



MONTANA WHOLESALE FOOD PROGRAM

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Acidified Food Overview

The purpose of this document is to help food operators and interested parties understand acidified foods and what this status means from a regulatory perspective. In general, acidified food processing is riskier than other types of food processing because of the increased potential to cause foodborne illness. This is the reason why there are specific regulations for this type of food processing, both at the wholesale and retail levels.

Legal references: Administrative Rules Montana 37.110.101 (1)(p)/21 CFR 108, 37.110.101(1)(u)/21 CFR 114 and 37.110.265/3-502.11(c).

Question: What is an acidified food?

Answer: An acidified food is an ingredient or ingredients to which a mild organic acid has been added to make the food safe for the type of storage planned for the finished product. Acidified foods may also claim to be “pickled” or referred to as “pickles.” Many salsas, pickled beets and cold-pack pickles are types of acidified foods.

This is the simple answer.

For example, an operator plans to put cooked carrots into a jar. The operator also plans to store the jarred vegetables on a dry-storage shelf, until they are needed. In this case, it is likely the cooked carrots would be immersed in vinegar during the jarring process. Vinegar is a mild organic acid known as acetic acid. Cooked carrots are slightly acidic, but not enough to be safe when put in a hermetically sealed glass jar with a lid or metal can.

The purpose of adding the vinegar is to make the carrots more acidic, so the canned or jarred carrots can be safely stored without refrigeration. The increased acidity decreases the chances of harmful organisms growing or surviving in or on the food.

Acidified Food Examples

Food	Container	Acidifying agent	Storage
Salsa	glass jar with metal lid	acetic acid (vinegar)	dry-storage shelf, no refrigeration
Roasted peppers	glass jar with metal lid	citric acid	dry-storage shelf, no refrigeration
Pickles (fermented cucumbers)	glass jar with metal lid	acetic acid (vinegar)	dry-storage shelf, no refrigeration
Pickled beets	glass jar with metal lid	acetic acid (vinegar)	dry-storage shelf, no refrigeration
Pickled eggs	glass jar with metal lid	acetic acid (vinegar)	dry-storage shelf, no refrigeration
Cooked carrots	glass jar with metal lid	acetic acid (vinegar)	dry-storage shelf, no refrigeration

Question: What is an acid food or high-acid food?

Answer: An acid food is an ingredient that naturally has a pH value of 4.6 or less. Although not technically defined, a high-acid food is an ingredient that naturally has a pH of 3.9 or less. In other words, nothing needs to be added as an ingredient to lower the pH of the food to be at or below pH 4.6.

For example, many berries and fruits are naturally acidic, but there are many exceptions to this statement, such as some tropical fruits. Most berries and fruits are called high-acid foods because its natural pH is low. A high-acid food means the pH value is low, and the acid content is high.

Question: What is pH?

Answer: pH is a technical term for how acidic or basic a solution is under testing conditions.

The best way to understand pH with regards to food is the fact that most foods have a pH value that falls within the range of 2.5 to 7.5.

For example, cooked carrots have a pH between 5.58 and 6.03, while chili sauce has a pH between 2.77 and 3.70.

pH References Table

pH Value	Term	Examples
0.0 to 6.9	High-acid	Grapes 2.8 to 3.8
		Apples 3.3 to 3.9
	Low-acid	Honey 3.7 to 4.2
		Peppers 4.7 to 5.6
		Red meat 5.4 to 6.2
7.0	Neutral	Cow milk 6.4 to 6.8
7.1 to 14	Basic	Pure water 7.0
		Cooked spinach 7.2
		Tea 7.2
		Tofu 7.2

Question: Are fermented ingredients acidified foods?

Answer: This depends on the final pH of the food after the fermentation process is artificially stopped or naturally completed. If the final pH of all parts of the fermented food is 4.6 or less, the food would not be an acidified food.

Fermented foods are naturally low-acid foods subjected to the acidifying action of microorganisms. The microorganisms produce mild organic acids, and in cases can lower the pH of the food to 4.6 or less. Examples of fermented foods include some kinds of sauerkraut, pickles and green olives.

Question: Are acidified foods that are refrigerated subject to special regulations?

Answer: No, provided the finished product is kept under refrigeration at or below 41 degrees Fahrenheit.

Acidified foods that are not refrigerated are subject to special regulations to primarily prevent poisoning from botulinum toxins. The regulations for acidified foods are under Administrative Rules Montana 37.110.101 (1)(p)/21 CFR 108, 37.110.101(u)/21 CFR 114.3 and 37.110.265/3-502.11(c).

Question: Is there special training involved if I am selling or offering unrefrigerated acidified foods?

Answer: Yes. The purpose of the training is to ensure that food processors are manufacturing a safe product. The training requirements are different for wholesale and retail manufacturers.

WHOLESALE FOOD: Wholesale acidified food processors are required to have someone in a supervisory role overseeing the food processing who has successfully completed an approved training curriculum for acidified foods. An approved training curriculum is one that is recognized by the commissioner of the United States Food and Drug Administration. Many state university systems regularly offer acidified food training courses.

In Montana, acidified food training courses are occasionally offered, but are driven by demand. Contact the state health department for more information.

RETAIL FOOD: Retail acidified food processors are required to have a certified food manager in a supervisory role. Many online opportunities exist for obtaining this certification. Also, many local health agencies offer food manager courses. Contact the state health department or your local sanitarian for more information.

In addition to the training, retail acidified food processors that only have one barrier for safety of the food need variance approval from their local regulatory authority. However, if two safety barriers are in place for the acidified food, no variance is needed.

Question: If I refrigerate the finished acidified food product, do I need special training?

Answer: For wholesale food establishments, no. For retail food establishments, maybe not, depending on what other food processing is being done at the establishment.

Question: If I do not want to refrigerate the finished acidified food product, do I need any testing done on the product?

Answer: Yes. The purpose of the testing is to ascertain the processing parameters to ensure safety of the food.

Usually, food license applicants send products into university testing laboratories to be assessed by what is known as a “process authority.” The process authority tests the food for pH and other factors to establish safety parameters. The parameters include establishing time, temperature and handling limits to ensure safe food.

The process authority is a person whose expert food safety knowledge has been acquired through both training and experience in the acidification and processing of foods. This is usually done by food safety experts at public universities that have food programs.

After testing is complete and parameters established, the process authority will issue a written letter that details safety parameters for the food. This letter is needed for the regulatory authority to issue a food license to operate.

Question: The current retail food law makes reference to high-acid canned foods in MCA 50-50-102 (4)(b)(i) , and gives examples. It states: “*high-acid canned goods, including but not limited to tomato sauce, fruits, pickles, or other vinegar-based foods;*”

Are the examples in this part of the law actually high-acid foods?

Answer: Probably not. The examples cited in the current law are more than likely acidified foods, not high-acid canned foods.