

III. HEALTH AND SAFETY GUIDELINES

NIOSH has formulated these guidelines as a result of this study. These recommendations apply to workers who render animal materials, which includes the use of heat or mechanical means to reduce fat-containing tissues, bones, and whole carcasses, the reclaiming of grease, and the production of blood and feather meal. These recommendations also apply where dead stock is skinned, gutted, and boned and hides are trimmed and processed. They are not intended for workers who reduce marine raw materials because of differences in the process, raw material, and finished product.

Engineering Controls

Engineering controls are the preferred approach to minimize the hazards from lifting, pushing, and pulling large and heavy containers and carcasses, excessive noise, wet and slippery surfaces, grease and fat buildup, unguarded process equipment, dust exposure, and potential toxic gas buildup in confined spaces. NIOSH recommends engineering controls to minimize the following hazards in rendering plants.

(a) Lifting

A program should be instituted to identify hazardous lifting jobs.

(1) All manual lifting jobs should be classified according to the criteria set forth in NIOSH's Work Practice Guide for Manual Lifting.

(2) Manual lifting tasks classified between the action level (AL) and the maximum permissible level (MPL) require either administrative or engineering controls; lifting tasks above the MPL require engineering controls such as cranes and hoists [19].

(b) Pushing and Pulling

A program should be instituted to identify hazardous pushing and pulling jobs.

(1) Engineering controls such as hoists, conveyors, hand trucks, and automatic barrel decanters should be considered when frequent pushing or pulling is a part of any job.

(2) If mechanical conveying devices are not available to minimize hazardous pushing and pulling, the layout of work stations in the plant should be planned to minimize the distance objects have to be transported. For example, drums should be unloaded as close as possible to processing operations.

(c) Noise

The employer should be aware of the Federal regulation (29 CFR 1910.95) that protects workers against the effects of noise exposure.

(1) To reduce noise exposure, techniques such as preventive maintenance, using proper operating speed, choosing appropriate equipment locations, and simple machine treatments (eg, vibration isolation or control) should be considered first.

(2) Other forms of noise control, such as shields and barriers, should be considered when these other measures are inadequate.

(3) NIOSH's Industrial Noise Control Manual, the United Auto Workers' Noise Control (Workers' Manual), OSHA's Noise Control Manual, and other similar publications should be consulted [21,45,46].

(d) Heat and Air Contaminants

A program should be instituted to periodically identify any heat, humidity, or air contaminant problems in the plant.

(1) Ventilation systems are recommended for controlling these problems.

(2) Ventilation control of fat and grease emissions is recommended when the buildup of these materials makes walking and working surfaces hazardous.

(3) Ventilation control of fat and grease emissions is recommended when the buildup of these materials in the plant creates a fire hazard.

(4) Local exhaust ventilation is recommended when general ventilation does not adequately control these hazards.

(5) Ventilation and/or air-conditioned enclosures should be provided in areas considered to be hot environments.

(6) Ventilation systems should be designed to prevent air movement from raw material or processing areas to final product areas.

(7) Ventilation systems should be subjected to regular cleaning and preventive maintenance to ensure their continued effectiveness.

(8) Ventilation systems discharging into the outside air should conform to applicable local, state, and Federal air pollution regulations.

(e) Machines and Conveyors

Guarding of machinery and power transmission equipment in a rendering plant should provide the maximum degree of protection to the workers.

(1) Machines and power transmission equipment can be guarded with barriers, or be isolated.

(2) Screw conveyors should be fully covered or guarded so that neither workers nor their clothing can contact moving parts.

(3) Federal regulations (29 CFR 1910.219) exist which require mechanical power-transmission equipment (shafts, gears, pulleys, etc) within 7 feet (2.1 m) or less of the floor or of work platforms be covered or guarded.

(f) Working in Confined Spaces

Ventilation, as described in the NIOSH criteria document Working in Confined Spaces [34], is recommended for all confined space work. Installation of a ventilation system (eg, fans) for a confined space, where outside air is introduced and stagnant air is exhausted, will help prevent accumulation of any toxic gases.

(g) Walking-Working Surfaces

Walking-working surfaces should receive attention to minimize the number of accidents involving them.

(1) Walking-working surfaces should be slip-resistant.

(2) Worn walking-working surfaces that have lost their slip-resistant characteristics should be replaced or refinished.

Work Practices

(a) Walking-Working Surfaces

Injuries caused by unsafe working surfaces can be reduced by minimizing the accumulation of grease or fat on floors, and by following the guidelines below:

(1) Working surfaces, such as floors, platforms, and stairs, shall be kept clean and orderly. Federal regulation 29 CFR 1910.22 requires aiseways and passageways be kept clear, dry, and in good repair.

(2) All elevated platforms, pits, and stairways should be guarded. Pits receiving raw material should be guarded on all sides. If necessary, guards may be removable on not more than two sides. The employer should be aware of the Federal regulations (29 CFR 1910.23-1910.24) that exist for the guarding of floor and wall openings, holes, and stairs.

(b) Hand-Held Equipment

The use of hand-held equipment can be hazardous in rendering tasks [13]. Compliance with the following recommendations will reduce the number of injuries associated with hand-held equipment.

(1) Personal protective equipment such as mesh gloves, abdominal protectors, and arm guards should be worn by workers for hide removal and any carcass cutting operations.

(2) The employer should be aware of the Federal regulations (29 CFR 1910.241-1910.247) that protect the worker against the hazards of hand and portable powered tools. Subsections of 29 CFR 1910.243 entitled "(a) Portable powered tools" and "(b) Pneumatic powered tools and hoses" are specifically relevant to rendering processes.

(3) Employers should ensure that knives with hand guards are used in all carcass cutting and hide removal procedures.

(4) Employers should ensure that workers using knives are provided with scabbards and are instructed in their proper use.

(5) Employers should ensure that electric hand tools are properly grounded when in use.

(6) Employers should ensure that all hand-held electrical tools with pressure switches (deadman controls) are considered for use.

(c) Emergency Procedures

When emergency procedures are established and practiced, prompt and effective action is facilitated, and the adverse effects of an emergency can be minimized. Emergency procedures in rendering plants should include plans such as those described below.

(1) Fires, Chemical Leaks, Electrical Malfunctions, and Evacuation

(A) Personal protective equipment and protective clothing should be used by personnel during emergency operations. Respirators should be placed at readily accessible and clearly labeled locations.

(B) Workers not engaged in correcting the emergency should be evacuated from hazardous areas. The perimeters of these areas should be posted and secured.

(C) Only those personnel trained against the attendant hazards should control and repair leaks and fight fires.

(D) Firefighting procedures should be established for areas where flammable materials are used. Requirements for fire protection are stated in 19 CFR 1910 Subpart L (156-165).

(2) Administration of First Aid

(A) At least one person per shift in each rendering facility should be trained and certified in first-aid procedures. As a minimum, training should include proper treatment for slips and falls and emergency care of eye injuries, burns, and wounds.

(B) All workers having wounds should be treated immediately to prevent blood poisoning, and should wear impervious gloves or otherwise dress the wound to prevent infection (unless counseled otherwise by the responsible physician).

(c) Suitable Eyewash Fountains

Federal regulation 29 CFR 1910.151, Paragraph (C), requires suitable facilities for quick drenching or flushing of the eyes where skin or eye contact with caustic or corrosive chemicals may occur.

(3) Assistance for Injured Workers

Immediate evacuation, transportation, and medical assistance should be available for injured workers. This should include alerting the medical facility of the impending arrival of injured workers.

(4) Medical Facilities for Emergencies

All workers should be told which medical facilities are designated for use by plant personnel for job-related injury or illness.

(5) Entry into Areas for Cleanup, Decontamination, or Maintenance Following Release of Toxic Materials

(d) Laundering

Frequent laundering of soiled work clothing is a generally accepted practice demonstrated to be effective in industries that are associated with the use of chemicals or other agents that may irritate skin or be toxic through dermal absorption. The harmful effects of these agents can be exacerbated by prolonged contact. Soiled work clothing should be laundered frequently, and the employer should ensure that clean work clothing is worn daily.

(e) Materials Handling and Storage

Accidents involving powered industrial trucks have been recorded [13], and many of them could have been prevented by the following.

(1) The employer should be aware of the provisions of 29 CFR 1910.176-1910.190, which protects the worker against the hazards associated with materials handling and storage. Sections 176, 178, and 184, which address materials handling, powered industrial trucks, and slings, are especially relevant to rendering plants.

(2) Employers should prohibit operators of front-end loaders or forklift trucks from raising or lowering the loader or forks while the vehicle is in motion in the plant.

(3) Workers should operate forklifts with their load raised only enough to clear the driving surface.

(f) Maintenance

Many problems occurring in rendering plants could be prevented by adhering to the following recommendations.

(1) A regular preventive maintenance program should be established to avoid fires and excessive noise generation that results from inadequate lubrication, misaligned bearings, and improperly adjusted belt-driven machinery.

(2) All equipment, including valves, fittings, and connections, should be checked regularly for tightness and kept in good working condition. Inspections should be made immediately after new connections are made and after material is introduced.

(3) Leaking steam lines should be repaired promptly.

(4) Whenever maintenance work is to be performed, standardized safety procedures should be followed. These procedures should include adherence to NIOSH's recommendations for hazard control during maintenance [20], the use of protective equipment, and the proper selection and use of hand tools.

(5) Maintenance work in a confined space should adhere to the recommendations of the NIOSH criteria document, Working in Confined Spaces [34].

(g) Entry into Confined Spaces

When cleaning, maintenance, and repair of rendering equipment require entry into a confined space, the recommendations in the NIOSH criteria document should be adhered to. These recommendations include the following [34].

(1) The employer shall designate in writing a person qualified by education or specialized training to anticipate, recognize, and evaluate worker exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be authorized to specify necessary controls and protective actions to ensure worker safety.

(2) Entry into a confined space shall be by permit only. The permit shall be an authorization and approval in writing that specifies the location and type of work to be performed. It should also certify

that all existing hazards have been evaluated by the qualified person and that necessary protective measures have been taken to ensure the safety of each worker.

(3) The designation of a confined space shall be based on the existing or potential hazards associated with it.

(4) Entry into a confined space shall be prohibited until the atmosphere has been initially tested from the outside and found to be safe. The tests to be performed should include those for oxygen deficiency, flammability, and, if appropriate, toxic materials.

(5) The entry permit shall include a list of protective equipment necessary for work in the confined space, as determined by the qualified person.

(6) All workers associated with confined space entry shall be trained in the use of the appropriate personal protective equipment.

(7) The need for respiratory protection shall be determined by the qualified person based on conditions and test results of the confined space and on the work to be performed.

(h) Waste Disposal

Local, state, and Federal regulations recognize the need for proper waste disposal in maintaining community health. Waste material should be disposed of in a manner not hazardous to plant personnel, and these disposal methods should conform to applicable local, state, and Federal regulations.

(i) Sanitation and Personal Hygiene

Some biological agents and chemical substances found in rendering plants can harm exposed workers. Adherence to the following guidelines will minimize these exposures.

(1) Federal regulation 29 CFR 1910.141 requires plant sanitation. Subsections entitled (a) General, (c) Toilet facilities, (d) Washing facilities, (e) Change rooms, and (g) Consumption of food and beverages on the premises are especially relevant to rendering processes.

(2) Workers should be instructed by their employer to wash their hands with soap and water as frequently as practicable. As a minimum, workers should be encouraged to wash their hands during all workbreaks, before eating, and before and after using toilet facilities.

(3) Preparing, storing, dispensing (including vending machines), and consuming food or beverages should be prohibited in work areas.

Medical

Preplacement medical examinations should be made available to all workers engaged in rendering processes so as to identify existing conditions that might predispose a worker to injury or illness. Subsequent periodic medical examinations provide for the reassessment of health and physical fitness in relation to possible job stress or hazards. Tetanus vaccination and boosters, unless current, are recommended because of the risk of cuts and puncture wounds. The medical surveillance program should include the following.

(a) Preplacement Examinations

These examinations should include at least:

(1) A request that the employer provide pertinent information to the responsible physician, such as an estimate of the worker's potential exposure (including any available workplace sampling results), and a description of any protective devices or equipment the worker may be required to use.

(2) Comprehensive medical and work histories with special emphasis on allergies and the musculoskeletal system.

(3) Physical and job fitness examinations giving particular attention to the skin, eyes, back, and respiratory system.

(4) A tetanus vaccination that subsequently should be made available on an appropriate routine schedule.

(5) A judgment of the worker's ability to use negative- and positive-pressure respirators.

(6) Baseline audiograms when exposures to noise are judged to possibly exceed Federal limits.

(7) A written statement specifying any limitations that should be placed on the worker's job function (prepared following completion of the examination by the examiner).

(b) Periodic Examinations

These examinations should be made available at least every 3 years, and include at least:

(1) Reassessment of health and job fitness.

(2) Physical examination and procedures outlined in paragraphs (a)(2), (a)(3), (a)(4), and (a)(7) above.

(3) Listing of any limitations that should be placed on the worker's job function.

(c) Audiometric Testing

An audiometric testing program should be made available for workers who may be exposed to noise that exceeds 85 dBA for an 8-hour workday.

(d) Maintenance of Medical Records

Pertinent medical records should be maintained for all workers exposed to hazards in rendering plants. Records of environmental exposures to physical or chemical agents of a worker should be included in his or her medical records. Such records should be kept for at least 5 years after termination of employment.

Personal Protective Equipment and Work Clothing

Although engineering controls are the most effective means of minimizing hazards (such as noise, heat, slippery working surfaces, and confined spaces), personal protective equipment and work clothing are necessary to back up those engineering controls. The following guidelines are recommended.

(a) Safety shoes or boots with toe guards and slip-resistant soles should be worn at all times.

(b) Personal protective equipment, such as ear protectors, should be provided and used if noise controls fail to reduce sound levels to or below limits recommended by NIOSH. Ear plugs should be individually fitted to provide proper protection.

(c) The employer should ensure that appropriate clothing is worn by all workers.

(d) In designated areas, safety helmets meeting specifications in ANSI Z89.1-1969 should be worn.

(e) Mesh gloves, abdominal protectors, arm guards, and other protective equipment should be worn to remove hides and cut carcasses.

(f) Workers using chemical compounds in rendering operations should use gloves resistant to that particular compound.

(g) When respirators are needed, the employer should be aware of the Federal regulation (29 CFR 1910.134) and the American National Standard Institute recommendation (ANSI Z88.2-1969) that protect the worker against the effects of atmospheric contamination.

Posting

Workers should be apprised of hazards in rendering facilities and of methods to protect themselves. Although all who work in rendering

facilities should receive such training prior to placement, signs serve as important reminders. Signs are also an initial warning to workers not familiar with the facility, such as contractors, delivery people, and others.

(a) Signs should be printed in English and in the predominant language of non-English-reading workers. Workers unable to read these signs should in some manner receive all necessary information regarding hazardous areas and should be informed of the instructions printed on these signs.

(b) Signs should be kept clean and readily visible at all times. In rendering work areas, signs should be posted where applicable. The information may be arranged as in the following examples.

SAFETY HAT AREA
DO NOT ENTER
WITHOUT APPROVED HARD HAT

NOISE EXPOSURE AREA
HEARING PROTECTION REQUIRED

CAUTION
SLIPPERY FLOORS
PROCEED WITH CAUTION

EYE PROTECTION REQUIRED
DANGER
GREASE AND ELECTRICAL FIRE HAZARD
AVOID OPEN FLAMES, EXCESSIVE HEAT, AND SPARKS
IN CASE OF FIRE, USE CHEMICAL EXTINGUISHERS

WARNING
OPEN PIT
PROCEED WITH CAUTION

DANGER
HAZARDOUS AREA
PERMIT REQUIRED FOR ENTRY

If respiratory protection is necessary, the following statement, in large letters, should be added to any other information on a sign.

RESPIRATORY PROTECTION REQUIRED IN THIS AREA

Training Workers and Informing Them of Hazards

Companies with superior safety performances have safety evaluation programs that anticipate and manage potential hazards. These companies have a strong management commitment to safety, are characterized by a safety program integrated into the larger management system, and they deal with safety as an intrinsic part of plant operations [47].

Training should be repeated at least annually to reinforce established safe work practices and to update worker knowledge of changes in work practices, personal protective equipment, and process modifications.

The employer should:

(a) Ensure that workers can perform their assigned tasks safely before allowing them to participate in a rendering operation without direct supervision.

(b) Ensure that a continuing training program is conducted at least annually that includes formal instruction by persons qualified by training or experience.

(c) Ensure that at least one person on each shift is trained and certified in first aid. First-aid training should include, as a minimum, completion of an approved first-aid training course.

(d) Ensure that workers are informed both orally and in writing of the safety rules established at their rendering facility. Those rules should provide safe standard operating procedures for all activities performed in the plant. Workers should also be informed orally of the hazards of each rendering operation.

(e) Ensure that all new workers are trained in at least these five subjects.

(1) The specific job function of the worker.

(2) The general hazards of the rendering plants, including potential sources of mechanical injury and effects of excessive heat and noise, chemicals, decomposition gases, and infectious agents.

(3) The proper use and maintenance of protective equipment, including respirators, when applicable.

(4) Correct housekeeping practices.

(5) Emergency procedures for fires, chemical leaks, electrical malfunctions, and evacuation of disabled workers.

(f) Ensure that selected workers on each shift also receive training in first-aid procedures, firefighting, chemical leaks, and entry into confined spaces.

Industrial Safety and Health Surveys and Monitoring

To ensure that workers are not exposed to hazardous conditions, the workplace should be surveyed periodically. Industrial safety and health surveys should be conducted according to the following guidelines.

(a) The surveys should determine the adequacy of: illumination in all areas of the plant; guarding for pits, elevated platforms, stairs, and machines and other process equipment; general and local exhaust ventilation; electrical wiring and equipment; noise control; heat control; fire prevention and steam line insulation; chemical storage procedures; posting of information; general plant sanitation; personal protective equipment; training programs; and recordkeeping.

(b) Industrial safety and health surveys should identify where workers are exposed to hazardous conditions. If the employer concludes that there are no areas where exposure to hazardous conditions occurs, the records should state the basis for this conclusion. Surveys should be repeated at least annually and within 30 days after any process change likely to create a hazard.

(c) If it has been determined that exposure to hazardous conditions exists, the employer should institute a program of personal monitoring to identify and measure, or to permit calculation of, the exposure of each worker. Source and area monitoring might be used to supplement personal monitoring.

(1) In all personal monitoring, samples representative of exposure in the breathing zone of the worker should be collected. All noise measurements should be made with the sound-level meter or noise dosimeter in a location closely approximating the noise levels at the worker's head during normal operations.

(2) If a worker is found to be exposed to hazardous agents exceeding recommended limits, his or her exposure should be measured frequently, control measures should be initiated, and the worker should be notified of the exposure and control measures. Accelerated monitoring should be considered until results indicate that the control measures are effective and that the worker's exposure no longer exceeds the recommended occupational exposure limit. Routine monitoring may then be resumed.

(d) Some occupational hazards in the rendering process, primarily those related to safety, cannot be monitored as discussed above. When

such hazards are identified in the industrial safety and health survey, the employer should notify workers of the hazardous condition, post the area, and initiate corrective action. Increasingly frequent safety surveys should be considered until the hazardous condition is corrected.

Recordkeeping

Accurate recordkeeping of surveys, medical examinations, and other pertinent material will enable the employer to assess the efficiency of the plant's control program.

(a) These records should be kept for at least 5 years after termination of employment.

(b) Records should include: identification of the worker being monitored; duties and job locations within the worksite, times and dates of sampling and analytical methods used, and available evidence of their precision and accuracy; the number, duration, and analytical results of samples taken; and personal protective equipment used by the worker. Records of safety surveys should clearly identify and describe any hazardous condition and state the corrective action taken.

IV. WORKER TRAINING AND EDUCATION

Because rendering operations involve potential hazards to safety and health, proper training and education of workers is vital. A comprehensive, well-organized training program enables the employer to educate new workers in safe work practices and techniques from the beginning of their employment. Such training helps to establish a positive employer-worker relationship by demonstrating the employer's concern for, and commitment to, safe work practices.

Training Methods, Need and Frequency, Evaluation, and Objectives

(a) Methods

Workers can be trained most effectively while on the job. Qualified personnel explain and demonstrate part of the task, and then the worker is allowed to do it. As the worker develops proficiency, other work segments may be added. Each new step requires close supervision until the worker is judged competent to perform his tasks proficiently and safely.

(b) Need and Frequency

The employer must ensure that all workers can perform their intended tasks safely before allowing them to work in rendering operations without immediate supervision. The need and frequency for additional training will vary depending on the individual, the complexity of the task, and the nature of the operation's hazard. First-line supervisors may be the best judges of when and in what areas workers need additional training, because they can observe the workers frequently and be familiar with their work habits and performance. These supervisors are also likely to be best able to suggest how worker accidents might be minimized, since they usually have first-hand knowledge of the circumstances.

(c) Evaluation

Evaluations of worker safety performance should be conducted by first-line supervisors who are best able to discern whether workers adhere to established work practices and safely perform their particular tasks. Written tests or check sheets may be used in conjunction with training and evaluating procedures. The success of the training program depends on participation and positive motivation by management.

(d) Goals

Specific goals should be established for each problem area in operations for which training is offered, including the following:

(1) The worker should know that a leading cause of accidents in rendering operations are unsafe walking-working surfaces. Workers should

know that the frequency of slips and falls can be reduced by using proper floor materials and footwear. Workers should be aware of special hazards associated with unguarded pits and elevated work stations in rendering operations.

(2) In the training program, the worker should be warned that hand tools are a major source of injury in rendering operations, especially where whole carcasses are cut with knives or axes, and in many maintenance operations. The worker should understand the purposes of the protective devices available, which, if used properly, will minimize or eliminate injuries. The worker should know how to properly select and fit mesh gloves, arm guards, and protective aprons. They should understand that properly used mechanical aids to lift or transport objects can help reduce the incidence of injury. If manual lifting is necessary, a job analysis should be performed before any lifting is done. The worker should be fully aware that the use of these techniques will minimize the chances of strains, sprains, and other injuries.

(3) Workers should be given safety orientation, in which potential hazards in the rendering facility are pointed out, eg, hot process equipment, electrical equipment, confined spaces, and chemical storage areas. The worker should know the hazards associated with each chemical he uses and the proper procedures for handling such materials. He should also know the signs and symptoms associated with illnesses that might result from contact with infectious agents in his rendering operation, and know how these diseases can be transmitted.

(4) Workers should know emergency plans and procedures for firefighting, cleaning up chemical leaks, and entering confined spaces. Workers who use respiratory protective equipment should know how to use and maintain it.

(5) Workers should know where to obtain first aid.

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VI. APPENDIX

GLOSSARY OF TERMS USED IN RENDERING INDUSTRY

Blood meal -	A protein product consisting of dried blood solids.
Centrifuge -	Machine using centrifugal force for separating materials of different densities.
Continuous rendering -	This is synonymous with continuous cooking. The raw material is fed continuously to the cooking device, and the cooked material discharges essentially at a constant rate.
Cooker, batch -	Horizontal, steam-jacketed cylinder equipped with a mechanical agitator. The batch cooker follows a repetitive cycle: it is charged with the proper amount of raw material, dehydrates this material and finally discharges the cooked material.
Cracklings -	Solid protein material discharged from screw press after removal of liquid fat.
Crusher, Grinder, Hogger, - Pre-breaker, etc.	Machine containing blades or knives which reduce raw material to a relatively uniform size.
Edible fat -	Fat taken from edible parts of the animal.
Fat products -	Inedible tallow or grease.
Feather meal -	Protein product also known as hydrolyzed poultry feathers.
Grease -	A fat product with a titer less than 40.0 degrees centigrade.
Hydrolyzed -	Chemical reaction with water to break down the indigestible protein of poultry feathers into a digestible form.
Lard -	A fat obtained by rendering the fat removed from various edible tissues of pigs (hogs).

Meat-and-bone meal - Dry rendered protein product from mammal tissues with more than 4.4% phosphorus.

Meat meal - Dry rendered protein product from mammal tissues with 4.4% or less phosphorus.

Offal - All material from the animal's body cavity used for inedible rendering.

Pressure leaf filter - Machine for removal of solids from liquids where a filter cloth mounted on a series of leaves or plates is capable of accumulating a solid cake as pressure is applied continuously.

Raw material - All material from animal and poultry sources used for inedible rendering.

Rendering, dry - The process of releasing fat by dehydrating raw material in a batch cooker or continuous rendering system with no direct addition of steam or water.

Restaurant grease - A waste fat material obtained primarily from fast food restaurants.

Screw press - Machine used to separate fat from tankage continuously by applying the required pressure with a rotating screw.

Tallow -

Inedible Tallow Fat obtained from the inedible body tissues of cattle and sheep. Animal fat product with a titer of 40.0 degrees centigrade or higher.

Edible Tallow Fat obtained from the edible parts of cattle and sheep.

Tankage - Cooked material remaining after the liquid fat is drained and separated.

Titer - An analytical measurement used to indicate the hardness or softness of fats. It is expressed in degrees centigrade.

Wet scrubber - Pollution control device for contacting air exhausted from rendering plant with a water solution containing deodorizing chemicals.

Zoonotic disease - A disease that can be transmitted from animals to man.

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