



Wisconsin Food Code Fact Sheet



What is Freeze-Drying?

Freeze-drying, also known as lyophilization, is a process whereby a product is dried under low temperature and a vacuum. During the freeze-drying process, dehydration takes place while the product is in a frozen state and under a vacuum, allowing the ice to vaporize. The water activity (A_w) of the end product must be below 0.88 A_w to be considered shelf stable.

Freeze drying does not provide a kill-step, meaning pathogens are preserved in this process. Every step of the process requires good personal hygiene, proper holding temperatures for time/temperature control for safety foods, proper cooking temperatures for cooked products, food from an approved source, and prevention from cross-contamination.

Equipment Requirements

Wisconsin Food Code 4-205.11 requires food equipment to be certified for sanitation by an American National Standards Institute (ANSI) accredited certification program. A consumer grade freeze-dryer will require the Department of Agriculture, Trade and Consumer Protection (DATCP) approval before it can be used in a licensed retail establishment. Contact the equipment mailbox for more information: DATCPEquipmentWorkgroup@wisconsin.gov

License Requirements

The process of freeze-drying food products to sell requires a license. The type of license required often depends upon how you intend to distribute the product. For sales direct to consumer, contact your local health department. If you intend to primarily wholesale the product contact DATCP at (608) 224-4923 or datcpdfslicensing@wi.gov.



Time/Temperature Control for Safety Food (TCS Foods)

Foods such as yogurt, ice cream, animal foods, and plant foods that have been heat-treated, raw seed sprouts, cut melons, cut leafy greens, and cut tomatoes that require time/temperature control for safety to limit pathogenic microorganism growth or toxin formation require a variance and Hazard Analysis and Critical Control Points Plan (HACCP) if freeze dried. Laboratory testing showing that a product is non-TCS may also be required for each product.



Non-TCS Foods

Candy, as well as most fresh fruits and vegetables, are considered non-TCS, shelf stable and do not require any additional approvals for processing in a freeze-dryer.



Silica Packets and Oxygen Absorbers

- Packaging used must be intended for the storage of freeze-dried food and maintain the nature of the finished product.
- Silica packets are placed in the packaging and used to absorb and protect the food product from moisture.
- Oxygen absorbers are another product often placed in the packaging to extend the shelf life of the food product by removing oxygen.
- Using oxygen absorbers creates a reduced oxygen packaging (ROP), which is considered a special process when used in conjunction with TCS foods and requires a variance and HACCP plan.
- Silica packets and oxygen absorbers must meet specifications for contact with food products.

Additional Information

Contact the DATCP Retail Technical Specialists at DATCPDFRSRETAIL@wisconsin.gov



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Note: this guidance pertains to retail food establishments only.

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