are in compliance.

STEP	PROCEDURE	EXAMPLE																										
1	Select from the formula those binders, extenders, phosphates, and/or flavorings that you are checking for compliance.	Bologna Formula <table style="width: 100%; border-collapse: collapse;"> <tr><td>Beef</td><td style="text-align: right;">250 lb</td></tr> <tr><td>Pork</td><td style="text-align: right;">250 lb</td></tr> <tr><td>Water/Ice</td><td style="text-align: right;">70 lb</td></tr> <tr><td>Rework (has NFD, CSS and disodium phosphate)</td><td style="text-align: right;">50 lb</td></tr> <tr><td>NFD</td><td style="text-align: right;">18 lb</td></tr> <tr><td>Corn Syrup Solids</td><td style="text-align: right;">15 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">5 lb</td></tr> <tr><td>Flavorings</td><td style="text-align: right;">4 lb</td></tr> <tr><td>Disodium Phosphate</td><td style="text-align: right;">3 lb</td></tr> <tr><td>Sodium Nitrate</td><td style="text-align: right;">10.75 oz</td></tr> <tr><td>Sodium Erythorbate</td><td style="text-align: right;">4.00 oz</td></tr> <tr><td>Sodium Nitrite</td><td style="text-align: right;"><u>1.25 oz</u></td></tr> <tr><td>Total batch</td><td style="text-align: right;">666 lb</td></tr> </table> <p><i>Targeted added water--10%</i></p>	Beef	250 lb	Pork	250 lb	Water/Ice	70 lb	Rework (has NFD, CSS and disodium phosphate)	50 lb	NFD	18 lb	Corn Syrup Solids	15 lb	Salt	5 lb	Flavorings	4 lb	Disodium Phosphate	3 lb	Sodium Nitrate	10.75 oz	Sodium Erythorbate	4.00 oz	Sodium Nitrite	<u>1.25 oz</u>	Total batch	666 lb
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Total batch	666 lb																											
2	Deduct the weight of any rework in the formula already containing the binder, extender, phosphate, and/or flavoring of concern from the batch or formula weight.	<table style="width: 100%; border-collapse: collapse;"> <tr><td>&nbsp;666 lb</td><td></td></tr> <tr><td>- &nbsp;50 lb rework</td><td></td></tr> <tr><td>&nbsp;616 lb</td><td></td></tr> </table>	 666 lb		- 50 lb rework		 616 lb																					
 666 lb																												
- 50 lb rework																												
 616 lb																												
3	This batch weight represents 100% of new product ingredients. From it, subtract the water/ice, and its targeted percent in the finished product.	<table style="width: 100%; border-collapse: collapse;"> <tr><td>&nbsp;616 lb</td><td style="text-align: right;">100%</td></tr> <tr><td>- &nbsp;70 lb Water/Ice</td><td style="text-align: right;">&nbsp;10% target</td></tr> <tr><td>&nbsp;546 lb</td><td style="text-align: right;">&nbsp;90%</td></tr> </table>	 616 lb	100%	- 70 lb Water/Ice	 10% target	 546 lb	 90%																				
 616 lb	100%																											
- 70 lb Water/Ice	 10% target																											
 546 lb	 90%																											
4	From this weight and percentage, subtract the weight and the maximum percentage allowed of the ingredients for which you are checking compliance. <i>Note: When determining the projected finished weight, always subtract the weight of all the restricted ingredients that are based on finished product weight and the maximum percentage</i>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>&nbsp;546 lb</td><td style="text-align: right;">90.0%</td></tr> <tr><td>- &nbsp;18 lb NFD</td><td style="text-align: right;">&nbsp;3.5%</td></tr> <tr><td>&nbsp;528 lb</td><td style="text-align: right;">86.5%</td></tr> <tr><td>&nbsp;528 lb</td><td style="text-align: right;">86.5%</td></tr> <tr><td>- &nbsp;15 lb CSS</td><td style="text-align: right;">&nbsp;2.0%</td></tr> </table>	 546 lb	90.0%	- 18 lb NFD	 3.5%	 528 lb	86.5%	 528 lb	86.5%	- 15 lb CSS	 2.0%																
 546 lb	90.0%																											
- 18 lb NFD	 3.5%																											
 528 lb	86.5%																											
 528 lb	86.5%																											
- 15 lb CSS	 2.0%																											

	<i>product weight and the maximum percentage allowed of each ingredient.</i>	- <u>&nbsp;15 lb CSS</u> 513 lb	<u>&nbsp;2.0%</u> 84.5%
		 513 lb	84.5%
		- <u>&nbsp;3 lb Phosphate</u> 510 lb	<u>&nbsp;0.5%</u> 84%
5	To find the PFW, divide this weight by the percentage of the formula weight that it represents.	510 ÷ 0.84 = 607.14 lb PFW	

The procedure table below explains how to *calculate* the finished weight of a cooked comminuted meat product. This procedure will also use the bologna formula on page 100 as an example, however, for this calculation the establishment has provided inspection with the bologna's *expected* smokehouse (cook) shrink (6%) and cooler (chill) shrink (2%).

STEP	PROCEDURE	EXAMPLE
1	Deduct the weight of any rework in the formula already containing the binder, extender phosphate and/or flavoring of concern from the batch or formula weight.	 666 lb - 50 lb rework 616 lb
2	This new batch weight represents 100% of new product ingredients. Multiply this weight by the total expected percent shrink to determine the expected pounds of shrink.	 616 lb × .08 (6% + 2%---Shrinks) 49.28 lb
3	Subtract the expected pounds of shrink from the weight of the new product ingredients or new batch weight to determine the PFW.	 616.00 lb - 49.28 lb 566.72 lb PFW

Comments

- To determine the percentage of the binder, extender, phosphate, and/or flavoring in the finished product, divide the weight of the binder, extender, phosphate, and/or flavoring in the formula by the PFW and multiply by 100. To determine the maximum amount of the binder, extender, flavoring or phosphate that could be used in the formula, multiply the PFW by the percent limitation (e.g., 3.5%, 2%, or 0.5%). Refer to Chapters 5, 6 and 7.
- Subtracting the expected amount of shrinkage rather than the amount of added water from the sausage formulation provides a more accurate projected finished weight for determining compliance of binders/extenders and restricted flavorings which, by regulation, are based on finished weight of the product. Although most processors indicate the expected product shrink values on their cooked sausage formulation records, it is not required by regulation. Therefore, determining the PFW from the raw formulation may be necessary. Of course, inspection personnel could determine the *actual* percent cook and chill shrinks (see Chapter 12, pages 85-87) and insert them into the above calculation to determine the *actual* finished weight.
- Cooked sausage products identified in section 319.180 of the MPI regulations are limited to 30% total fat or to 40% combined fat and added water. Inspection personnel will use the 10% added water limit for this calculation unless establishment management informs them that their sausage product formulation targets a higher percentage of added water (12%, 15%, etc.).

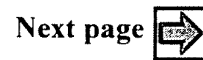
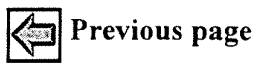



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HOW TO DETERMINE THE PERCENT OF PROTEINACEOUS INGREDIENTS IN A COOKED SAUSAGE

Introduction

Meat and poultry ingredients have a moisture-to-protein ratio (MPR) of approximately 4 (moisture) to 1 (protein). This means that for each percent of meat or poultry protein, the amount of inherent water in the product will be four percent. The laboratory uses this MPR to calculate the amount of added water in those products that have a water limitation. When an analysis is run by the laboratory, it will determine the **total protein** in the product. In order for the laboratory to accurately calculate the amount of added water in cooked sausage products, the amount of protein that comes from proteinaceous additives (classified as Group 2 Protein contributing ingredients in section 318.22 of the MPI regulations) must be deducted from the total analytical protein to determine the amount of meat/poultry protein. Hence, it is imperative that inspection personnel determine and record the percent of proteinaceous ingredients in **the finished or projected finished product** on FSIS Form 10,600-1 when submitting a sample of cooked sausage, formulated with such ingredients, to the laboratory.

Types of Proteinaceous Ingredients (section 318.22 of the MPI regulations and FSIS Directive 7140.2)

- **Group 1 Protein-Contributing Ingredients**

These are ingredients of livestock or poultry origin, such as meat, meat byproducts, mechanically separated species, and poultry products, that are not processed by hydrolysis, extraction, concentrating, or drying.

- **Group 2 Protein-Contributing Ingredients**

These are ingredients from Group 1 Protein-Contributing Ingredients which have been processed by hydrolysis, extraction, concentrating, or drying, or **any other ingredient** which contributes **protein**, such as ingredients of dairy, plant or yeast origin. Examples include: hydrolyzed pork skins, hydrolyzed plant protein, nonfat dry milk, milk protein hydrolyzate, autolyzed yeast extract, and beef extract.

Procedure Table

The procedure table below can be used to determine the percentage of Group 2 Protein-Contributing Ingredients in cooked sausages on a **per batch basis** that must be indicated on FSIS Form 10,600-1 when submitting a sample to the laboratory for added water analysis.

STEP	PROCEDURE	EXAMPLE																						
1	Examine the label transmittal form, ingredients statement, or establishment formulation records to determine if Group 2 Protein-Contributing Ingredients were used in the sampled formulation of cooked sausage.	<p style="text-align: center;">Bologna Formula</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td>Beef Trimmings</td><td style="text-align: right;">250.00 lb</td></tr> <tr><td>Pork Trimmings</td><td style="text-align: right;">150.00 lb</td></tr> <tr><td>Water</td><td style="text-align: right;">110.00 lb</td></tr> <tr><td>Chicken meat</td><td style="text-align: right;">65.00 lb</td></tr> <tr><td>ISP</td><td style="text-align: right;">11.00 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">7.00 lb</td></tr> <tr><td>Mustard Flour</td><td style="text-align: right;">3.75 lb</td></tr> <tr><td>Flavorings</td><td style="text-align: right;">2.00 lb</td></tr> <tr><td>Cure mix (6.25% nitrite w/ salt carrier)</td><td style="text-align: right;">1.00 lb</td></tr> <tr><td>Sodium Erythorbate</td><td style="text-align: right;"><u>0.25 lb</u></td></tr> <tr><td>Total Batch Weight</td><td style="text-align: right;">600 lb</td></tr> </table> <p><i>Added water target is 15%</i></p>	Beef Trimmings	250.00 lb	Pork Trimmings	150.00 lb	Water	110.00 lb	Chicken meat	65.00 lb	ISP	11.00 lb	Salt	7.00 lb	Mustard Flour	3.75 lb	Flavorings	2.00 lb	Cure mix (6.25% nitrite w/ salt carrier)	1.00 lb	Sodium Erythorbate	<u>0.25 lb</u>	Total Batch Weight	600 lb
Beef Trimmings	250.00 lb																							
Pork Trimmings	150.00 lb																							
Water	110.00 lb																							
Chicken meat	65.00 lb																							
ISP	11.00 lb																							
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Mustard Flour	3.75 lb																							
Flavorings	2.00 lb																							
Cure mix (6.25% nitrite w/ salt carrier)	1.00 lb																							
Sodium Erythorbate	<u>0.25 lb</u>																							
Total Batch Weight	600 lb																							
2	Determine the protein content (%) of each Group 2 Protein-Contributing Ingredient.	The label on the ISP container indicates that the ISP has 90% protein content. A signed letter from the mustard flour manufacturer states that the protein content is 32%.																						
3	Total the weight of all the Group 1 Protein-Contributing Ingredients.	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Beef Trimmings</td><td style="text-align: right;">250 lb</td></tr> <tr><td>Pork Trimmings</td><td style="text-align: right;">150 lb</td></tr> <tr><td>Chicken Meat</td><td style="text-align: right;"><u>+ 65 lb</u></td></tr> <tr><td>Total</td><td style="text-align: right;">465 lb</td></tr> </table>	Beef Trimmings	250 lb	Pork Trimmings	150 lb	Chicken Meat	<u>+ 65 lb</u>	Total	465 lb														
Beef Trimmings	250 lb																							
Pork Trimmings	150 lb																							
Chicken Meat	<u>+ 65 lb</u>																							
Total	465 lb																							
4	Total the weight of all the solid ingredients.	<table style="width: 100%; border-collapse: collapse;"> <tr><td>ISP</td><td style="text-align: right;">11.00 lb</td></tr> <tr><td>Salt</td><td style="text-align: right;">7.00 lb</td></tr> <tr><td>Mustard Flour</td><td style="text-align: right;">3.75 lb</td></tr> <tr><td>Flavorings</td><td style="text-align: right;">2.00 lb</td></tr> <tr><td>Cure mix</td><td style="text-align: right;">1.00 lb</td></tr> <tr><td>Sodium Erythorbate</td><td style="text-align: right;"><u>+ 0.25 lb</u></td></tr> <tr><td>Total</td><td style="text-align: right;">25 lb</td></tr> </table>	ISP	11.00 lb	Salt	7.00 lb	Mustard Flour	3.75 lb	Flavorings	2.00 lb	Cure mix	1.00 lb	Sodium Erythorbate	<u>+ 0.25 lb</u>	Total	25 lb								
ISP	11.00 lb																							
Salt	7.00 lb																							
Mustard Flour	3.75 lb																							
Flavorings	2.00 lb																							
Cure mix	1.00 lb																							
Sodium Erythorbate	<u>+ 0.25 lb</u>																							
Total	25 lb																							
5	Total the weights in Steps 3 and 4 and divide by 100 minus the targeted percent of added water to determine the projected finished cooked sausage weight.	$465 \text{ lb} + 25 \text{ lb} = 490 \text{ lb}$ $490 \text{ lb} \div .85 [85\% (100\% - 15\%)] = 576.47 \text{ lb of finished cooked sausage}$																						
6	Multiply the weight of each Group 2 Protein-Contributing Ingredient used in the formula by its percentage of protein, and total the weights.	<table style="width: 100%; border-collapse: collapse;"> <tr><td>ISP</td><td style="text-align: right;">11 lb</td></tr> <tr><td></td><td style="text-align: right;"><u>× .90 (90%)</u></td></tr> <tr><td></td><td style="text-align: right;">9.9 lb of protein</td></tr> <tr><td>Mustard flour</td><td style="text-align: right;">3.75 lb</td></tr> <tr><td></td><td style="text-align: right;"><u>× .32 (32%)</u></td></tr> <tr><td></td><td style="text-align: right;">1.2 lb of protein</td></tr> <tr><td colspan="2">9.9 lb + 1.2 lb = 11.1 lb of total protein</td></tr> </table>	ISP	11 lb		<u>× .90 (90%)</u>		9.9 lb of protein	Mustard flour	3.75 lb		<u>× .32 (32%)</u>		1.2 lb of protein	9.9 lb + 1.2 lb = 11.1 lb of total protein									
ISP	11 lb																							
	<u>× .90 (90%)</u>																							
	9.9 lb of protein																							
Mustard flour	3.75 lb																							
	<u>× .32 (32%)</u>																							
	1.2 lb of protein																							
9.9 lb + 1.2 lb = 11.1 lb of total protein																								
7	Divide the total from Step 6 by the total from Step 5 and multiply by 100 to determine the percentage of protein from Group 2 Protein-Contributing Ingredients in the cooked sausage.	$\frac{11.1 \text{ lb total protein}}{576.47 \text{ lb of cooked sausage}} \times 100 = 1.93\%$																						

Comments

- Cooked sausage products identified in section 319.180 of the MPI regulations are limited to 30% total fat or to 40% combined fat and added water. Inspection personnel will use the 10% added water limit for this calculation unless establishment management informs them that their sausage product formulation targets a higher percentage of added water (12%, 15%, etc.).
- Establishment management must provide inspection personnel with information stating the protein content (%) of each Group 2 Protein-Contributing Ingredient or ingredient mixture. The protein content may be obtained by laboratory analysis of each Group 2 Protein-Contributing Ingredient or ingredient mixture, certified letter from the manufacturer/supplier, or declaration on the label.
- The percentage of Group 2 Protein-Contributing Ingredients in cooked sausages can also be determined on a *yield basis*. Inspection personnel must determine the average total pounds (yield) of finished cooked sausage of the last five production lots from yield information supplied by the establishment (refer to Chapter 13, [pages 88-90](#)). Suppose the average total pounds of finished bologna in the example above were 571 lb. To find the percentage of Group 2 Protein-Contributing Ingredients in the bologna, divide the total protein found in Step 6 (11.1 lb) by 571 lb and multiply by 100. In this case, 1.94% would be recorded on FSIS Form 10,600-1.

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HOW TO DETERMINE IF A PRODUCT MEETS THE 70/30 LABELING PROVISION

Introduction

Section 317.2(f)(1)(v) of the MPI regulations states "when two meat ingredients comprise at least 70 percent of the meat and meat byproduct [meat block] ingredients of a formula and when neither of the two meat ingredients is less than 30 percent by weight of the total meat and meat byproducts (meat block) used, such meat ingredients may be interchanged in the formula without a change being made in the ingredients statement on labeling materials: *provided*, that the word "and" in lieu of a comma shall be shown between the declaration of such meat ingredients in the statement of ingredients."

For a product to bear a label in which two meat ingredients are connected by the word "and," two criteria must be met.

1. The **two** meat ingredients must equal 70% or more of the **total** meat and meat byproduct ingredients.
2. The lesser of the two meat ingredients must equal 30% or more of the **total** meat and meat by-product ingredients.

Note: When determining the 70/30 labeling provision, **do not** include poultry products in the meat and/or meat byproducts (meat block) portion of the formula.

Procedure Table

Use the procedure table below to determine if a product's label can have two meat ingredients connected by the word "and" in the ingredients statement.

STEP	PROCEDURE	EXAMPLE												
1	Total the weights of the meats and meat byproducts in the formula.	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 60%;">Beef</td><td style="text-align: right;">70 lb</td></tr> <tr><td>Pork</td><td style="text-align: right;">53 lb</td></tr> <tr><td>Beef Tripe</td><td style="text-align: right;">20 lb</td></tr> <tr><td>Veal</td><td style="text-align: right;">15 lb</td></tr> <tr><td>Mutton</td><td style="text-align: right;"><u>17 lb</u></td></tr> <tr><td>Total meat block</td><td style="text-align: right;">175 lb</td></tr> </table>	Beef	70 lb	Pork	53 lb	Beef Tripe	20 lb	Veal	15 lb	Mutton	<u>17 lb</u>	Total meat block	175 lb
Beef	70 lb													
Pork	53 lb													
Beef Tripe	20 lb													
Veal	15 lb													
Mutton	<u>17 lb</u>													
Total meat block	175 lb													
2	Find what 70% of this weight is by multiplying the weight by 0.70.	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 60%;">175 lb</td><td></td></tr> <tr><td>× .70</td><td></td></tr> <tr><td style="border-top: 1px solid black;">122.5 lb</td><td></td></tr> </table>	175 lb		× .70		122.5 lb							
175 lb														
× .70														
122.5 lb														
3	Total the weights of the two meats that are connected with the word "and" on the label. If their combined weight equals or exceeds the weight obtained in Step 2, the first criterion has been met.	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 60%;">Beef</td><td style="text-align: right;">70 lb</td></tr> <tr><td>Pork</td><td style="text-align: right;"><u>53 lb</u></td></tr> <tr><td>Total</td><td style="text-align: right;">123 lb used</td></tr> <tr><td colspan="2" style="text-align: right; padding-top: 10px;">122.5 lb required</td></tr> <tr><td colspan="2" style="text-align: center; padding-top: 10px;">First criterion has been met.</td></tr> </table>	Beef	70 lb	Pork	<u>53 lb</u>	Total	123 lb used	122.5 lb required		First criterion has been met.			
Beef	70 lb													
Pork	<u>53 lb</u>													
Total	123 lb used													
122.5 lb required														
First criterion has been met.														
4	Now multiply the total weight of the meat and meat byproducts by 0.30 to determine what 30% of the total weight is.	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 60%;">175 lb</td><td></td></tr> <tr><td>× .30</td><td></td></tr> <tr><td style="border-top: 1px solid black;">52.5 lb</td><td></td></tr> </table>	175 lb		× .30		52.5 lb							
175 lb														
× .30														
52.5 lb														
5	Compare the weight of the lesser of the two meat products to be connected with the word "and" with the weight obtained in Step 4. If the weight of the meat equals or exceeds the weight in Step 4, the second criterion has been met.	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 60%;">Pork -- 53 lb used</td><td></td></tr> <tr><td>52.5 lb required</td><td></td></tr> <tr><td colspan="2" style="padding-top: 10px;">Second criterion has been met. Hence, this product's ingredient statement can read "Beef and pork or Pork and beef....."</td></tr> </table>	Pork -- 53 lb used		52.5 lb required		Second criterion has been met. Hence, this product's ingredient statement can read "Beef and pork or Pork and beef....."							
Pork -- 53 lb used														
52.5 lb required														
Second criterion has been met. Hence, this product's ingredient statement can read "Beef and pork or Pork and beef....."														

Comment

Remember that *both criterion* must be met before the two meat ingredients can be connected with the word "and" on the label. The order in which the two are listed is immaterial.



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HOW TO DETERMINE THE VOLUME OF A CONTAINER

Introduction

The inspector will often need to determine the volume of various-shaped tanks and containers used by establishments. Pages 107 and 108 will demonstrate how to find the volume of four commonly encountered containers. Definitions for the symbols that appear in the various volume formulae can be found on [page 114](#).

Square or Rectangular Tanks (Flat Bottom)

Formula: $lwh = \text{Volume}$

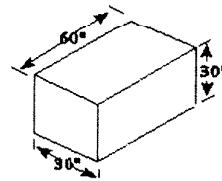
Example:

Length 60"; Width 30"; Height 30"

$60" \times 30" \times 30" = 54,000 \text{ cu in}$

*To convert answer into gallons.
(231 cubic inches per one gallon)*

$54,000 \text{ cu in} \div 231 \text{ cu in/gal} = 233.76 \text{ gal}$



Cylindrical Tanks (Flat Bottom)

Formula: $\pi r^2 h$

Use 3.14 as the numerical equivalent of π

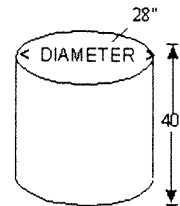
Example:

$r = 14"$; $h = 40"$

$3.14 \times 196 \times 40 = 24,617.60 \text{ cu in}$

*To convert answer into gallons.
(231 cubic inches per one gallon)*

$24,617.60 \text{ cu in} \div 231 \text{ cu in/gal} = 106.56 \text{ gal}$



Cone-Shaped Container

These are usually at the base of a cylindrical tank.

Formula: $\frac{1}{3} \pi r^2 h = V$

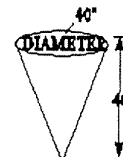
Use 3.14 as the numerical equivalent of π

Example:

$r = 20"$; $h = 40"$:

$\frac{1}{3} \times 3.14 \times 400 \times 40 = 16,746.66 \text{ cu in}$

*To convert answer into gallons.
(231 cubic inches per one gallon)*



$$16,746.66 \text{ cu in} \div 231 \text{ cu in/gal} = 72.49 \text{ gal}$$

Trapezoid-Shaped Container

Formula: $l \times \frac{w + w^1}{2} \times h = V$

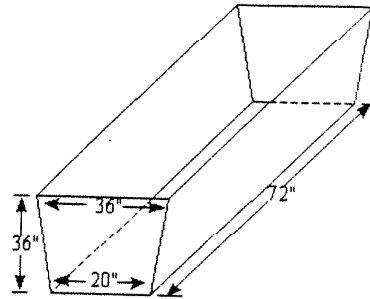
Example:

$l = 72''$; $w = 36''$; $w^1 = 20''$; $h = 36''$

$72 \times \frac{36 + 20}{2} \times 36 = 72,576 \text{ cu in}$

To convert answer into gallons.
(231 cubic inches per one gallon)

$72,576 \text{ cu in} \div 231 \text{ cu in/gal} = 314.18 \text{ gal}$



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APPENDIX

CONVERTING UNITS OF MEASUREMENT

Introduction

To convert units from one measure, such as gallons of water, to another measure, such as pounds of water, you will need to multiply by a **unity factor**. A unity factor is an expression for the number one. Therefore, you are essentially multiplying by one and not changing the value of the expression when multiplying by a unity factor. Only the units in which that value is expressed are changed. The unity factor must be arranged so that the units you want to change from cancel out.

You will need to know certain equivalent units or conversion factors, such as 1 gallon of water = 8.33 lb, to set up unity factors. The unity factor is the fraction expressed as 1 gallon of water/8.33 lb or 8.33 lb/1 gallon of water. Both of these fractions are expressions of the value one. The units you want to convert out of, and the units you want to convert into, determine which unity factor you use.

Example

Express 20 gallons of water in pounds. First, you need to set up the unity factor so that gallons cancel out.

$$20 \text{ gallons} \times \frac{8.33 \text{ lb}}{1 \text{ gallon}} = 166.6 \text{ lb}$$

Using cross-product cancellation, the gallons cancel out and you are left with pounds as the unit of measurement. Once you have the desired units, you can arrive at the correct answer by performing the mathematics. In this example, 20 is multiplied by 8.33 lb to get an answer of 166.6 lb.

Conversion Factors

Weight

U.S. Customary Unit (Avoirdupois)	U.S. Equivalents	Metric Equivalents
One ounce	473.5 grains	28.35 grams
One pound	16 ounces; 7,000 grains	453.59 grams; 0.4536 kilograms

Volume or Capacity

U.S. Customary Unit	U.S. Equivalents	Metric Equivalents
Fluid ounce	1.804 cubic inches	29.573 milliliters
One pint	16 fluid ounces	0.473 liter
One quart	2 pints	0.946 liter
One gallon	4 quarts; 231 cubic inches	3.785 liters
One barrel	31 ½ gallons	-----
One cubic foot	1,728 cubic inches	0.028 cubic meter

Weight and Volume

Metric System	U.S. Equivalents	U.S. Customary Unit
One kilogram(Kg)	35.2 ounces	2.2 pounds
One gram	0.0022 pounds	0.035 ounce
One liter	1.06 quart	0.26 gallon

Temperature

To change from Fahrenheit (F) to Centigrade (C):

$$\text{F} = (9/5 \text{ C}) + 32$$

To change from Centigrade (C) to Fahrenheit (F):

$$\text{C} = 5/9 (\text{F} - 32)$$

NOTE: For each 9° increase or decrease on a Fahrenheit thermometer the Celsius thermometer will increase or decrease 5°. Therefore, we have a 9 to 5 ratio or $9 \div 5 = 1.8$ (factor). To use 9/5, multiply by 1.8. To use 5/9, divide by 1.8.

Decimals and Percentages

To convert percent to decimal, divide by 100.
 To convert decimal to percent, multiply by 100.

Converting Pounds and Ounces

1. **Pounds to ounces.**

<i>Procedure</i>	<i>Example</i>
a. When pounds expression does not include a fraction.	3.4 pounds
 Multiply pounds by the conversion factor 16 (16 ounces = 1 lb).	$3.4 \times 16 = 54.4$
 Answer is in ounces.	54.4 oz
b. When fraction is included in pounds.	3 $\frac{1}{4}$ pounds
 Convert fraction portion to a decimal.	$\frac{1}{4} = 1 \div 4 = .25$
 Add whole number to the fraction.	$3 + .25 = 3.25$
 Multiply pounds and decimal portion by the conversion factor 16 (16 oz = 1 lb).	$3.25 \times 16 = 52$
 Answer is in ounces.	52 ounces
2. Ounces to pounds.	

<i>Procedure</i>	<i>Example</i>
Determine the number of ounces.	36 ounces
Divide the ounces by the conversion factor 16 (16 ounces = 1 lb).	$36 \div 16 = 2.25$
Answer is in pounds.	2.25 pounds

3. Portions of a pound to ounces.

<i>Procedure</i>	<i>Example</i>
Determine portion of a pound.	$\frac{3}{4}$ pounds
Convert fraction to a decimal.	$3 \div 4 = .75$
Multiply decimal portion of a pound by the conversion factor 16 (16 oz = 1 lb).	$.75 \times 16 = 12$
Answer is in ounces.	12 ounces

4. Ounces to pounds and fractions of a pound

<i>Procedure</i>	<i>Example</i>
Determine the weight.	16 $\frac{1}{4}$ oz
Change fraction portion to a decimal.	$\frac{1}{4} = 1 \div 4$ $1 \div 4 = .25$
Add decimal portion of ounces to whole ounces.	$16 + .25 = 16.25$ oz
Divide total ounces by 16.	$16.25 \div 16 = 1.015$
Convert decimal portion to a fraction.	$.015 = \frac{15}{1000}$
Reduce fraction to lowest common denominator.	$\frac{15}{1000} = \frac{3}{200}$
Add fraction to total pounds.	$1 + \frac{3}{200} = 1 \frac{3}{200}$
Answer in pounds and fraction of a pound.	$1 \frac{3}{200}$ lb

5. Decimal equivalent of ounces in pounds.

<i>Ounces</i>	<i>Decimal equivalent pounds</i>
1	.0625
2	.125
3	.1875
4	.25
5	.3125
6	.375
7	.4375
8	.5
9	.5625
10	.625
11	.6875
12	.75
13	.8125
14	.875
15	.9375
16	1.0

Converting Metric Weights to U.S. Equivalents (Avoirdupois)

Most of the world outside the United States uses the Metric System and many companies in the U.S. are using scales that are calibrated in grams instead of ounces.

1. Grams to Ounces.

<i>Procedure</i>	<i>Example</i>
Determine the number of grams.	227 grams
Divide the grams by the conversion factor 28.35 (1 ounce = 28.35 grams).	$227 \div 28.35 = 8.0$
Answer is in ounces.	8.0 ounces

2. Kilograms to pounds.

<i>Procedure</i>	<i>Example</i>
Determine the number of kilograms.	40 kg
Multiply the kilograms by the conversion factor 2.2 (1 lb = 2.2 kg).	$40 \times 2.2 = 88$
Answer is in pounds.	88 pounds

Converting Fahrenheit to Celsius or Celsius to Fahrenheit

1. Fahrenheit to Celsius.

Example:

$$C = (F - 32) \div 1.8$$

108° Fahrenheit

$$108^\circ F - 32 = 76^\circ F$$

$$C = 76 \div 1.8 = 42.2^\circ$$

$$C = 42.2^\circ$$

Procedure:

 Formula

- Determine Fahrenheit temperature in degrees.
- Subtract 32° from 108° F.
- Divide 76° by 1.8.
- Result is degrees Celsius equal to the known Fahrenheit degree temperature.

2. Celsius to Fahrenheit.

Example:

$$F = C \times 1.8 + 32$$

40° Celsius

$$40^\circ C \times 1.8 = 72^\circ F$$

$$F = 72 + 32 = 104^\circ$$

$$F = 104^\circ$$

Procedure:

 Formula

- Determine Celsius temperature in degrees.
- Multiply 40° Celsius times 1.8.
- Add 72° and 32°.
- Result is degrees Fahrenheit equal to the known Celsius degree temperature.



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SYMBOLS

π (Pi) = 3.14

 = Diameter

 = Radius

 ² = Radius squared (r × r)

l = Length

w = Width

h = Height

V = Volume



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SOLVING EQUATIONS THAT HAVE AN UNKNOWN VALUE

Introduction

This section gives a very simplified explanation of how to solve the basic equations used to determine the amount of restricted ingredients permitted.

Methods

- **Unknown Value is Part of the PPM Formula**

To solve for an unknown value in the ppm equations shown in Chapter 3, [pages 13-31](#) and Chapter 11, [page 81](#), you need to first restructure them so that the unknown value (n) is on one side of the equation and all the known values are on the other side of the equation.

Generic Model

To algebraically isolate an unknown value to one side of the equation and have all of the known values on the other, you need to perform identical functions on both sides of the equation.

The following ppm formula will be used to illustrate the generic model.

$$\frac{\text{lb Restricted Ingredient (RI)} \times 1,000,000}{\text{lb meat block}} = \text{ppm}$$

If all the values in the equation are known except the pounds of RI, you need to isolate pounds of RI (which is n) on one side of the equation and solve for it.

$$\frac{n \times 1,000,000}{\text{lb meat block}} = \text{ppm}$$

In this instance, you'll want to move all your known values to the right side of the equation, leaving the n on the left side where it is the numerator. First, move "1,000,000" and "lb meat block" to the same side of the equation as ppm, by multiplying both sides of the equation by "lb meat block". This cancels "lb meat block" on the n side of the equation.

$$\frac{\cancel{\text{lb meat block}} \times n \times 1,000,000}{\cancel{\text{lb meat block}}} = \text{ppm} \times \text{lb meat block}$$

$$n \times 1,000,000 = \text{ppm} \times \text{lb meat block}$$

Next, to leave n by itself, divide both sides of the equation by "1,000,000". This cancels "1,000,000" on the n side of the equation.

$$\frac{n \times \cancel{1,000,000}}{\cancel{1,000,000}} = \frac{\text{ppm} \times \text{lb meat block}}{1,000,000}$$

$$n = \frac{\text{lb meat block} \times \text{ppm}}{1,000,000}$$

Now you can solve for n . This same procedure is used to isolate n to one side of *any* equation.

Example

In the equation on [page 14](#), the maximum amount of sodium nitrite is the unknown and is represented by the n in the equation:

$$\frac{n \times 1,000,000}{500 \text{ lb}} = 156 \text{ ppm}$$

In this instance, you'll want to move all your known values to the right side of the equation, leaving the n on the left

where it is the numerator. First, multiply both sides of the equation by 500. This cancels 500 lb from the n side of the equation.

$$\frac{500 \times n \times 1,000,000}{500} = 156 \times 500$$

$$n \times 1,000,000 = 156 \times 500$$

Next, divide each side of the equation by 1,000,000. This cancels 1,000,000 on the n side of the equation.

$$\frac{n \times 1,000,000}{1,000,000} = \frac{500 \times 156}{1,000,000}$$

$$n = \frac{500 \times 156}{1,000,000}$$

$$n = \frac{78,000}{1,000,000}$$

$$n = .078$$

.078 lb is the maximum amount of nitrite allowed.

Example

In the equation on [page 20](#), the pounds of pickle is the unknown value and is represented by n in the equation:

$$\text{200 ppm} = \frac{1.75 \times 0.25 \times 1,000,000}{n}$$

We need to put n on one side of the equation all by itself in order to find out its value. Which side? The side on which it will appear in the numerator. (Note that in the equation it is presently in the denominator.)

$$\frac{\text{Numerator} \rightarrow 200}{\text{Denominator} \rightarrow 1} = \frac{1.75 \times 0.25 \times 1,000,000}{n}$$

[You don't normally write the denominator when it's 1 - we just did here for illustration.]

To move n to the side where it will appear in the numerator, multiply both sides of the equation by $n/1$. This cancels the n on the side of the equation where it was.

$$\frac{n \times 200}{1} = \frac{1.75 \times 0.25 \times 1,000,000 \times n}{1}$$

$$n \times 200 = 1.75 \times 0.25 \times 1,000,000$$

We're not through though, because it must be alone before you can solve for its value. We need to transfer the 200 from the left side of the equation (where it is in the numerator) to the right side of the equation (where it will appear in the denominator). Thus you must divide both sides of the equation by 200. This cancels 200 ppm on the n side of the equation.

$$\frac{n \times 200}{200} = \frac{1.75 \times 0.25 \times 1,000,000}{200}$$

$$n = \frac{1.75 \times 0.25 \times 1,000,000}{200}$$

Now you can solve the equation for n and find the pounds of pickle that can be made.

$$n = \frac{437,500}{200}$$

$$n = 2187.5 \text{ lb}$$

A minimum of 2187.5 pounds of pickle can be made.

Example

In the equation on [page 21](#), the unknown is the maximum amount of sodium nitrite:

$$\text{200 ppm} = \frac{n \times 0.25 \times 1,000,000}{1500}$$

$$1500 \times 200 = \frac{n \times 0.25 \times 1,000,000 \times 1500}{1500}$$

$$1500 \times 200 = n \times 0.25 \times 1,000,000$$

$$\frac{1500 \times 200}{0.25 \times 1,000,000} = \frac{n \times 0.25 \times 1,000,000}{0.25 \times 1,000,000}$$

$$\frac{200 \times 1500}{0.25 \times 1,000,000} = n$$

$$\frac{300,000}{250,000} = n$$

$$1.2 = n$$

1.2 pounds of sodium nitrite is permitted.

Example

In the equation on [page 81](#), the unknown is the maximum percent pump:

$$\text{200 ppm} = \frac{1.75 \times n \times 1,000,000}{1500}$$

$$1500 \times 200 = \frac{1.75 \times n \times 1,000,000 \times 1500}{1500}$$

$$1500 \times 200 = 1.75 \times n \times 1,000,000$$

$$\frac{1500 \times 200}{1.75 \times 1,000,000} = \frac{1.75 \times n \times 1,000,000}{1.75 \times 1,000,000}$$

$$\frac{1500 \times 200}{1.75 \times 1,000,000} = n$$

$$\frac{300,000}{1,750,000} = n$$

$$0.1714 = n$$

Multiply .1714 by 100 to convert to a percent, and 17.14% is the maximum percent pump.

Practice solving similar equations by creating your own formulation problems. In a short time you should be solving such problems easily.

- **Unknown Value is Part of a Ratio or Proportion**

The projected finished weight (PFW) or calculated finished weight in Chapter 14, [pages 100 and 101](#), is determined by applying the methods used for solving a ratio or proportion problem. Ratio or proportion problems are expressed as equations that contain an unknown value.

Generic Model

When it is known that the weight of certain ingredients makes up a certain percentage of a product, you can find the total weight (100%) of a product by using the following procedure.

- State the problem in the "if-then" form.

When a problem is stated in the "if-then" form, it is easily converted to an equation.

Example

Here is a problem:

85% of a product is 340 lb. What is the total weight of the product?

Here is the same problem stated in the "if-then" form:

If 340 lb is 85% of the product, then what would be the total weight (100%) of the product?

■ Write the equation.

Let the letter n represent the word "what" in the above "if-then" problem statement and you have:

If 340 lb is 85% of the product, then n would be the total weight (100%) of the product.

The equation is simply : $\frac{340}{n} = \frac{.85 (85\%)}{1.00 (100\%)}$

■ Cross multiply.

The first step in solving for n is to "cross multiply". "Cross multiply" means that you multiply the numerator of each side of the equation by the denominator of the other side.

Example: Cross multiplying the above equation you get: $\frac{340}{n} = \frac{.85}{1.00}$

$$\text{nbsp}340 \times 1.00 = .85 \times n$$

$$\text{nbsp}340 = .85n$$

■ Isolate n on one side of the equation.

To algebraically isolate an unknown value to one side of the equation and have all of the known values on the other, you need to perform identical functions on both sides of the equation. In this instance, you'll want to move all your known values to the left side of the equation, leaving the n on the right side. To leave n by itself, divide both sides of the equation by .85. This cancels .85 on the n side of the equation.

$$\frac{340}{.85} = \frac{.85n}{.85}$$

$$\text{nbsp}400 = n$$

If 340 lb is 85% of the product, then 400 lb would be the total weight (100%) of the product.

Example

Given the cooked sausage formula from [page 100](#), determine whether or not the NFDM is in compliance with the regulations.

Bologna Formula

Beef	250 lb
Pork	250 lb
Water/Ice	70 lb
Rework (has NFDM, CSS and disodium phosphate)	50 lb
NFDM	18 lb
Corn Syrup Solids	15 lb
Salt	5 lb
Flavorings	4 lb
Disodium Phosphate	3 lb
Sodium Nitrate	10.75 oz
Sodium Erythorbate	4.00 oz
Sodium Nitrite	<u>&nbsp; 1.25 oz</u>
Total batch	666 lb

Targeted added water--10%

To set this problem up as a ratio or proportion problem, subtract the "like product" rework (i.e., product with the same ingredients as in the new formula) from the batch weight.

$$\begin{array}{r} \text{\ 666 lb formula weight} \\ - \text{\ 50 lb rework} \\ \hline \text{\ 616 lb (100\%)} \end{array}$$

Next, subtract the weight of the water or ice and other restricted ingredients (those with a limitation based on the PFW) that are assumed to have been added in their maximum amounts and percentages from the total weight of the new ingredients (100%).

 616 lb New Ingredients	100.0%
- 70 lb Water/ice	<u>&nbsp;10.0%</u>
 546 lb	90.0%
- 18 lb NFDM	<u>&nbsp;3.5%</u>
 528 lb	86.5%
- 15 lb CSS	<u>&nbsp;2.0%</u>
 513 lb	84.5%
- 3 lb Phosphate	<u>&nbsp;0.5%</u>
 510 lb	84.0%

At this point, you know that 84% of the finished product is 510 lb. However, you do not know the projected finished weight or theoretical total weight of the compliant bologna product. To find the PFW, state the problem in the "if-then" form:

If 510 lb is 84% of the finished bologna product, then what would be the projected finished weight (100%) of the bologna product?

Let *n* represent the word "what" in the "if-then" problem statement:

If 510 lb is 84% of the finished bologna product, then *n* would be the projected finished weight (100%) of the bologna product.

Write the equation for the "if-then" problem statement.

$$\frac{510 = 84\%}{n = 100\%}$$

Change the percentages to decimals and cross multiply.

$$\text{\ 510} = .84n$$

To solve for n , divide both sides of the equation by $.84$.

$$\frac{510}{.84} = \frac{607.14}{.84}$$

$607.14 \text{ lb} = n$ (represents 100% of the compliant product)

To determine the maximum amount of NFDm allowed in the projected finished weight of the bologna, state the problem in the "if-then" form. You know that NFDm is limited to 3.5% in the finished product. Therefore:

If 607.14 lb represents 100% of the finished bologna product, then what would be the weight of 3.5%?

Let n represent the word "what" in the "if-then" problem statement:

If 607.14 lb represents 100% of the finished bologna product, then n would be the weight of 3.5%.

Write the equation for the "if-then" problem statement.

$$\frac{607.14}{n} = \frac{100\%}{3.5\%}$$

Change the percentages to decimals and cross multiply.

$$607.14 \times .035 = n \times 1$$

$$21.24 = n$$

The bologna product is in compliance because the maximum amount allowed is 21.24 lb and only 18 lb is being used.



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ABBREVIATIONS AND GLOSSARY

ABBREVIATIONS

The following terms are used in their shortened form in this Handbook:

 BHA	Butylated Hydroxyanisole
 BHT	Butylated Hydroxytoluene
 CS	Corn Syrup
 CSS	Corn Syrup Solids
 FMIA	Federal Meat Inspection Act
 FSIS	Food Safety and Inspection Service
 GDL	Glucono delta-lactone
 GS	Glucose Syrup
 ISP	Isolated Soy Protein
 MPI	Meat and Poultry Inspection
 MS	Malt Syrup
 NFDM	Non-Fat Dry Milk
 PFF	Protein Fat-Free
 PFW	Projected Finished Weight
 PM	Policy Memorandum
 PPIA	Poultry Products Inspection Act
 PPM	Parts Per Million
 RI	Restricted Ingredient
 SAPP	Sodium Acid Pyrophosphate
 TBHQ	Tertiary Butylhydroquinone

GLOSSARY

Actual Percent Pump. The amount (pounds) of a water-based or oil-based solution (curing, tenderizing, marinating, etc.) pumped or injected into a piece of meat or poultry that is not held for a period of time and allowed to drain prior to being further processed. This is expressed as a percentage of the weight of the meat or poultry before it is pumped with the solution.

Additive. Anything added to a meat or poultry product other than meat, poultry, or meat and poultry byproducts.

Antioxidant. A substance that retards oxidation. Antioxidants are added to meat and poultry products to prevent oxidative rancidity of fats.

Binder. An additive used to improve the binding properties of lean meat or poultry or meat and/or poultry mixtures. Binders have strong affinity for water, therefore misuse of binders may cause the product to be adulterated with excess water.

Brine Solution. An amount of water that contains salt either alone or with other ingredients; often referred to as a pickle.

Comminuted. Ground meat, poultry, meat byproducts, or poultry byproducts; finely comminuted meat, poultry, meat byproducts or poultry byproducts are often referred to as emulsified.

Cover Pickle. A liquid brine, cure, or vinegar solution that covers submerged pieces of meat or poultry.

Cure. To add salt or salt brine and nitrite and/or nitrate, with or without sugar and other ingredients, to a meat or poultry product.

Cured, Comminuted Products. Products consisting of coarsely or finely ground meat and/or poultry and cure ingredients mixed together (bologna, turkey salami, pepperoni, pepper loaf, etc.).

Cured, Dry Products. Products that have dry or powdered cure ingredients directly applied to the surface of the meat or poultry (ham, pork shoulder, pork belly, etc.).

Cured, Pickled Products. Products that are pumped or massaged with, or immersed in, a pickle solution of cure ingredients (ham, corned beef, poultry breasts, etc.).

Dry Salt Cured Products. Products that have had a pickle solution of cure ingredients directly pumped into the muscle tissue (not through the circulatory system) before having the dry or powdered cure ingredients applied to the surface of the meat or poultry.

The meat and poultry may not be immersed in the pickle solution. To facilitate the penetration of salt, the meat or poultry may be momentarily moistened just before being covered with the dry curing ingredients.

Effective Percent Pump. The weight gained (expressed as a percent) by the meat or poultry after draining for a specified amount of time (up to a maximum of 30 minutes), and represents the amount of reactive solution that remains in the product.

Any reactive ingredients (nitrites, phosphates, enzymes, etc.) in the solution are thought to remain in solution during the 30 minutes after pumping, rather than reacting immediately with the meat or poultry protein. Therefore, using the effective percent pump in calculations more accurately reflects the ingoing amount of ingredients.

Extender. An additive that increases the weight and changes the texture of meat and poultry products, e.g., cereal, starches, etc.

Finished Weight, Finished Product Weight, or Weight of the End Product. All these terms refer to the weight of the product after processing.

The finished product (after processing) could be a cooked, ready-to-eat turkey breast or could be a raw, ready-to-cook corned beef brisket, depending up the processing procedures performed at the establishment and the form in which the products are packaged and labeled for sale.

Unlike the green weight, which is the weight of the meat and/or poultry only, the finished weight is the weight of the meat and/or poultry plus the weight of any ingredients added during processing, minus the *actual* shrink.

Formulated Weight, Weight of the Formulation, or Batch Weight. The total weight of all the ingredients of a product *after* it is formulated, including pumping and draining, if relevant.

For cured or uncured comminuted products, the formulated weight would be the weight of the meat and/or poultry plus the weight of all the ingoing ingredients.

For products that have been treated with a water-based or oil-based solution (curing, tenderizing, marinating, etc.), the formulated weight would be the weight of the meat and/or poultry plus the weight of the solution's ingredients at a specified percent pump or pick-up.

Product formulation may be found on the label approval transmittal form or in the establishment's formulation records. For uncooked products, formulated weight and finished weight may be identical.

Green Weight. The weight of the meat and/or poultry (ham, breast, belly, beef or pork trim for sausage, etc.) prior to processing (grinding, pumping, breading, cooking, drying, etc.). Nothing has been added or removed from the meat and/or poultry.

In section 319.107 of the regulations, the term *fresh*, as in "... weight of the fresh uncured pork bellies ...", means the same as "*green weight*" because it is referring to bellies that are unprocessed.

Ingoing Amount. The amount of an ingredient added to a product when the product is being formulated. The green weight of the meat and/or poultry is an ingoing amount.

Meat. The part of the muscle of any cattle, sheep, swine, or goat that is skeletal or that is found in the tongue, in the diaphragm, in the heart, or in the esophagus with or without the accompanying and overlying fat, and the portions of bone, skin, sinew, nerve, and blood vessels which normally accompany the muscle tissue and which are not separated from it in the process of dressing. It *does not* include the muscle found in the lips, snouts, or ears.

Meat Block. A packing plant term that represents the total of the green weights of the meat and/or poultry and/or meat/poultry byproducts used in the formulation of a product.

Meat Byproduct. Any part capable of use as human food, other than meat, which has been derived from one or more cattle,

sheep, swine, or goats.

Meat Food Product. Any article capable of use as human food which is made wholly or in part from any meat or other portion of the carcass of any cattle, sheep, swine, or goats, except such articles as organotherapeutic substances, meat juice, meat extract, and the like, which are only for medicinal purposes.

Overhauling. The process of transferring meat or poultry from one curing vat to another and then pouring the original curing solution over the meat or poultry when it is in the second vat. This process insures a more uniform cure by mixing the curing solution and exposing individual pieces to the curing solution at a different location in the curing vat.

Percent Gain. The weight gained by a meat or poultry cut or product resulting from the application of a water-based or oil-based solution. This is expressed as a percentage of the meat or poultry cut or product before the solution was applied.

Percent Pick-up. The amount (pounds) of a water-based or oil-based solution (curing, tenderizing, marinating, etc.) absorbed by an immersed piece of meat or poultry. This is expressed as a percentage of the weight of the meat and poultry before it is treated with the solution.

Percent Pump. The amount (pounds) of a water-based or oil-based solution (curing, tenderizing, marinating, etc.) pumped or injected into a piece of meat or poultry. This is expressed as a percentage of the weight of the meat or poultry before it is pumped with the solution.

Most pumped meat and poultry products are purposely held for a period of time, and allowed to drain prior to being further processed. When pumped products are drained, restricted ingredient calculations should be made using the effective pump rather than the actual pump. The drain time is not mandatory, so for products that are pumped, stuffed, and cooked in a continuous process, the actual percent pump should be used in calculations.

Phosphate. An additive used to increase the water-retaining capacity of meat and poultry tissue. Misuse of phosphate solutions may cause the product to be adulterated with excess water.

Pickle. Any brine, cure, vinegar or spice solution used to preserve or flavor food.

Poultry. Any domesticated bird (chicken, turkeys, ducks, geese, or guineas), whether live or dead.

Poultry Food Product. Any product capable of use as human food which is made in part from any poultry carcass or part.

Poultry Product. Any poultry carcass or part or any product which is made wholly or in part from any poultry carcass or part.

Projected Finished Weight (PFW) or Calculated Finished Weight. The calculated weight a product is *expected* to have after it is processed. Projected finished weight may be calculated for either raw or cooked products.

For a raw comminuted product *with* a water limitation, the PFW would be the formulated weight *minus* the weight of the water in the formula and its targeted percentage in the finished product, *and minus* the weight and percentage limitation of each restricted ingredient (with a limitation based on the PFW), divided by the percentage of the formula weight remaining after all the aforementioned deductions have been made.

For a raw comminuted product *without* a water limitation, the PFW would be the formulated weight *minus* the weight and percentage limitation of each restricted ingredient (with a limitation based on the PFW), divided by the percentage of the formula weight remaining after the aforementioned deductions have been made.

For a cooked comminuted product, the PFW would be the formulated weight, minus the *expected* shrink.

Protein Fat-Free (PFF). The meat protein content (inherent in the raw, unprocessed pork cut) expressed as a percentage of the nonfat portion of the finished weight.

Proteolytic. A term used to describe substances, usually enzymes, that attack or digest complex proteins, resulting in simpler proteins or amino acids.

Pump. To inject a solution (curing, tenderizing, etc.), either intramuscularly or intra-arterially into a cut of meat or poultry.

Restricted Ingredient. A product component that:

- Must be used in some required amount or percentage when the product is formulated or be in the finished product in some required amount or percentage: or
- May be added to a product when the product is formulated or be a component of the finished product in an amount no greater than a specified maximum amount or percentage; and/or
- In addition to quantitative limits, may be subject to certain use conditions.

- May be prohibited from use in certain products.

Rework. Any fully or partially processed product rerouted for reasons other than unwholesomeness or adulteration and intended for inclusion in cooked sausages, loaves, and similar products.

Shrinkage. The weight lost by a meat or poultry product during cooking, cooling, drying and storing.

Standard of Identity. The minimum requirements (cut, ingredients, processing, etc.) for meat or poultry food product to be identified or labeled with an established or acceptable name.

Synergist. A substance, that when used with another has a better effect than if each one was used alone.



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4/29/98

Koch Supplies Inc

DROCK

MR.BILL COLEMAN

()

Quote - DPR/42998

SAME

Total - \$154,623.00

65 EAST INDIA ROW

Salesrep - HOUSE ACCOUNT

BOSTON

MA 02110

Refernce - BUFFALO MEAT

Terms - (N) 30% DOWN,60% PRE-DEL,10% NET30

Qty	Item	Price	Extended
1	320157 KLE-200 2-TRUCK SMOKEHOUSE	43,688.00	43,688.00
1	350370 KLE MMP CONTROL PANEL (MICR	6,495.00	6,495.00
1	320254 NATURAL SMOKER F/KLE-2/300	7,995.00	7,995.00
48	320288 KLE-100 JERKY SHELF,1/2" CT	138.50	6,648.00
6	320370 KLE 10 STATION NESTING TRUC	1,795.00	10,770.00
1	350003 GP3 1-TRK SMOKEHOUSE,3PHASE	14,995.00	14,995.00
1	570155 KVF-55 VAC. STUFFER	44,995.00	44,995.00
1	291980 KFM-110 MIXER, 208V,3PHASE	6,295.00	6,295.00
1	281935 KS-35 SS BOWL CUTTER,220/3/	11,995.00	11,995.00
1	350010 GP-3 4-STATION SMOKETRUCK	747.00	747.00

