

UNIVERSITY OF GEORGIA
EXTENSION

PRESERVING FOOD: USING PRESSURE CANNERS

Carla L. Schwan, Ines Beltran, Elizabeth Andress

WHAT IS A PRESSURE CANNER?

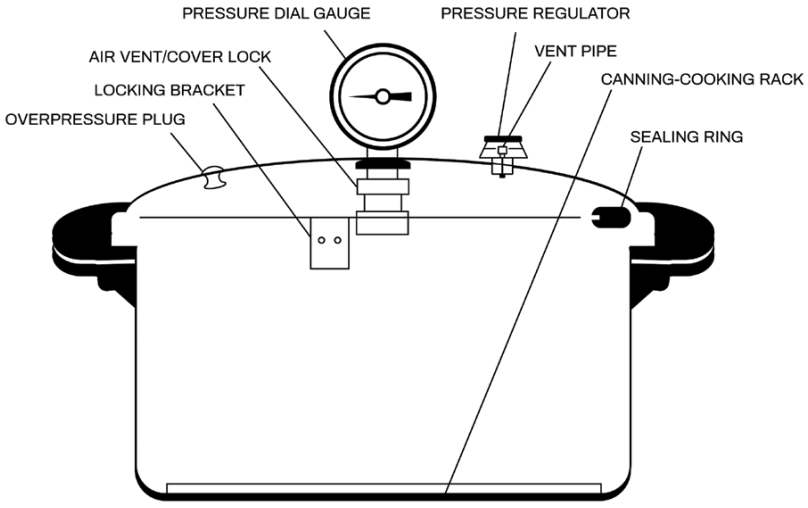
Home-use pressure canners were extensively redesigned beginning in the 1970s. Models made before the 1970s were heavy-walled kettles with clamp-on or screw-on lids. They were fitted with a dial gauge, a vent pipe in the form of a petcock (a small valve) or covered with a counterweight, and a safety fuse.

Most modern pressure canners are lightweight, thin-walled kettles; most have screw-on lids fitted with gaskets. At least one style is still made with heavy cast aluminum, uses screw-down knobs around the lid of the canner, and seals with the metal surfaces touching instead of a gasket.

Modern pressure canners have removable racks, an automatic vent/cover lock, a vent pipe (steam vent), and a safety fuse. Use only canners that have the Underwriter's Laboratory (UL) approval mark to ensure their safety. You may find the UL approval symbol engraved on the canner or in the manufacturer's manual, though sometimes it's only included in the manual.

PARTS OF A PRESSURE CANNER

Today's pressure canners may have a ***dial gauge*** for indicating the pressure or a ***weighted gauge*** for indicating and regulating the pressure.



Weighted gauges usually are designed to "jiggle" several times a minute or to keep rocking gently when they are maintaining the correct pressure. Read your manufacturer's directions to know how a particular weighted gauge should rock or jiggle to indicate that the proper pressure is reached and then maintained during processing. Pressure-regulator weight gauges are available in 5-lb increments up to 15 lb. Common weights include 5, 10, and 15 lb.

Dial-gauge canners usually have a counterweight or pressure regulator for sealing off the open vent pipe to pressurize the canner. This weight should not be confused with a weighted gauge and will not jiggle or rock as described above for a weighted-gauge canner. Pressure readings on a dial-gauge canner are only registered on the dial, and only the dial should be used as an indication of the pressure in the canner.

One manufacturer now makes a dual-gauge canner, which primarily relies on the weighted gauge for accurate pressure readings, as the dial gauge is considered less precise and serves only as a reference. Always read the manufacturer's user manual for information on when and how to use either the weighted gauge or the dial.

SELECTING A PRESSURE CANNER

Pressure canners come deep enough for one layer of quart-size (or smaller) jars, or deep enough for two layers of pint-size or smaller jars. The U.S. Department of Agriculture recommends that a canner be large enough to hold at least four quart-size jars to be used correctly for the USDA-published processes. Small pressure saucepans are not recommended for home canning.

Outdated and potentially unsafe pressure canners should not be used. When comparing old canners with newer models, ensure that what you have is a pressure canner and not an old sterilizer or steamer. Before using an older canner, verify that all parts are inspected and functioning properly. Purchasing a secondhand canner may not be a bargain, as replacement parts may no longer be available, and the manufacturer's manual could be hard to find.

BEFORE USING A PRESSURE CANNER

Serious errors in processing with pressure canners can occur if any of the following conditions exist:

OPERATIONS ABOVE SEA LEVEL

Adjustments in pressure must be made when the canner is operated above sea level. Internal canner pressures (and therefore temperatures) are lower at higher elevations. Canners must be operated at **increased pressures as the elevation increases**. Check reliable canning instructions for elevation adjustments.

TRAPPED AIR

Any air trapped in the closed canner during the process will lower the temperature obtained for a given pressure (for example, 10 or 15 lb pressure) and will result in underprocessing. To be safe, the USDA recommends that all pressure canners be vented 10 min before they are pressurized.

How to Vent the Canner

To vent a canner, leave the vent pipe (steam vent) uncovered (or manually open the petcock on some older models) after you fill the canner and lock the canner lid in place. Heat the canner on high until the water boils and generates steam that can be seen escaping through the open vent pipe or petcock. When a visible funnel shape of steam is continuously escaping the canner, set a timer for 10 min. After 10 min of continuous steam, you can close the petcock or place the counterweight or weighted gauge over the vent pipe to begin pressurizing the canner (See Steps 3 and 4.)

DIAL GAUGE IS NOT CALIBRATED

You won't get results you expect if an inaccurate dial gauge is used. The dial gauge should be **calibrated** if it has been submerged in water, dropped, if the glass is broken or has fallen out, if any parts are rusty, if the pointer is not aligned with the "0" mark, or if there are any other signs that it may not be accurate.

It should also be checked for accuracy at least once a year before use to ensure reliable readings. If the gauge reads high or low by more than 2 lb at pressures of 5, 10 or 15 lb, you need to replace it. If it is less than 2 lb off in accuracy, you can make adjustments to ensure you have the required pressure in your canner.

Inaccurate testing can result in underprocessed foods and increase the risk of botulism. For instance, a 1-lb error in a 20-min process can reduce the sterilizing effectiveness by over 10%, while a 2-lb error can cause a 30% decrease.

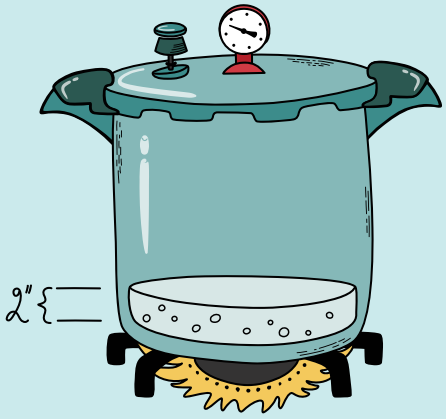
FOLLOW THESE STEPS FOR SUCCESSFUL PRESSURE CANNING:

Read through all the instructions before beginning.

1

Make sure the pressure canner is working properly before preparing food. Clean lid gaskets and other parts according to the manufacturer's directions. Make sure all vent pipes are clear and contain no trapped material or mineral deposits. Center the canner over the burner. The burner and range must be level. Your pressure canner can be damaged if the burner puts out too much heat. In general, do not use on an outdoor LP gas burner or gas range burner over 12,000 BTUs. Check your manufacturer's directions for more information about appropriate burners.

Put the rack and hot water into the canner. If the amount of water is not specified with a given food, use enough water to fill the canner 2 to 3 inches deep. Longer processes require more water. Some specific products (for example, smoked fish) require that you start with even more water in the canner. Always follow the directions with USDA processes for specific foods if they require more water to be added to the canner.



For hot-packed foods, you can bring the water to 180 °F ahead of time, but be careful not to boil the water or heat it long enough for the depth to decrease. For raw-packed foods, the water should only be brought to 140 °F.

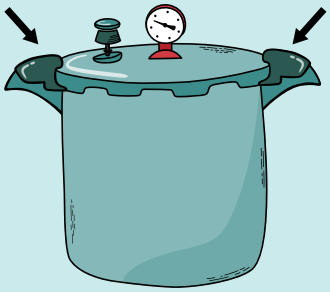
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Place filled labeled jars, fitted with lids and ring bands, on the jar rack in the canner, using a jar lifter. When moving jars with a jar lifter, make sure the jar lifter is securely positioned below the neck of the jar (below the ring band of the lid). Keep the jar upright at all times. Tilting the jar could cause food to spill into the sealing area of the lid, potentially resulting in failed seals.



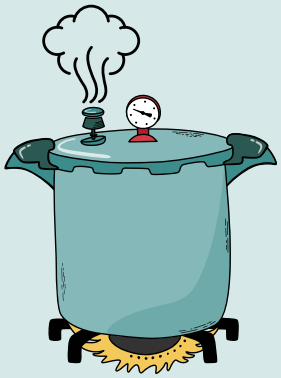
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Fasten the canner lid securely. Leave the weight off the vent pipe or open the petcock.



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Turn the heat setting to its highest position. Heat until the water boils and steam flows freely in a funnel shape from the open vent pipe or petcock. While maintaining the high heat setting, let the steam flow (exhaust) continuously for 10 min.



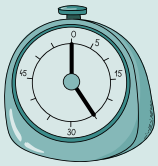
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After venting (exhausting) the canner, place the counterweight or weighted gauge on the vent pipe, or close the petcock. The canner will pressurize during the next 3 to 10 min.



6

Start timing the process when the pressure reading on the dial gauge indicates that the recommended pressure has been reached, or, for canners without dial gauges, when the weighted gauge begins to jiggle or rock as the manufacturer describes.



7

Regulate the heat under the canner to maintain a steady pressure at, or slightly above, the correct gauge pressure. One type of weighted gauge should jiggle a certain number of times per minute, while another type should rock slowly throughout the process. Check the manufacturer's directions for specific details.



- Loss of pressure at any time can result in underprocessing or unsafe food.
- Quick and large pressure changes during processing can cause liquids to be forced out of the jars, a process also known as siphoning.

IMPORTANT: If at any time pressure goes below the recommended amount, bring the canner back to pressure and begin the timing of the process over again, from the beginning (using the total original process time). This may affect the final quality of the product, but it is extremely important for the safety of the food.

8

When the timed process is completed, turn off the heat, remove the canner from the heat (if using an electric burner), if possible, and let the canner cool down naturally. Always lift the canner to move it—do not slide the canner. It is also okay to leave the canner in place after you have turned off the burner. It is better to do so than to let jars inside the canner tilt or tip over if the canner is too heavy to move easily.



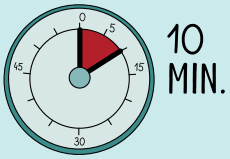
While the canner is cooling, it is also depressurizing. **Do not force-cool the canner. Forced cooling may result in food spoilage.** Cooling the canner with cold running water or opening the vent pipe before the canner is fully depressurized are types of forced cooling. This will also cause loss of liquid from jars and seal failures. Forced cooling may also warp the canner lid.

Even after a dial-gauge canner has cooled until the dial reads 0 lb pressure, be cautious in removing the weight from the vent pipe. Tilt the weight slightly to make sure no steam escapes before pulling it all the way off. Newer canners will also have a cover lock in the lid or handle that must release after cooling before the lids are twisted off. Do not force the lid open if the cover locks are not released. Manufacturers will provide more detailed instructions for their particular models.

Depressurization of older canner models without dial gauges should be timed. Standard-size heavy-walled canners require about 30 min when loaded with pints and 45 min when loaded with quarts. Newer thin-walled canners cool more rapidly and are equipped with vent locks that are designed to open when the pressure is gone. These canners are depressurized when the piston in the vent lock drops to a normal position. Some of these locks are hidden in handles and cannot be seen; however, the lid will not open until the lock is released.

9

After the canner is completely depressurized, remove the weight from the vent pipe or open the petcock. Wait 10 min, then unfasten the lid and remove it carefully. Lift the lid with the underside away from you so that the steam coming out of the canner does not burn your face.



10

Using a jar lifter, remove the jars one at a time, being careful not to tilt the jars. Carefully place them directly onto a towel, cake cooling rack, or padded surface, leaving at at least 1 in. of space between the jars during cooling. Avoid placing the jars on a cold surface or in a cold draft.



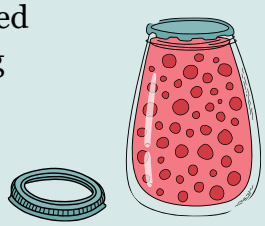
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Let the jars sit undisturbed while they cool, from 12 to 24 hr. Do not tighten the ring bands on the lids or push down on the center of the flat metal lid until the jar is completely cooled.



12

Remove the ring bands from the sealed jars. Place any unsealed jars in the refrigerator and use them first or follow recommended reprocessing guidelines.



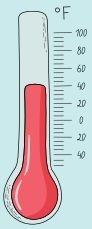
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Gently wipe down the jars and lids with a damp, clean towel or paper towel to remove any residue, moisture, or stickiness left on the surface.



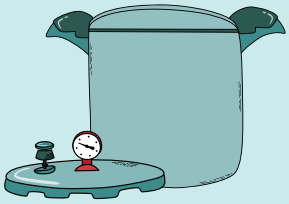
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Store in a cool, dry place out of direct light.



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Dry the canner, lid, and gasket. Take off removable petcocks and safety valves, and wash and dry them thoroughly. Follow the maintenance and storage instructions that come from your canner manufacturer.



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