



Approved Canning Methods: Types of Canners

Choosing the correct canning method and canner for the food you are preserving is critical to making both a safe and quality home canned product.

 ARTICLES | UPDATED: MAY 13, 2019



Martha Zepp, The Pennsylvania State University

The three scientifically tested and approved methods of canning for home food preservation are pressure canning, water bath canning, and atmospheric steam canning. These methods heat food in sealed jars until the food is hot enough to destroy spoilage organisms. Applying heat to the jar allows air to be vented or forced from jars to create

an airtight vacuum seal. The most important choice for a safe product is to choose the canning method that will destroy all harmful bacteria and prevent their growth during storage. Canning methods are also called processing methods.

Pressure Canner

A pressure canner is a sealed unit that when heated builds up pressure inside increasing the temperature. Pressure canning is a must for processing low acid vegetables and meats. Low acid vegetables include all vegetables except acidified tomatoes, pickles and sauerkraut. Low acid foods can support the growth of

botulism spores that can survive the boiling point of water. The temperature inside a weighted gauge pressure canner at 10 pounds pressure and in a dial gauge pressure canner at 11 pounds is 240°F at sea level which is adequate to destroy botulism spores—a potential source of deadly food borne illness

Types of Pressure Canners

A dial gauge pressure canner has a dial that indicates the pressure inside.

- As heat and pressure increase inside the canner the dial rises.
- Gauges may indicate each ½ or 1-pound increment; others mark only 5-pound increments leaving the user to determine the pounds in between.
- A dial gauge allows the user to determine pressure increments for higher altitudes. At altitudes of 2,000 feet or below, pressure should be 11 pounds for meats and vegetables, and 6 pounds for fruits.
- It is necessary to monitor the gauge and adjust heat when it is in use to maintain the correct pressure.
- It is recommended that dial gauges be checked for accuracy each year. Contact your local [Penn State Extension Office](#) for testing information

A weighted gauge pressure canner has a weight that controls the pressure.

- One type of weight is a flat disk with 5, 10, and 15-pound markings.
- Another type consists of three metal rings that sit on top of each other; for 5 pounds only one ring is used; an additional ring is added for each additional 5 pounds.
- When the pressure inside a weighted gauge canner is reached, the weight will “jiggle” indicating the proper temperature inside. Some weights jiggle 3 or 4 times a minute; others jiggle continuously. Consult the manufacturer’s directions for the canner you are using.
- Because you can hear the jiggles, you can monitor the pressure without being constantly beside the canner.
- Weighted gauge pressure canners process meats and vegetables at 10 pounds pressure and fruits at 5 pounds pressure. At altitudes above 1,000 feet it is necessary to increase the pressure by 5 pounds.
- Weighted gauge canners do not need tested for accuracy.

Boiling Water Canners

A water bath canner surrounds the jars of food with boiling water, transferring the heat into the jar of food. Fruits, acidified tomatoes, pickled products, and jams and jellies can be safely processed in a boiling water bath.

- Jars need to be totally surrounded by the boiling water.
- A rack is needed to allow water to circulate under the jars.
- There needs to be space at the top of the canner so that jars can be covered with one to two inches of water.
- The canner needs a lid.
- A boiling water bath canner may be purchased, or you can create a water bath canner from equipment you already have. You need a pot that is deep enough so there is space for a rack, the jars, and at least one inch of water above the jars, and room for the water to boil rapidly without boiling over.
- **Note:** Some newer canners are designed for processing jams and jellies and are only deep enough for pint jars.

Atmospheric Steam Canners

Atmospheric steam canning is the latest method approved for home food preservation. Research conducted by the University of Wisconsin shows that steam in an atmospheric steam canner reaches the temperature of boiling water (212° F) and is safe for processing high acid foods the same as boiling water.

- An atmospheric steam canner usually has a low base with a rack and a tall lid that fits over the jars.
- The lid has one or two holes near the base that allows steam to escape.
- The lid needs to be left in place and the canner heated to force air out of the canner until a column of steam forms that is 6 to 8 inches long. Steam is hotter than air.
- Foods processed in boiling water can be safely processed in an atmospheric steam canner. Processing times are the same.
- **Note:** Foods that are processed longer than 45 minutes should not be processed in an atmospheric steam canner because the canner could boil dry.

Unsafe Canning Methods

Some canning methods that were used years ago are no longer considered safe. **Do Not Use These Methods for Home Food Canning.**

- Open kettle method or hot fill involves pouring hot food into jars and allowing the heat of the food to cause the jars to seal. **This is not safe!** There is inadequate heat to destroy spoilage organisms. This method is no longer recommended for pickles, jams or jellies. Processing these foods briefly will destroy molds, yeasts and bacteria in the head space. Processing also drives air out of jars providing stronger vacuum seals.
- Placing jars in the oven for processing can be dangerous because jars may explode, injuring you, and heat may not be distributed evenly inside the jars. Jars are not designed for oven temperatures. Old cookbooks may give directions for oven canning, but it is no longer recommended.
- You may even find directions for canning in microwave ovens, slow cookers, crock pots, dishwashers, or the sun. These methods can be extremely dangerous and are not recommended. Avoid canning powders or chemicals that try to replace heat processing.

Practice Safety

- Use the pressure canner for low acid foods.
- Use a boiling water bath or atmospheric steam canner for high acid foods. If you choose, high acid foods such as fruit may be safely pressure canned; the product may be softer than processing it in a boiling water bath.
- Follow scientifically research tested recipes and process for the correct length of time and at the correct pounds pressure (if applicable).
- [Let's Preserve: Basics of Home Canning](#) provides additional information.