CHAPTER 5

GOOD MANAGEMENT PRACTICES

FOR

SHELLED GOODS COLD STORAGE

AND

SHELLED GOODS DRY STORAGE

Revised 2016

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These Good Management Practices are not standards nor are they mandatory, but represent consensus thinking on best practices in each area and it is strongly recommended that they be followed.

A. PROCESS DESCRIPTION

Peanut storage facilities are utilized for finished product storage of redskin and blanched peanuts. The storage facility should be clean and designed to promote good sanitation standards. The storage facility should be designed to prevent product degradation and cross-contamination.

B. CRITICAL AREAS

1. Maintain an Effective Sanitation Program

DOCUMENTATION OF ALL ACTIVITIES IS A MUST

- An on-going preventive program should receive the support of the manager responsible for the facility. The manager should make a daily inspection of the entire facility regarding its sanitation program.

- Any incoming shipments showing signs of active rodent activity must be rejected. Rodent trapping devices should be placed on each side of all entrance doors and every 25 feet around the interior perimeter of the facility. No feeding stations are to be placed inside the storage warehouses.

- Bait stations utilizing EPA registered rodenticide bait should be placed around the exterior perimeter of the building at 50-foot intervals. All rodenticide should be in block or liquid form.

- Detailed maps showing locations of every trap and bait station should be maintained. Records of successful catches should be kept to indicate if efforts should be increased in any sector of the storage facility.

- Any incoming shipments showing signs of active insect activity should be rejected or fumigated prior to entrance into the storage facility.

- Crack and crevice treatment with EPA approved insecticides should be applied by trained personnel on a regular schedule. Be sure to document pesticide usage.

- Personnel should be provided restricted areas for smoking, eating, or drinking while on the job. None of these activities should occur in the general product storage area.

- All lighting fixtures suspended over any stored product or along transportation lanes to and from the general storage areas should be equipped with safety-type (like shatter shield) light bulbs or be constructed so as to contain any glass which could accidentally be broken. All glass or brittle plastic suspended over stored product, or in a fashion that could contaminate if shattered, should be protected or fixed in a feasible way to prevent contamination.

- Facility grounds should receive regular maintenance: Grass should be cut weekly during the growing season. Weeds should be kept clear of fences and adjacent building foundations. Litter, waste, and scrap materials should be removed from the premises to eliminate harborage areas for rodents. Stagnant water should be drained from low areas to prevent insect breeding pools.

- Birds should be restricted from loading areas. Any nesting activities should be removed. Any bird droppings should be cleaned up immediately.

2. Maintain Adequate Cold Storage Conditions

- Temperatures should be maintained in the range of 34 to 41 °F with a relative humidity of 55 to 70 percent. Please note that a study undertaken by Chris Butts is being completed which may change the recommended temperature to 55 °F or less with a possible corresponding change to the relative humidity range. A revision will be issued upon publication of this study.

- Daily or weekly recording charts are recommended for permanent temperature and relative humidity reports. All recording charts should be kept for a period of appropriate time period before disposal.

- Air circulation throughout the interior storage should be adequate to maintain uniform temperatures throughout storage rooms with all doors closed. An inspection of randomly located thermometers at the beginning of the workday should confirm the presence of adequate air circulation.

- Adequate drip pans should be provided under any refrigeration equipment over stored product. Avoid storing product under equipment where condensate may drip on to the product.

3. Practice Sound Warehousing Procedures

- An 18" clearance should be provided around the perimeter of the storage area to allow routine inspections and the performance of scheduled pest control activities.

- The warehouse should be sealed to prevent infestation from outside pests. All outside door seals should be in good repair, with no daylight visible from the inside. Inspection and repair of cracks in walls and floors should be performed on a regular basis. Methods for controlling storage pests should also be considered.

- Pallets should be regularly inspected (and repaired) for the presence of any nails or split boards that could damage product containers. Pallets stored outside the cold storage room should be inspected and cleaned as necessary before usage. Be particularly attentive to pest activity in stored pallets.

- Product stack height should be limited such that containers can be kept vertical and free from contact with walls or column supports.

- Any leaking containers should be promptly patched, and spilled material swept up and discarded. Any containers falling onto floor should be immediately removed from floor.

- First in, first out should be the normal shipping policy from storage. Products held for excessive periods of time are more susceptible to infestation.

- Peanuts should not be stored in the same room with other items possessing pronounced odors. Even faint odors can be absorbed by peanuts and produce off flavors. The best practice is to designate specific storage space for peanut isolation. The term cross contamination refers to food ingredients becoming contaminated with microorganisms by transfer from raw to cooked products. Raw peanuts should only be stored in cold and dry storage warehouses thereby removing any possibility for cross contamination. Good Manufacturing Practices should be followed in storage facilities and strict guidelines should be adhered to for temperature and humidity requirements in cold storage facilities.

- Peanuts should not be stored in the same space with other food products to prevent the potential for food allergy cross contamination, or perception of contamination.

4. Shelled Goods Dry Storage

- **Dry Versus Cold Storage** - the objective of any storage program is to prevent spoilage of the peanuts between packaging and usage of the peanuts. Personnel should review the process leading to spoilage below.

- Peanut spoilage results primarily from two sources; pests and microorganisms. Pest control has been covered under the sanitation program section for cold storage. Microorganisms such as bacteria, molds, and yeasts multiply in number as the temperature of the stored peanuts increases. These microorganisms grow best on moist surfaces at temperatures of about 90°F (32°C). When their numbers multiply to excessive levels, the quality of the peanut quality attributes may deteriorate.

- Peanut deterioration can also result from chemical reactions, particularly oxidation, between naturally occurring enzymes. When oxidation occurs, the fat in the peanut becomes rancid and produces off-flavors. Oxidation of peanut enzymes increases as the peanut storage temperature rises.

- The storage life of peanuts increases dramatically as temperature and relative humidity are lowered. Ideally, peanuts should be stored within a temperature range of 34° to 41° degrees Fahrenheit with a relative humidity of 55 to 70 percent. The lower humidity level produces a lower moisture environment that retards the growth of molds. Temperature reduction not only retards the production of microorganisms but also breaks any insect reproduction cycles.

- While keeping in mind the causes of peanut spoilage, it is possible to store peanuts in non-refrigerated warehouses. Any ambient storage should not occur for more than a few days maximum at temperatures above 60°F (15°C). The lower the temperature below 60°F; the longer the storage time possible without any deterioration in the quality of the peanuts. The relative humidity at which peanuts are maintained during dry storage should be closely monitored. With elevated relative humidity levels, the greater the necessity for lower storage temperatures. The combination of excessive temperature and relative humidity must not be allowed for prolonged periods of time. Cold storage provides insurance in maintaining the freshness of peanuts. Each degree of temperature and relative humidity above the levels maintained in cold storage facilities decreases the duration at which maximum quality can be sustained.

If any of the above is observed, appropriate movement to cold storage should occur. Accurate records should be maintained of inventories in ambient storage to establish a policy of first in, first out shipments from storage. The maximum time for storing peanuts under ambient storage conditions depends upon the actual temperature and relative humidity of the ambient storage facility.
All procedures outlined under an adequate sanitation program apply equally to ambient storage as well as cold storage. Any pests present in an ambient storage environment will be more active than they would be under cold storage conditions. A thorough sanitation program is mandatory for ambient storage conditions.

5. Food Safety

Storage facilities must comply with the Food Safety Modernization Act (FSMA) Current Good Manufacturing Practice and Hazard Analysis and Risk Based Preventive Controls for Human Food unless they qualify for an exemption. Requirements under this rule can be found on the FDA FSMA website. FDA allows an exemption from this rule for facilities that are solely engaged in the storage of raw agricultural commodities other than fruits or vegetables but FDA has clarified that peanuts are considered a fruit or vegetable for the purposes of raw agricultural commodity storage so peanuts are not exempt under this provision.

Following are key aspects of a food safety plan.

- Hazard Analysis: The plan must identify and evaluate hazards for each type of food manufactured, processed, packed, or held at the facility.

- Preventive Controls: The plan must identify preventive controls that significantly minimize or prevent hazards. Preventive controls include process controls, food allergen controls, sanitation controls, and a recall plan.

- Monitoring Procedures: The plan must document procedures to ascertain that preventive controls are consistently performed.

- Corrective Actions: The plan must identify steps to take if preventive controls are not adequately implemented, to minimize the likelihood of problems reoccurring, to evaluate the food for safety, and to block problem food from entering commerce.

- Verification: The plan must spell out verification activities and document that preventive controls are effective and consistently implemented.

Details of implementing a food safety plan are available on FDA's website. Training curricula and guidance documents are being developed for delivery to organizations once all the FSMA rules are final. The American Peanut Council is directly involved in these efforts and will make resources available to help organizations comply with the new rules.

*Additional food safety practices can be found in the Industry Handbook for Safe Processing of Nuts published by the Grocery Manufacturers Association as well as the Addenda, Industry Handbook for the Safe Shelling of Peanuts.

http://www.gmaonline.org/downloads/technical-guidance-and-tools/Industry_Handbook_for_Safe_Processing_of_Nuts_1st_Edition_22Feb10.pdf

http://www.gmaonline.org/downloads/technical-guidance-and-tools/Addendum_I_rev_NutIndustryHandbook_Safe_Shelling_of_Peanuts_19May10.pdf