

**Pennsylvania Department of Agriculture
Bureau of Food Safety and Laboratory Services
717-787-4315
www.eatsafepa.com**

GUIDELINES FOR MAPLE SYRUP PROCESSORS



Maple syrup which may also be spelled “maple sirop” or “maple sirup” is the liquid derived by concentration and heat treatment of the sap of maple (*Acer* species) trees, or by the solution in water of maple sugar or maple concentrate made from such sap. The solids content of maple syrup may not be less than 66% by weight or more than 68.9% by weight, as measured in Brix units at a temperature of 68°F (room temperature).

The present document provides practicable guidelines for the sanitary production of Maple Syrup processing operations in compliance with the Food Safety Act (3 Pa. C.S.A. §§5721 - 5737). Producers of maple products will also be subject to federal rules within the Code of Federal Regulations (CFR’s) relating to food and good manufacturing practices.

All maple product producers in PA shall be licensed and subject to a \$35.00 Food Processors Registration fee by the PA Department of Agriculture (PDA).

Registration is not typically required for production of maple syrup which is designated for personal consumption and is given to close family or personal friends. Production of Maple syrup to offer as gifts to neighbors and friends *may* be subject to registration if determined that the product is being advertised in any way (flyers, classified ad, word of mouth, etc.). Registration is legally required for any food processor, if food products enter commerce, whether they are provided with or without a fee.

Prior to issuing a registration and during the initial inspection, the Food Sanitarian will be looking for the following at your facility:

Physical Structure of Facility:

Floors, walls and ceilings shall be kept in good repair and adequately cleaned. Every practicable precaution shall be taken to exclude birds, insects, rodents and other vermin and animals from the premises of the operations.

The grounds outside the maple syrup production building shall be kept clean and free of unnecessary clutter or equipment that could harbor pests.

Equipment and Utensils:

Equipment and utensils shall be adequate for their intended use. Equipment shall be designed to prevent food contamination and shall be made of durable, non-porous and easily cleanable material. Evaporator pans, buckets, tanks, and other food processing equipment shall not be made with solder containing lead in any quantity.

Pipeline tubing shall be made of food-grade materials.

Equipment for food-contact should not be constructed of wood, except that clean and sanitized wooden Spatulas/Paddles, which are made from hard maple or an equivalently hard close-grained wood, may be used in maple syrup production during the evaporation step.

Equipment constructed of copper should not be used for food contact with any acidic foods or ingredients (pH below 6.0). Maple sap/syrup has a nearly neutral pH, so this should not typically be a concern. Evaporator water produced through copper tubing may be of concern if the water is being used as a food ingredient or for warewashing, and the pH of the water is below 6.0.

Equipment constructed of galvanized metals are prohibited when in contact with acidic foods (pH below 6.0). Maple sap/syrup has a nearly neutral pH so galvanized metal buckets for sap collection would not violate current regulation. However, long term storage in galvanized metal containers/barrels is not recommended. No container capable of easily rusting should be used, and containers with thin galvanized coatings should be avoided as the coatings may quickly wear exposing a surface which will rust. No container containing lead, lead-containing paint, or lead solder should be used. Under no circumstances should a container which has ever contained a hazardous material be used.

Utensils and equipment shall be kept in a clean, sanitary condition at all times and shall be maintained in good repair and free from rust so as not to pose a risk of product contamination.

Rodent Control:

Effective measures shall be taken to exclude pests from the processing areas. The use of insecticides, rodenticides and other pest control measures shall be permitted only under such precautions and restrictions as will prevent the contamination of the product, and as legally applied, under the PA Pesticide Control Act, by a certified Pest Control Operator, if applicable.

Hygienic Practices:

Toilet facilities shall be provided and conveniently located near the processing facility. All personnel shall wash hands after each visit to the toilet facility. Personnel shall not use tobacco in the facility or while in contact with food or equipment. Employees shall be free of communicable diseases and wear clean outer garments that will not contribute to the contamination of the product.

Ventilation:

All openings shall be properly screened. Provisions shall be made for condensate removal during evaporation process. The evaporator fire shall be vented to prevent smoke and ashes from contaminating the syrup.

Lighting:

All facilities shall have sufficient light to permit efficient and effective operations. All lights located over exposed food, food areas used in any step of preparation, and in storage areas for food packaging containers shall be shatter-proof, shielded, or otherwise protected to prevent food adulteration in case of breakage.

Sanitation:

An effective cleaning schedule shall be implemented at all times to maintain the integrity of the products. All utensils and product contact surfaces of equipment used in processing or handling the product shall be cleaned prior to use and following any interruption during which utensils and contact surfaces may have become contaminated.

Pipeline tubing is a food contact surface and thus is subject to cleaning to remove any remaining sap and the mass of bacteria and yeast that build up during off-season. Sap tubing system cleaning should be done as soon as possible after the end of the season. Several methods of cleaning have been scientifically studied and one or combination may be utilized:

1. Chemical Cleaning Methods:

- a. Tubing system can be cleaned with an approved food-grade sanitizer solution (e.g. sodium hypochlorite) and rinsed with clear potable water prior to the next season of sap collection and or following any interruption during which the tube may have become contaminated.
- b. Processors may use the food-grade hydrogen peroxide instead of chlorine solution to avoid the off-flavor issue in the sap caused by the remnant residue of chlorine. Hydrogen peroxide breaks down without leaving any residue and is also reported, by maple syrup producers, not to attract rodents.

Household and industrial cleansers should not be used to clean tubing. Even food- grade isopropyl alcohol is not currently permitted for cleaning maple tubing in the U.S.

All chemical sanitizers and/or cleaners used in sap collection tubing systems, or in food processing operations in general, must be conformant with the FDA 21 CFR Part 178 _ Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers.

2. Non-Chemical Cleaning Methods:

Alternative non-chemical cleaning methods can also be used such as:

- a. *Pressurized air/water*, a mixture that is pumped through the sap collection tubing which creates frictional turbulence that can effectively remove the biofilm, yeast and other sap residues.
- b. *Dry cleaning* by running vacuum pumps while pulling taps, thus drying the tubing. Processors using this method shall discard the first run of the next season sap to rinse and remove contaminants from the system. Processors that drain the tubing system by gravity should inspect the droplines for adequate drainage and insure

that lines have no sags; sags trap the sap, and permit microbial growth and biofilm formation.

Other cleaning methods, not covered in this document, may be used if reviewed by the department and found to be effective in reducing contaminants.

After cleaning mainlines, taps or open ends of the pipe should be capped or sealed to reduce the risk of nest-building insects or rodents contaminating and plugging the pipe during the off-season.

Water Supply:

The water supply shall be ample for all operations (e.g. processing, cleaning, etc.) and shall be obtained from a potable public or private supply. Private water supplies must be tested annually each maple syrup season.

Note: Condensate water drawn from the evaporator and immediately used in equipment cleaning/ sanitizing is exempt from water testing. This water may not be stored for any length of time and used as potable water without adequate testing.

PDA water testing Protocol for Maple Syrup processors:

- *Initial testing for Coliform (1 sample) and Nitrate/Nitrite (1sample)*
- *Continual testing for Coliform - Annually*
- *Continual testing for Nitrate/Nitrite will be based on initial results.*

Additives:

All ingredients from which the food is fabricated shall be safe and suitable. Optional ingredients that may be used in Maple Syrup are:

- *Salt*
- *Chemical Preservatives*
- *De-foaming agents*

De-foaming agents are used as processing aid during manufacture. Such de-foaming agents, when used properly, being in insignificant quantities and having no functional or technical effect in the finished maple syrup, do not typically need to be declared on the product Label in the Ingredients List.

An **exception** for agents containing a "Major Food Allergen" as defined in the Food Allergen Labeling & Consumer Protection Act (FALCPA) of 2004 would require those agents be declared on the product Label.

Processors must keep and provide, upon request, documentation showing that the De-foaming agent used in production is free of food Allergens. (e.g. manufacturer specification sheet, product MSDS, etc.)

Maple Syrup By-Products:

Candy, creams, sugars, and flavored maple syrup products shall be handled according to good manufacturing practices, i.e., proper labeling, adequate packaging, sanitation, potable water, storage, etc.

Storage Facilities:

Storage facilities shall be maintained clean and dry.

All syrup and by-products that are not bottled or canned shall be adequately protected and covered to prevent contamination and/or adulteration. Products shall be stored off the floor and away from walls, including drums used for long term bulk storage of syrup. Only food grade containers shall be used for bulk storage (e.g. stainless steel, food grade plastic, or one-time use food grade epoxy coated steel drums).

Bottling/Packaging:

Maple Syrup shall be bottled hot at a temperature of 180°F or higher. The high temperatures at packaging ensure sterile containers. Containers hot-filled with syrup should be inverted immediately after being hot-filled and sealed to expose all surfaces of the containers to the hot product.

Canning jars, syrup jugs and other similar canning containers that are designed for reuse, including bulk storage containers (drums, barrels, and other similar bulk containers used to store or ship maple syrup), shall be washed and sanitized prior to filling.

Closures for syrup containers shall not be reused. Bulk containers, such as drums and barrels, designed with reusable bungs and/or caps, may reuse those closures, if they are washed and sanitized before use.

Retail containers shall be single service and properly cleaned before filling; it should not be assumed that new containers are clean when received from the distributor/ manufacturer.

Labeling:

All information on the label must be truthful and not misleading. Prepackaged syrup shall be labeled to show:

- a. Statement of Identity – the common or usual name of the food product.
- b. Name and address of Manufacturer/distributor.
- c. Net Contents by volume.
- d. Ingredients, when using optional ingredients/additives as stated above.

Note: If nutrient content claims (i.e. low fat, salt free, etc.) or health claims (i.e. may reduce heart disease) are made, the product label must bear the Nutrition Facts Panel.

For more information, contact:

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FDA Registration:

The FDA Food Safety Modernization Act (FSMA) enacted on January 4, 2011, amended section 415 of the Federal Food, Drug, and Cosmetic Act (FD&C Act), in relevant part, to require that facilities engaged in manufacturing, processing, packing, or holding food for consumption in the United States register their facilities with FDA.

Maple syrup producers are required to register their facility with FDA if they manufacture maple syrup from sap collected from trees they tap or from sap purchased from others. FDA Registration is also required if the facility makes other maple products for human consumption and / or sells maple syrup or maple syrup products to consumers from the sugarhouse, farm or other outlets.

For more information contact FDA at 1-800-216-7331 or 301-575-0156 or visit their website at <http://www.fda.gov/Food/GuidanceRegulation/FoodFacilityRegistration/default.htm>

FSMA Preventive Controls Rule:

Maple Syrup processing firms that fall under the category of **small and very small** business AND the syrup production is done **On-Farm**, may be exempt from the FSMA PC Rule because maple syrup processing operations are considered low-risk. Such firms still must comply with the current Good Manufacturing Practices (cGMPs).

All other Maple Syrup producers that do not meet the above size and on-farm criteria will likely need to comply with at least some portion of the Preventive Controls Rule. Very small off-farm businesses may be eligible as “Qualified Facilities” for PC Modified Requirements while Small off-farm businesses and large firms may be subject to the full requirements for establishing and implementing a *comprehensive Hazard Analysis and Risk-Based Preventive Controls (HARPC)* plan.

For more information about FSMA, visit the FDA website at www.fda.gov/fsma

REFERENCES

- [PA Food Safety Act \(3 Pa. C.S.A. §§5721 - 5737\).](#)
- [FDA 21 CFR Part 110 – Current Good Manufacturing Practice \(cGMPs\)](#)
- [Click here to find the Code of Federal Regulations related to FSMA’s new Preventive Controls for Human Food Final Rule \(21 CFR 117-- cGMPs, Hazards Analysis, and Risk-Based Preventive Controls for Human Food\).](#)
- [21 CFR PART 168 -- SWEETENERS AND TABLE SIRUPS](#)
- [Food Allergen Labeling And Consumer Protection Act of 2004 Questions and Answers](#)
- [FDA 21CFR Part 178-Indirect Food Additives: Adjuvants, Production Aids, and Sanitizers.](#)
- [U.S. Grade Standards for Maple Syrup \(pdf\)](#)
- [FSMA Preventive Controls for Human Food Rule - PDA Fact Sheet](#)
- [www.EatSafePa.com](#)
- [http://extension.psu.edu/food/safety/food-safety-modernization-act](#)