

Production standards of Pet Food vs. Human Food.

Pet Food (AAFCO Model Good Manufacturing Practice regulations)	Human Food (FDA Code of Federal Regulations) Title 21
<p>PERSONNEL</p> <p>1. a) Persons working in direct contact with feed and / or feed ingredients shall conform to good hygienic practices to minimize the risk of adulteration.</p> <p>b) Persons who receive, store, manufacture, process, package, label, sample, transport or distribute feed and / or feed ingredients shall be trained for the persons' areas of responsibility.</p>	<p>PERSONNEL</p> <p>(a)<i>Disease control.</i> Any person who...appears to have, an illness, open lesion, including boils, sores, or infected wounds, or any other abnormal source of microbial contamination by which there is a reasonable possibility of food, food-contact surfaces, or food-packaging materials becoming contaminated, shall be excluded from any operations which may be expected to result in such contamination until the condition is corrected. Personnel shall be instructed to report such health conditions to their supervisors.</p> <p>(b)<i>Cleanliness.</i> All persons working in direct contact with food, food-contact surfaces, and food-packaging materials shall conform to hygienic practices while on duty to the extent necessary to protect against contamination of food. The methods for maintaining cleanliness include, but are not limited to:</p> <p>(1) Wearing outer garments suitable to the operation in a manner that protects against the contamination of food, food-contact surfaces, or food-packaging materials.</p> <p>(2) Maintaining adequate personal cleanliness.</p> <p>(3) Washing hands thoroughly (and sanitizing if necessary to protect against contamination with undesirable microorganisms) in an adequate hand-washing facility before starting work, after each absence from the work station, and at any other time when the hands may have become soiled or contaminated.</p> <p>(4) Removing all unsecured jewelry and other</p>

objects that might fall into food, equipment, or containers, and removing hand jewelry that cannot be adequately sanitized during periods in which food is manipulated by hand. If such hand jewelry cannot be removed, it may be covered by material which can be maintained in an intact, clean, and sanitary condition and which effectively protects against the contamination by these objects of the food, food-contact surfaces, or food-packaging materials.

(5) Maintaining gloves, if they are used in food handling, in an intact, clean, and sanitary condition. The gloves should be of an impermeable material.

(6) Wearing, where appropriate, in an effective manner, hair nets, headbands, caps, beard covers, or other effective hair restraints.

(7) Storing clothing or other personal belongings in areas other than where food is exposed or where equipment or utensils are washed.

(8) Confining the following to areas other than where food may be exposed or where equipment or utensils are washed: eating food, chewing gum, drinking beverages, or using tobacco.

(9) Taking any other necessary precautions to protect against contamination of food, food-contact surfaces, or food-packaging materials with microorganisms or foreign substances including, but not limited to, perspiration, hair, cosmetics, tobacco, chemicals, and medicines applied to the skin.

(c) *Education and training.* Personnel responsible for identifying sanitation failures or food contamination should have a background of education or experience, or a combination thereof, to provide a level of competency necessary for production of

	<p>clean and safe food. Food handlers and supervisors should receive appropriate training in proper food handling techniques and food-protection principles and should be informed of the danger of poor personal hygiene and insanitary practices.</p> <p>(d) <i>Supervision.</i> Responsibility for assuring compliance by all personnel with all requirements of this part shall be clearly assigned to competent supervisory personnel.</p>
<p>ESTABLISHMENTS, MAINTENANCE & HOUSEKEEPING</p> <p>1. a) Establishments must be of a size, construction and design to facilitate routine maintenance and cleaning.</p> <p>b) The grounds of establishments shall be maintained in a condition that minimizes pest infestation of feed and / or feed ingredients.</p> <p>2. a) Establishments shall be kept in sufficient repair and condition to minimize risk of adulteration.</p> <p>b) Establishments shall be cleaned in a manner and at a frequency that minimizes the risk of adulteration.</p> <p>c) Establishments shall implement procedures that are effective in minimizing pest infestation of feed and / or feed ingredients.</p> <p>d) Chemicals, lubricants, pesticides, fertilizers and cleaning compounds. Substances not approved for use in feed and / or feed ingredients shall be received, stored and used in a manner that minimizes the risk of adulteration, and in accordance with applicable laws and regulations. Such substances shall be</p>	<p>PLANT & GROUNDS, SANITARY OPERATIONS</p> <p>(a) <i>Grounds.</i> The grounds about a food plant under the control of the operator shall be kept in a condition that will protect against the contamination of food. The methods for adequate maintenance of grounds include, but are not limited to:</p> <p>(1) Properly storing equipment, removing litter and waste, and cutting weeds or grass within the immediate vicinity of the plant buildings or structures that may constitute an attractant, breeding place, or harborage for pests.</p> <p>(2) Maintaining roads, yards, and parking lots so that they do not constitute a source of contamination in areas where food is exposed.</p> <p>(3) Adequately draining areas that may contribute contamination to food by seepage, foot-borne filth, or providing a breeding place for pests.</p> <p>(4) Operating systems for waste treatment and disposal in an adequate manner so that they do not constitute a source of contamination in areas where food is exposed.</p> <p>If the plant grounds are bordered by grounds</p>

<p>physically separated from work areas and equipment used for the production or storage of feed and / or feed ingredients.</p>	<p>not under the operator's control and not maintained in the manner described in paragraph (a) (1) through (3) of this section, care shall be exercised in the plant by inspection, extermination, or other means to exclude pests, dirt, and filth that may be a source of food contamination.</p> <p><i>(b) Plant construction and design.</i> Plant buildings and structures shall be suitable in size, construction, and design to facilitate maintenance and sanitary operations for food-manufacturing purposes. The plant and facilities shall:</p> <p>(1) Provide sufficient space for such placement of equipment and storage of materials as is necessary for the maintenance of sanitary operations and the production of safe food.</p> <p>(2) Permit the taking of proper precautions to reduce the potential for contamination of food, food-contact surfaces, or food-packaging materials with microorganisms, chemicals, filth, or other extraneous material. The potential for contamination may be reduced by adequate food safety controls and operating practices or effective design, including the separation of operations in which contamination is likely to occur, by one or more of the following means: location, time, partition, air flow, enclosed systems, or other effective means.</p> <p>(3) Permit the taking of proper precautions to protect food in outdoor bulk fermentation vessels by any effective means, including:</p> <p>(i) Using protective coverings.</p> <p>(ii) Controlling areas over and around the vessels to eliminate harborage for pests.</p> <p>(iii) Checking on a regular basis for pests and pest infestation.</p>
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	<p>(iv) Skimming the fermentation vessels, as necessary.</p> <p>(4) Be constructed in such a manner that floors, walls, and ceilings may be adequately cleaned and kept clean and kept in good repair; that drip or condensate from fixtures, ducts and pipes does not contaminate food, food-contact surfaces, or food-packaging materials; and that aisles or working spaces are provided between equipment and walls and are adequately unobstructed and of adequate width to permit employees to perform their duties and to protect against contaminating food or food-contact surfaces with clothing or personal contact.</p> <p>(5) Provide adequate lighting in hand-washing areas, dressing and locker rooms, and toilet rooms and in all areas where food is examined, processed, or stored and where equipment or utensils are cleaned; and provide safety-type light bulbs, fixtures, skylights, or other glass suspended over exposed food in any step of preparation or otherwise protect against food contamination in case of glass breakage.</p> <p>(6) Provide adequate ventilation or control equipment to minimize odors and vapors (including steam and noxious fumes) in areas where they may contaminate food; and locate and operate fans and other air-blowing equipment in a manner that minimizes the potential for contaminating food, food-packaging materials, and food-contact surfaces.</p> <p>(7) Provide, where necessary, adequate screening or other protection against pests.</p>
	<p>Each plant shall be equipped with adequate sanitary facilities and accommodations including, but not limited to:</p> <p>(a) <i>Water supply.</i> The water supply shall be</p>

sufficient for the operations intended and shall be derived from an adequate source. Any water that contacts food or food-contact surfaces shall be safe and of adequate sanitary quality. Running water at a suitable temperature, and under pressure as needed, shall be provided in all areas where required for the processing of food, for the cleaning of equipment, utensils, and food-packaging materials, or for employee sanitary facilities.

(b)*Plumbing*. Plumbing shall be of adequate size and design and adequately installed and maintained to:

(1) Carry sufficient quantities of water to required locations throughout the plant.

(2) Properly convey sewage and liquid disposable waste from the plant.

(3) Avoid constituting a source of contamination to food, water supplies, equipment, or utensils or creating an unsanitary condition.

(4) Provide adequate floor drainage in all areas where floors are subject to flooding-type cleaning or where normal operations release or discharge water or other liquid waste on the floor.

(5) Provide that there is not backflow from, or cross-connection between, piping systems that discharge waste water or sewage and piping systems that carry water for food or food manufacturing.

(c)*Sewage disposal*. Sewage disposal shall be made into an adequate sewerage system or disposed of through other adequate means.

(d)*Toilet facilities*. Each plant shall provide its employees with adequate, readily accessible toilet facilities. Compliance with this requirement may be accomplished by:

	<p>(1) Maintaining the facilities in a sanitary condition.</p> <p>(2) Keeping the facilities in good repair at all times.</p> <p>(3) Providing self-closing doors.</p> <p>(4) Providing doors that do not open into areas where food is exposed to airborne contamination, except where alternate means have been taken to protect against such contamination (such as double doors or positive air-flow systems).</p> <p>(e) <i>Hand-washing facilities.</i> Hand-washing facilities shall be adequate and convenient and be furnished with running water at a suitable temperature. Compliance with this requirement may be accomplished by providing:</p> <p>(1) Hand-washing and, where appropriate, hand-sanitizing facilities at each location in the plant where good sanitary practices require employees to wash and/or sanitize their hands.</p> <p>(2) Effective hand-cleaning and sanitizing preparations.</p> <p>(3) Sanitary towel service or suitable drying devices.</p> <p>(4) Devices or fixtures, such as water control valves, so designed and constructed to protect against recontamination of clean, sanitized hands.</p> <p>(5) Readily understandable signs directing employees handling unprotected food, unprotected food-packaging materials, of food-contact surfaces to wash and, where appropriate, sanitize their hands before they start work, after each absence from post of duty, and when their hands may have become soiled or contaminated. These signs</p>
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	<p>may be posted in the processing room(s) and in all other areas where employees may handle such food, materials, or surfaces.</p> <p>(6) Refuse receptacles that are constructed and maintained in a manner that protects against contamination of food.</p> <p>(f) <i>Rubbish and offal disposal.</i> Rubbish and any offal shall be so conveyed, stored, and disposed of as to minimize the development of odor, minimize the potential for the waste becoming an attractant and harborage or breeding place for pests, and protect against contamination of food, food-contact surfaces, water supplies, and ground surfaces.</p>
<p>MANUFACTURING</p> <p>1. a) A feed and / or feed ingredient that is considered adulterated shall not be used in the manufacture of feed and / or feed ingredients unless made safe for the feed and / or feed ingredient's use.</p> <p>b) Procedures effective in minimizing the risk of adulteration and ensuring safety and identity shall be established and implemented for the manufacture of feed and / or feed ingredients. Such procedures shall include the following:</p> <p>(i) A description of the manufacturing operation, which may include, but is not limited to, feed and / or feed ingredient formulation, mixing and production practices;</p> <p>(ii) Measures effective in minimizing manufacturing errors that may result in adulteration of feed and / or feed ingredients. Such measures shall include, but are not limited to:</p> <p>a) Cleanout Practices, which may</p>	<p>PROCESSES & CONTROLS</p> <p>All operations in the receiving, inspecting, transporting, segregating, preparing, manufacturing, packaging, and storing of food shall be conducted in accordance with adequate sanitation principles. Appropriate quality control operations shall be employed to ensure that food is suitable for human consumption and that food-packaging materials are safe and suitable. Overall sanitation of the plant shall be under the supervision of one or more competent individuals assigned responsibility for this function. All reasonable precautions shall be taken to ensure that production procedures do not contribute contamination from any source. Chemical, microbial, or extraneous-material testing procedures shall be used where necessary to identify sanitation failures or possible food contamination. All food that has become contaminated to the extent that it is adulterated within the meaning of the act shall be rejected, or if permissible, treated or processed to eliminate the contamination.</p> <p>(a) <i>Raw materials and other ingredients.</i> (1)</p>

<p>include sequencing, flushing or other methods.</p> <p>b) Measures to minimize the inclusion of physical adulterants, including metal, in feed and / or feed ingredients.</p> <p>c) Records sufficient to document the production history of the feed and / or feed ingredient manufactured in the establishment shall be maintained for at least one year from the date of disposition.</p>	<p>Raw materials and other ingredients shall be inspected and segregated or otherwise handled as necessary to ascertain that they are clean and suitable for processing into food and shall be stored under conditions that will protect against contamination and minimize deterioration. Raw materials shall be washed or cleaned as necessary to remove soil or other contamination. Water used for washing, rinsing, or conveying food shall be safe and of adequate sanitary quality. Water may be reused for washing, rinsing, or conveying food if it does not increase the level of contamination of the food. Containers and carriers of raw materials should be inspected on receipt to ensure that their condition has not contributed to the contamination or deterioration of food.</p> <p>(2) Raw materials and other ingredients shall either not contain levels of microorganisms that may produce food poisoning or other disease in humans, or they shall be pasteurized or otherwise treated during manufacturing operations so that they no longer contain levels that would cause the product to be adulterated within the meaning of the act. Compliance with this requirement may be verified by any effective means, including purchasing raw materials and other ingredients under a supplier's guarantee or certification.</p> <p>(3) Raw materials and other ingredients susceptible to contamination with aflatoxin or other natural toxins shall comply with current Food and Drug Administration regulations and action levels for poisonous or deleterious substances before these materials or ingredients are incorporated into finished food. Compliance with this requirement may be accomplished by purchasing raw materials and other ingredients under a supplier's guarantee or certification, or may be verified by analyzing these materials and ingredients for aflatoxins and other natural toxins.</p>
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(4) Raw materials, other ingredients, and rework susceptible to contamination with pests, undesirable microorganisms, or extraneous material shall comply with applicable Food and Drug Administration regulations and defect action levels for natural or unavoidable defects if a manufacturer wishes to use the materials in manufacturing food. Compliance with this requirement may be verified by any effective means, including purchasing the materials under a supplier's guarantee or certification, or examination of these materials for contamination.

(5) Raw materials, other ingredients, and rework shall be held in bulk, or in containers designed and constructed so as to protect against contamination and shall be held at such temperature and relative humidity and in such a manner as to prevent the food from becoming adulterated within the meaning of the act. Material scheduled for rework shall be identified as such.

(6) Frozen raw materials and other ingredients shall be kept frozen. If thawing is required prior to use, it shall be done in a manner that prevents the raw materials and other ingredients from becoming adulterated within the meaning of the act.

(7) Liquid or dry raw materials and other ingredients received and stored in bulk form shall be held in a manner that protects against contamination.

(b) Manufacturing operations. (1) Equipment and utensils and finished food containers shall be maintained in an acceptable condition through appropriate cleaning and sanitizing, as necessary. Insofar as necessary, equipment shall be taken apart for thorough cleaning.

(2) All food manufacturing, including packaging and storage, shall be conducted

	<p>under such conditions and controls as are necessary to minimize the potential for the growth of microorganisms, or for the contamination of food. One way to comply with this requirement is careful monitoring of physical factors such as time, temperature, humidity, aw, pH, pressure, flow rate, and manufacturing operations such as freezing, dehydration, heat processing, acidification, and refrigeration to ensure that mechanical breakdowns, time delays, temperature fluctuations, and other factors do not contribute to the decomposition or contamination of food.</p> <p>(3) Food that can support the rapid growth of undesirable microorganisms, particularly those of public health significance, shall be held in a manner that prevents the food from becoming adulterated within the meaning of the act. Compliance with this requirement may be accomplished by any effective means, including:</p> <ul style="list-style-type: none">(i) Maintaining refrigerated foods at 45 deg. F (7.2 deg. C) or below as appropriate for the particular food involved.(ii) Maintaining frozen foods in a frozen state.(iii) Maintaining hot foods at 140 deg. F (60 deg. C) or above.(iv) Heat treating acid or acidified foods to destroy mesophilic microorganisms when those foods are to be held in hermetically sealed containers at ambient temperatures. <p>(4) Measures such as sterilizing, irradiating, pasteurizing, freezing, refrigerating, controlling pH or controlling aw that are taken to destroy or prevent the growth of undesirable microorganisms, particularly those of public health significance, shall be adequate under the conditions of manufacture, handling, and distribution to prevent food from being adulterated within</p>
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	<p>the meaning of the act.</p> <p>(5) Work-in-process shall be handled in a manner that protects against contamination.</p> <p>(6) Effective measures shall be taken to protect finished food from contamination by raw materials, other ingredients, or refuse. When raw materials, other ingredients, or refuse are unprotected, they shall not be handled simultaneously in a receiving, loading, or shipping area if that handling could result in contaminated food. Food transported by conveyor shall be protected against contamination as necessary.</p> <p>(7) Equipment, containers, and utensils used to convey, hold, or store raw materials, work-in-process, rework, or food shall be constructed, handled, and maintained during manufacturing or storage in a manner that protects against contamination.</p> <p>(8) Effective measures shall be taken to protect against the inclusion of metal or other extraneous material in food. Compliance with this requirement may be accomplished by using sieves, traps, magnets, electronic metal detectors, or other suitable effective means.</p> <p>(9) Food, raw materials, and other ingredients that are adulterated within the meaning of the act shall be disposed of in a manner that protects against the contamination of other food. If the adulterated food is capable of being reconditioned, it shall be reconditioned using a method that has been proven to be effective or it shall be reexamined and found not to be adulterated within the meaning of the act before being incorporated into other food.</p> <p>(10) Mechanical manufacturing steps such as washing, peeling, trimming, cutting, sorting and inspecting, mashing, dewatering, cooling,</p>
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shredding, extruding, drying, whipping, defatting, and forming shall be performed so as to protect food against contamination. Compliance with this requirement may be accomplished by providing adequate physical protection of food from contaminants that may drip, drain, or be drawn into the food. Protection may be provided by adequate cleaning and sanitizing of all food-contact surfaces, and by using time and temperature controls at and between each manufacturing step.

(11) Heat blanching, when required in the preparation of food, should be effected by heating the food to the required temperature, holding it at this temperature for the required time, and then either rapidly cooling the food or passing it to subsequent manufacturing without delay. Thermophilic growth and contamination in blanchers should be minimized by the use of adequate operating temperatures and by periodic cleaning. Where the blanched food is washed prior to filling, water used shall be safe and of adequate sanitary quality.

(12) Batters, breading, sauces, gravies, dressings, and other similar preparations shall be treated or maintained in such a manner that they are protected against contamination. Compliance with this requirement may be accomplished by any effective means, including one or more of the following:

(i) Using ingredients free of contamination.

(ii) Employing adequate heat processes where applicable.

(iii) Using adequate time and temperature controls.

(iv) Providing adequate physical protection of components from contaminants that may

	<p>drip, drain, or be drawn into them.</p> <p>(v) Cooling to an adequate temperature during manufacturing.</p> <p>(vi) Disposing of batters at appropriate intervals to protect against the growth of microorganisms.</p> <p>(13) Filling, assembling, packaging, and other operations shall be performed in such a way that the food is protected against contamination. Compliance with this requirement may be accomplished by any effective means, including:</p> <p>(i) Use of a quality control operation in which the critical control points are identified and controlled during manufacturing.</p> <p>(ii) Adequate cleaning and sanitizing of all food-contact surfaces and food containers.</p> <p>(iii) Using materials for food containers and food- packaging materials that are safe and suitable, as defined in 130.3(d) of this chapter.</p> <p>(iv) Providing physical protection from contamination, particularly airborne contamination.</p> <p>(v) Using sanitary handling procedures.</p> <p>(14) Food such as, but not limited to, dry mixes, nuts, intermediate moisture food, and dehydrated food, that relies on the control of aw for preventing the growth of undesirable microorganisms shall be processed to and maintained at a safe moisture level. Compliance with this requirement may be accomplished by any effective means, including employment of one or more of the following practices:</p> <p>(i) Monitoring the aw (water activity) of food.</p>
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	<p>(ii) Controlling the soluble solids-water ratio in finished food.</p> <p>(iii) Protecting finished food from moisture pickup, by use of a moisture barrier or by other means, so that the aw of the food does not increase to an unsafe level.</p> <p>(15) Food such as, but not limited to, acid and acidified food, that relies principally on the control of pH for preventing the growth of undesirable microorganisms shall be monitored and maintained at a pH of 4.6 or below. Compliance with this requirement may be accomplished by any effective means, including employment of one or more of the following practices:</p> <p>(i) Monitoring the pH of raw materials, food in process, and finished food.</p> <p>(ii) Controlling the amount of acid or acidified food added to low-acid food.</p> <p>(16) When ice is used in contact with food, it shall be made from water that is safe and of adequate sanitary quality, and shall be used only if it has been manufactured in accordance with current good manufacturing practice as outlined in this part.</p> <p>(17) Food-manufacturing areas and equipment used for manufacturing human food should not be used to manufacture nonhuman food-grade animal feed or inedible products, unless there is no reasonable possibility for the contamination of the human food.</p>
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