

ACIDIFIED FOODS



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According to the Food and Drug Administration (FDA), an acidified food is a low acid food with ADDED acid to obtain a pH of 4.6 or below, and a water activity greater than 0.85. [1] From the regulatory point of view, foods are classified as acid, low acid or acidified depending on the natural acidity of each product. A product's acidity is measured based on a pH scale. If the raw or initial product has a pH above 4.6 it is considered a low acid food. If the raw or initial pH is below 4.6 then the food is classified as an acid food. Acidified foods are low acid foods to which acid or acid ingredients are added to produce a final equilibrium pH of 4.6 or below. Equilibrium pH means the final pH measured in the acidified food after all the components of the food have achieved the same acidity. [2] Typical acidified foods include BBQ sauces, hot sauces, salsas, pickles, and cocktail mixes.

This guide is meant to briefly instruct the reader on the process of creating an acidified food, typically meant to be shelf stable (in other words, it can be stored outside the refrigerator). In this case, a combination of filling the final container with the hot acidified food and holding inverted (upside down) at that fill temperature for a time described in literature, produces a shelf stable finished good.

STARTING AN ACIDIFIED FOODS BUSINESS

Scaling an acidified foods business is a multi-step process that ends when a validated thermal process is filed with the Food and Drug Administration (FDA). In Minnesota, it will also involve working with the MN Dept of Ag (MDA) for a wholesale food manufacturer's license.

There are three components to getting a Wholesale Manufacturer's License for an acidified food:

1. Formalize your business structure with the [MN Secretary of State](#) (e.g., as an LLC).
2. Move production into an MDA-inspected commercial kitchen to get a license, when ready. A directory of commercial kitchens in Minnesota is available [here](#).
3. Work with the licensing authority (in Minnesota, the [MDA Food Licensing Liaison](#)) to schedule a production inspection - this will include the producing location in addition to your label and production records.

To launch a shelf stable acidified food, a business will also need to have a process authority letter to file with the FDA and for the inspector to review. To get this letter, you must be a licensed acidified food processor. In Minnesota, here are some additional details through the [University of MN Extension service](#) (this site walks you through the steps necessary to complete before you can become a licensed acidified foods processor).

Step 1: Each "operating supervisor," the person who is in the plant at the time the acidified product is processed and packaged, must be certified through an accredited training program. The website above offers a number of training options, but most prefer the NC State Online course to complete this requirement, located [here](#).

Step 2: Prior to making or selling items, the process must be approved by a processing authority (in Minnesota, you can find a process authority [here](#), under Step 2).

Before you can receive a process authority letter, your product must have a pH less than 4.6 (an equilibrium pH at or below 4.2 is preferred, as it builds in a margin of safety) and be hot filled into clean containers. Once hot filled, the jar must be inverted and held at that fill temperature for at least the specified period of time. Figure 1 below shows the relationship between fill temperature and the required hold time in different pH ranges. [3]

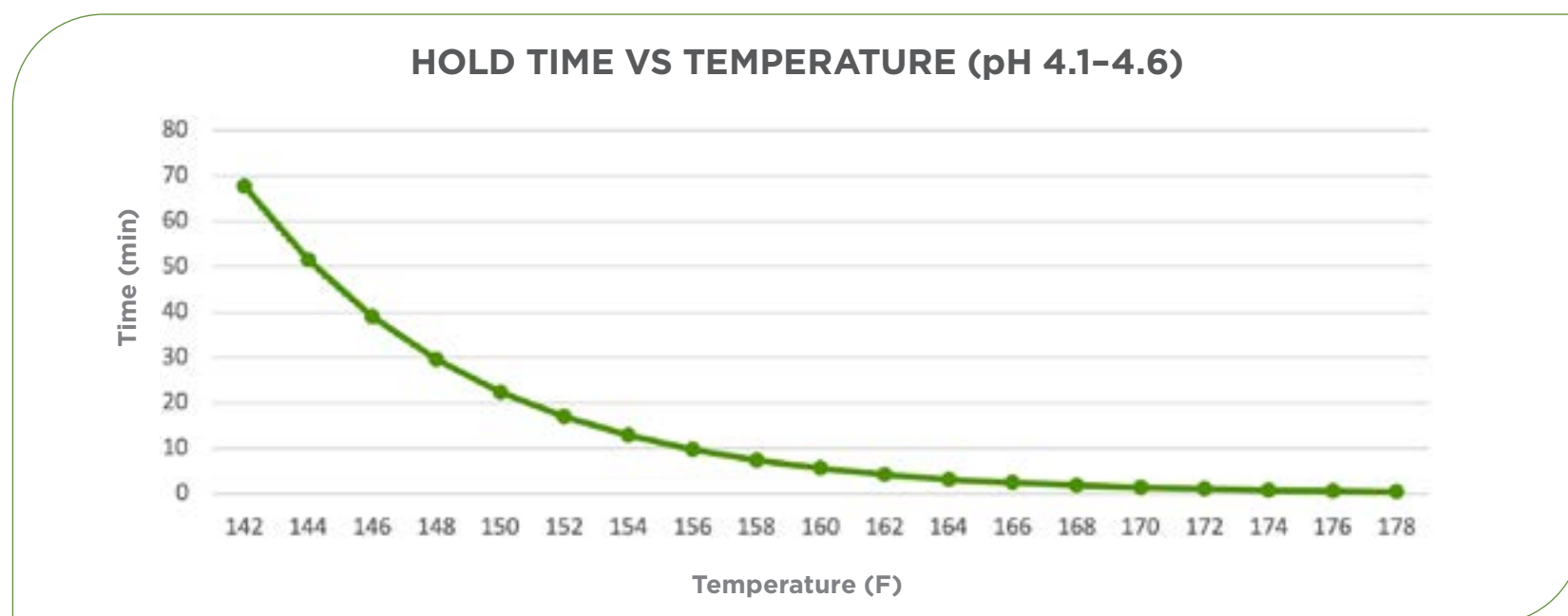
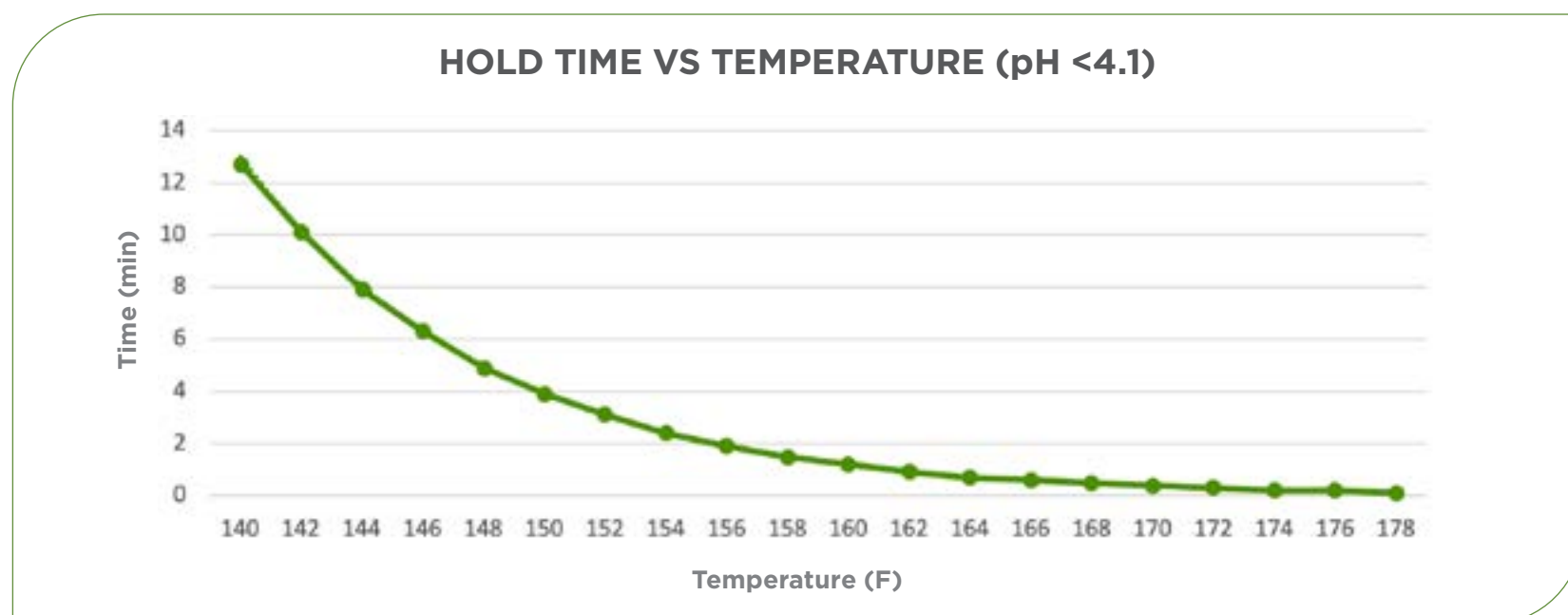


Figure 1: Time and temperature relationship for a hot fill process in two pH ranges. [3] To use, first select the chart appropriate to the product pH. Then, select the fill temperature along the X-Axis and read up to the line to get the corresponding minimum fill time at that temperature in that pH range. Note that specific time and temperature combinations must be approved by your Process Authority and may differ from those shown here).

Step 3: File your thermal process, once you receive a finalized version of the process authority letter, with the FDA. [4,5]

Step 4: Set up production at your commercial kitchen according to your process authority letter, including regular (each batch) measurement and documentation of your product pH and bottle fill temperature (these are known as your critical control points). Critical control point data are captured in a batch manufacturing record, or batch sheet, and retained as a part of your food safety traceability program. [6] You can review how to create a batch sheet, [here](#).

The primary advantage of an acidified food is that it can be stored without temperature control (at room temperature). However, these processes are tightly managed by the regulatory authorities as improper management can result in a catastrophic food safety event with foodborne pathogens, such as *Clostridium Botulinum*. It is strongly recommended to consult with experienced and/or professional individuals to ensure the safety of both your food product and your consumers.

REFERENCES:

1. <https://extension.umn.edu/food-safety/food-processors>
2. <https://cals.cornell.edu/cornell-agritech/partners-institutes/cornell-food-venture-center/acid-acidified-foods>
3. https://foodsafety.wisc.edu/wp-content/uploads/sites/1026/2024/01/Developing_HotFill.pdf
4. <https://www.fda.gov/food/guidance-documents-regulatory-information-topic-food-and-dietary-supplements/acidified-low-acid-canned-foods-guidance-documents-regulatory-information>
5. <https://www.fda.gov/food/establishment-registration-process-filing-acidified-and-low-acid-canned-foods-lacf/establishment-registration-process-filing-acidified-and-low-acid-canned-foods-lacf-paper-submissions>
6. <https://iastate.pressbooks.pub/foodproductdevelopment/chapter/batch-sheets-for-scale-up>