

Using and Caring for a

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P R E S S U R E

Canner

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Why use a pressure canner in home canning?

To safely home can low-acid foods, the only practical way to obtain high enough temperatures is to process filled jars of food long enough in a steam pressure canner.

Temperatures higher than the boiling point of water (212 degrees F) are needed to destroy heat-resistant bacteria and their spores that can spoil low-acid vegetables, meat, poultry or fish. Of special concern is *Clostridium botulinum*, a spore-forming bacterium that must be destroyed by high-temperature processing to prevent its growth in low-acid canned foods. If the heat-resistant spores are not destroyed, they can produce a deadly toxin in the sealed jar.

At sea level, a pressure canner produces a temperature of **240 degrees F** in steam, free of air, at **10.5 pounds of pressure**. This is the minimum temperature you need for canning low-acid foods at home.

Preventing temperature errors

At altitudes above sea level, or if air gets trapped in a canner, serious errors can occur in the temperatures pressure canners obtain. Here are two ways to ensure accurate high temperatures:

1. **Internal canner temperatures are lower at higher altitudes.** To prevent this error, canners must be operated at increased pressures at higher altitudes. Weight-control pressure canners have enough built-in compensation to attain 240° F at elevations up to 1,000 feet. Dial-gauge canners do not compensate, and should be operated at 11 pounds of pressure at all Wisconsin altitudes.

At Wisconsin altitudes, which range from about 500 feet to almost 2,000 feet above sea level (see altitude map), operate:

- Dial-gauge canners at 11 pounds of pressure.
- Weight-control canners at
 - 10 pounds of pressure at altitudes up to 1,000 feet, and
 - 15 pounds of pressure above 1,000 feet.



Wisconsin elevation map*

KEY

■ **Elevation above 1,000 feet.**

Use processing times recommended for above 1,000 feet.

□ **Elevation below 1,000 feet.**

Use processing times recommended for up to 1,000 feet.

*This is generalized data. If in doubt, use processing times recommended for above 1,000 feet, or call your county UW-Extension office for an estimate of the altitude in your community (listed under county government in your telephone directory).

Source: The Wisconsin Geological and Natural History Survey, University of Wisconsin-Extension.



2. **Air trapped in a canner lowers the temperature obtained at 5, 10 or 15 pounds of pressure, and results in underprocessing.** The most air is trapped in dial-gauge canners when processing raw-packed foods. These canners do not vent air during processing. To be sure the least amount of air is mixed with the steam, **vent ALL types of pressure canners for 10 minutes before pressurizing them.**

Note: Use 5 pounds of pressure only for cooking, not for canning.

Essential canner parts and their care

Pressure canners have been extensively redesigned in recent years. Late-model pressure canners are lightweight, thin-walled kettles. Most have turn-on lids.

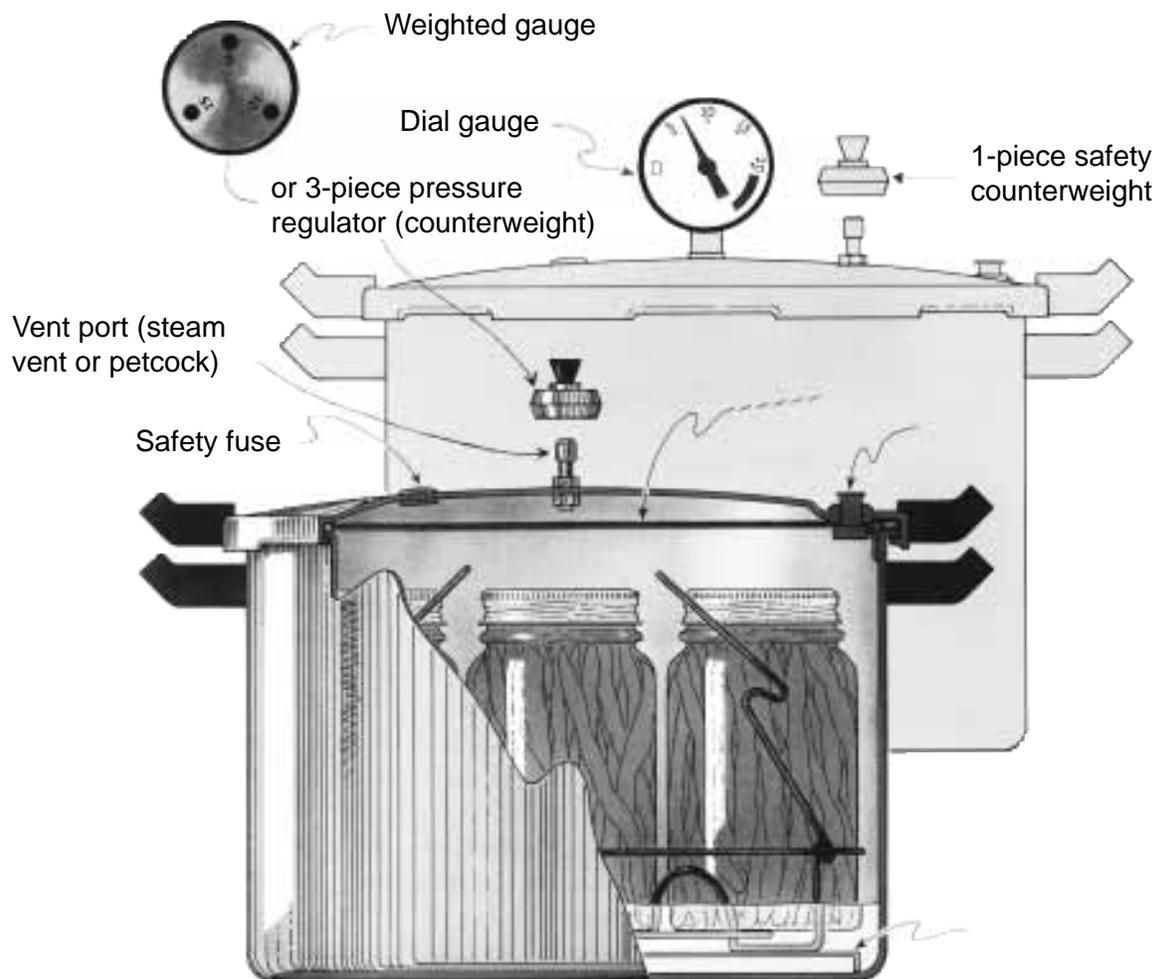
Pre-1970s models were heavy cast sheet aluminum or steel with clamp-on or turn-on lids. Many of these are still in use, and can safely be used IF you have the gauge tested each year, replace it when necessary, and keep the gaskets in good condition. But be sure to use a current canning guide for processing times, instead of the manufacturer's instruction book. Current canning guides are available from your county UW-Extension office, or the address on the back of this booklet.

Whether new or older, pressure canners should have each of the following (see illustration):

- A cover that locks in place
- A dial, a weighted gauge (control) or a 3-piece pressure regulator (counterweight)
- A steam petcock or vent port, and a 1-piece safety counterweight
- An automatic vent and cover lock
- A gasket (except certain models with metal-to-metal lid closure)
- A safety fuse or plug
- A jar rack

Use only canners that have the Underwriter's Laboratory (UL) approval to ensure their safety.

Parts of a pressure canner



Note: Your pressure canner may not look like this—parts may be different, or in different places.

Graphic reprinted with permission from *Complete Guide to Home Canning Guide 1: Principles of Home Canning*, Agriculture Information Bulletin No. 539-1 (Washington, DC: U.S. Department of Agriculture) 1994, page 20.

Covers and locking systems

Pressure canner covers lock in place so they cannot be lifted by steam. Most have turn-on lids that lock one thread of metal on the cover under or over a similar thread on the canner kettle. A few models have metal lids that lock to the kettle by turning a thumb-screw clamp.

It's important to remove the canner lid after processing as soon as the pressure inside the canner returns to zero. If the lid is not removed at this time, it may be very difficult to loosen. Removing the lid as soon as the canner depressurizes also lets you get the jars of processed foods out of the canner promptly and onto the counter for cooling.

Pressure regulators

Weighted-gauge models exhaust tiny amounts of air and steam each time the gauge rocks or jiggles during processing. They control pressure precisely, and do not need checking for accuracy. The sound of the weight rocking or jiggling indicates that the canner is maintaining the recommended pressure.

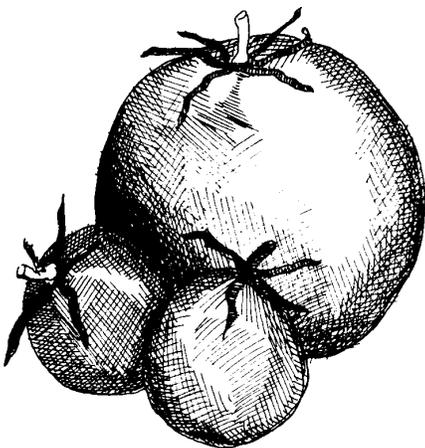
The only possible disadvantage of weighted-gauge canners is that they cannot correct precisely for higher altitudes. At altitudes above 1,000 feet, they must be operated at canner pressures of 15 pounds instead of 10 pounds of pressure (see *Preventing temperature errors* on page 1).

Dial-gauge models need careful monitoring during the canning process. You must adjust the burner heat to keep the pressure steady. You may find you need lower burner heat during the last portion of the process period than in the earlier stages, because the food inside the jars will have reached higher temperatures.

Try to maintain a constant pressure. Fluctuating pressures during processing can cause the jars to lose liquid. If the pressure increases by only a pound or two during processing, stabilize the pressure at the higher level, rather than reducing the heat enough to drop back to the original pressure you were using.

Note: During processing, **if the pressure ever falls below** the recommended pounds of pressure — 10, 11 or 15 pounds, depending on altitude and type of canner — **bring the pressure back up and begin timing again for the entire time period.**

Test dial gauges every year. Testing can be done at a county UW-Extension office or by the manufacturer. If you have the testing done at an extension office, bring the entire canner in with you so gaskets can also be examined. If you plan to have the manufacturer test your gauge, contact them for shipping instructions.



Gaskets

Gaskets should be in good condition. Rubber or rubber-like gaskets keep steam from leaking out around the cover. If your pressure canner is leaking steam anywhere except the steam port or open petcock, **replace the gaskets.** Replacements are available at most hardware stores, or you can order them from the manufacturer. State the canner model number when ordering.

Keep gaskets clean, dry, and free of grease. Putting soapy water on a new gasket makes it easier to install.

Safety fuses or plugs Lid safety fuses are thin metal inserts or rubber plugs designed to relieve excess pressure from the canner. **DO NOT** scratch the plug while cleaning the lid.

Using a pressure canner

Follow these steps in using a pressure canner:

1. Put 2 to 3 inches of hot water in the canner. Place filled jars on the rack, using a jar lifter. Fasten the canner lid securely.
- 2-3. Leave the weight off the vent port, or open the petcock. Heat the canner rapidly until steam flows freely from the vent port or petcock. **Let the steam flow for 10 minutes**, and then either place the weight on the vent port or close the petcock. The canner pressure will rise during the next 3 to 5 minutes. Gradually lower the burner heat as the pressure gets near the desired level.
4. Start timing the process when the pressure reading on the dial gauge indicates the recommended pressure has been reached, or when the weighted gauge begins to jiggle or rock.
5. Regulate the heat under the canner to maintain a steady pressure at or slightly above the correct gauge pressure. Pressure jumps during processing may cause jars to lose liquid. Weighted gauges on Mirro canners should jiggle about 2 or 3 times per minute. On Presto canners, they should rock slowly throughout the process. * For processing times, use current canning guides available from your county UW-Extension office.
6. When the process time is completed, turn off the heat. If possible, move the canner off the hot burner. Let the pressure drop of its own accord. **DO NOT run cold water over the lid, or open the vent port or petcock.** Doing either of these things may cause significant liquid loss from jars or food spoilage, and may warp the lid on older canners.
7. When the canner is depressurized — usually in about 30 to 45 minutes for old heavy canners and more quickly in thin-walled canners — remove the weight from the vent port or open the petcock. Wait a minute or two, then remove the lid. Tilt the lid away from you, so the steam does not burn your face.

* Reference to products is not intended as an endorsement to the exclusion of others that may be similar. If you use them, be sure to follow the manufacturer's current label directions.

8. Remove jars with a jar lifter, and place them on a towel or cooling rack. Do not tighten the bands, which will be loose. Retightening may damage the seal. Let the jars stand without disturbing them for 12 to 24 hours. You will hear the lids “ping” to seal as the jars cool.

After 12 hours, test the seals by pressing one finger on the middle of the lid. If the lid stays depressed, you have a good seal. If it springs up when you release your finger, the lid is unsealed.

Jars that **do not** seal can be reprocessed, provided you do it within 24 hours of the first processing. Replace the lid with a new one, and reprocess for the complete time specified for the product. If you do not want to reprocess the food, freeze the contents of each jar right away in plastic freezer bags or containers that close tightly. Use masking tape to label and date each package.

The level of food and liquid in raw-packed jars will be lower than it was when you placed the jars in the canner. Air is driven out of the food during processing, and the food shrinks. If a jar loses liquid during processing, it will still be safe to use if the seal is good. **DO NOT** open the jar to add more liquid.

9. After 24 hours, carefully remove the metal bands and wipe the outside of the jars. Label and date them, and store in a cool, dry place.

Preparing a canner for storage

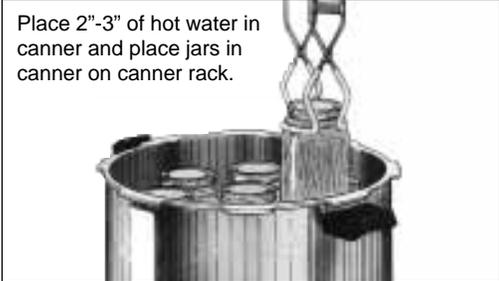
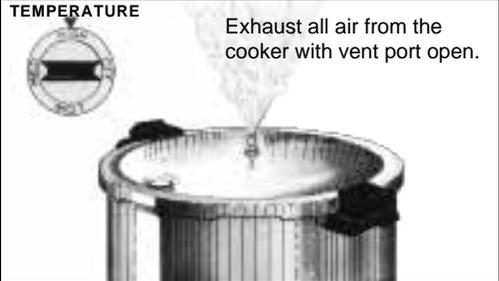
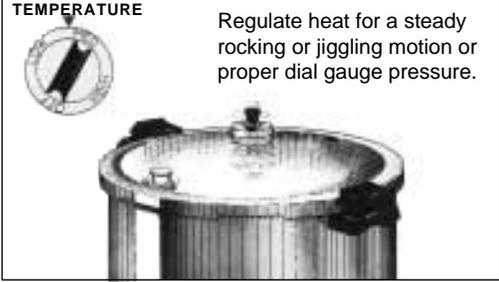
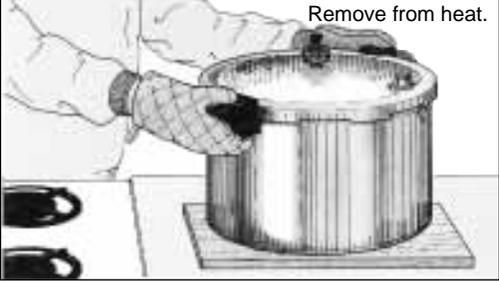
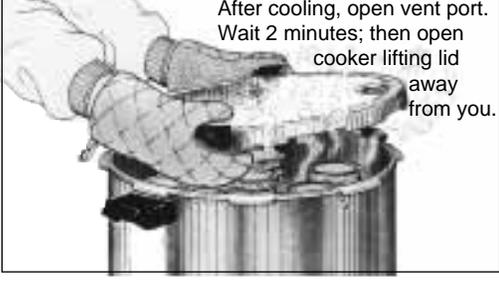
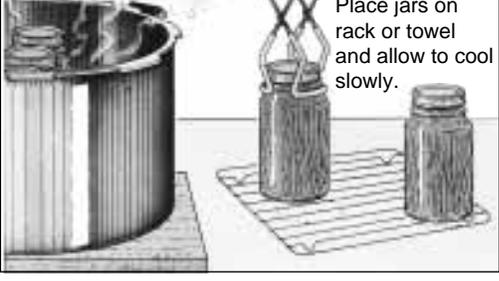
After use, the interior surface of an aluminum canner may darken. If you want to remove this discoloration, place a solution of 1 tablespoon cream of tartar per quart of water in the canner. Place the lid on the canner, and bring the water temperature up to boiling. Pressurize the canner to about 5 pounds, then turn off the heat and let the pressure drop to zero.

Loosen the lid, but do not remove it completely. Let the canner stand for 45 to 60 minutes, then drain, rinse and dry.

To clean the canner lid, wipe it thoroughly with a soapy cloth, then with a clean damp one. Dry, and place the lid loosely on the canner kettle for storage.

Note: **DO NOT** immerse a dial-gauge lid in water, or scratch the fuse while you clean a lid.

Steps in the pressure canning process

1.  Place 2"-3" of hot water in canner and place jars in canner on canner rack.
2.  **TEMPERATURE** Exhaust all air from the cooker with vent port open.
3.  To pressurize the canner, place weight on vent port.
4.  **TEMPERATURE** Begin timing when weight starts to rock or jiggle, or when pressure gauge reads the correct pressure.
5.  **TEMPERATURE** Regulate heat for a steady rocking or jiggling motion or proper dial gauge pressure.
6.  Remove from heat.
7.  After cooling, open vent port. Wait 2 minutes; then open cooker lifting lid away from you.
8.  Place jars on rack or towel and allow to cool slowly.

Graphic reprinted with permission from *Complete Guide to Home Canning Guide 1: Principles of Home Canning*, Agriculture Information Bulletin No. 539-1 (Washington, DC: U.S. Department of Agriculture) 1994, page 22.

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Resources

Use the current canning guides in these food preservation publications, available from your county UW-Extension office or the address below.

These require the use of a pressure canner (low-acid vegetables, meats and poultry, fish and wild game):

Canning Meat and Poultry B3345

Canning Vegetables Safely B1159

Home Canning of Fish B78866C

Wisconsin's Wild Game: Enjoying the Harvest B3573

These do not require a pressure canner, but pressure canner processing times are included in *Tomatoes Tart and Tasty* B2605:

Canning Fruits Safely B0430

Canning Salsa Safely B3570

Freezing Fruits and Vegetables B3278

Freezing Home-Prepared Foods B1306

Harvesting Vegetables from the Home Garden A2727

Home Pickling of Fish B78864P

Home Smoking of Fish B78865S

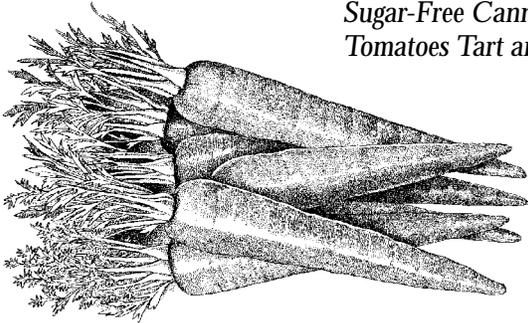
Homemade Pickles and Relishes B2267

Make Your Own Sauerkraut B2087

Making Jams, Jellies & Fruit Preserves B2909

Sugar-Free Canning and Freezing B2719

Tomatoes Tart and Tasty B2605



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Produced by Cooperative Extension Publications, UW-Extension: Rhonda Lee, editor. Altitude map courtesy of the Wisconsin Geological and Natural History Survey, UW-Extension.

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