



Basics of Water Bath & Pressure Canning

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How Canning Preserves Foods

The high percentage of water in most fresh foods makes them very perishable. They spoil or lose their quality for several reasons:

- growth of undesirable microorganisms-bacteria, molds, and yeasts,
- activity of food enzymes,
- reactions with oxygen,
- moisture loss.

Microorganisms live and multiply quickly on the surfaces of fresh food and on the inside of bruised, insect-damaged, and diseased food. Oxygen and enzymes are present throughout fresh food tissues.

Proper canning practices include:

- carefully selecting and washing fresh food,
- peeling some fresh foods,
- hot packing many foods,
- adding acids (lemon juice or vinegar) to some foods,
- using acceptable jars and self-sealing lids,
- processing jars in a boiling-water or pressure canner for the correct period of time.

Collectively, these practices remove oxygen; destroy enzymes; prevent the growth of undesirable bacteria, yeasts, and molds; and help form a high vacuum in jars. Good vacuums form tight seals which keep liquid in and air and microorganisms out.



Tools You'll Need

- >> Pressure canner OR a Boiling water bath canner OR a large, deep saucepot with a lid, and a rack (depending on what type of canning you'll be doing)
- >> Glass preserving jars, lids, and bands (always start with new lids)
- >> Common kitchen utensils, such as a wooden spoon, ladle, and paring knife
- >> Quality ingredients (fresh fruits and vegetables, cleaned meat, etc.)
- >> Jar lifter
- >> Home canning funnel (most canning funnels have a depth of 1-inch head space)
- >> Bubble freer or butter knife
- >> Dish towels



Water Bath Canning

- Used for high-acid foods that do not generally pose a risk for bacteria.
- Acids can be naturally occurring, like in most fruits, or can be added with things like vinegar, citric acid, or lemon juice.



Pressure Canning

- Used for low-acid foods that pose a greater risk for bacteria.
- Bacteria can be killed and sterilized at temperatures between 240° to 250°F, which is achieved by a pressure canner at 10 to 15 PSIG. PSIG means pounds per square inch of pressure as measured by gauge. More commonly known as PSI.



Examples of foods for WATER BATH canning:

- Tomatoes
- Jams & Jellies
- Fruits & Fruit Juices
- Salsa
- Pickles & Relishes
- Chutneys, Sauces, and Pie Fillings
- Vinegars
- Condiments

Examples of foods for PRESSURE canning:

- Meats
- Broths & Stocks
- Poultry
- Vegetables (carrots, potatoes, beans, and more)
- Chili
- Seafood

At temperatures of 240° to 250°F, the time needed to destroy bacteria in low-acid canned food ranges from 20 to 100 minutes.

The exact time depends on the kind of food being canned, the way it is packed into jars (raw or hot), your elevation, and the size of jars.

The time needed to safely process low-acid foods in a boiling-water canner ranges from 7 to 11 hours; the time needed to process acid foods in boiling water varies from 5 to 85 minutes.

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Suppose you are canning peaches as a hot-pack in quarts at 2,500 ft above sea level, using a *boiling-water canner*. First, select the process table for boiling-water canner. The example for peaches is given in **Table for Example A** below. From that table, select the process time given for (1) the style of pack (hot), (2) the jar size (quarts), and (3) the altitude where you live (2,500 ft). You should have selected a process time of 30 minutes.

Table for Example A

Recommended process time for Peaches in a boiling-water canner.

		Process Time at Altitudes of			
Style of Pack	Jar Size	0 - 1,000 ft	1,001 - 3,000 ft	3,001 - 6,000 ft	Above 6,000 ft
Hot	Pints	20 min	25	30	35
	Quarts	25	30	35	40
Raw	Pints	25	30	35	40
	Quarts	30	35	40	45

Example B: Dial-gauge Pressure Canner

Suppose you are canning peaches as a hot-pack in quarts at 2,500 ft above sea level, using a *dial-gauge pressure canner*. First, select the process table for dial-gauge pressure canner. The example for peaches is given in **Table for Example B** below. From that table, select the process pressure (PSI) given for (1) the style of pack (hot), (2) the jar size (quarts), (3) the process time (10 minutes), (4) the altitude where you live (2,500 ft). You should have selected a pressure of 7 lbs for the 10 minutes process time.

Table for Example B

Recommended process time for Peaches in a Dial-Gauge Pressure Canner.

			Canner Pressure (PSI) at Altitudes of			
Style of Pack	Jar Size	Process Time (Min)	0 - 2,000 ft	2,001 - 4,000 ft	4,001 - 6,000 ft	6,001 - 8,000 ft
Hot and Raw	Pints or Quarts	10	6 lb	7	8	9

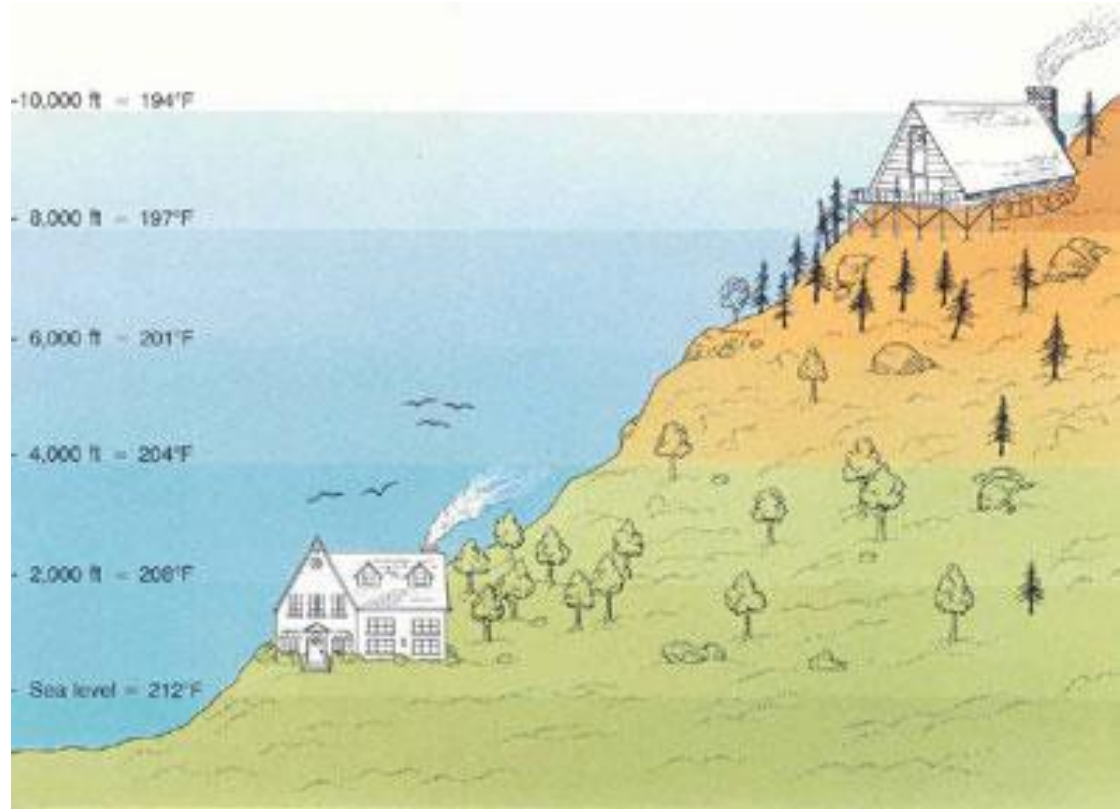
Example C: Weighted-gauge Pressure Canner



A Note About Elevation

Using the process time for canning food at sea level may result in spoilage if you live at altitudes of 1,000 feet or more. Water boils at lower temperatures as altitude increases. Lower boiling temperatures are less effective for killing bacteria. Increasing the process time or canner pressure compensates for lower boiling temperatures. Therefore, when you use recipes and canning books, select the proper processing time or canner pressure for the altitude where you live. If you do not know the altitude, contact your local county Extension agent, or do a search on google maps. An alternative source of information would be the local district conservationist with the Soil Conservation Service.

Resource: https://nchfp.uga.edu/how/general/ensuring_safe_canned_foods.html



You can also use **[whatismyelevation.com](https://www.whatismyelevation.com)**, which may help you out if your location services is turned on.

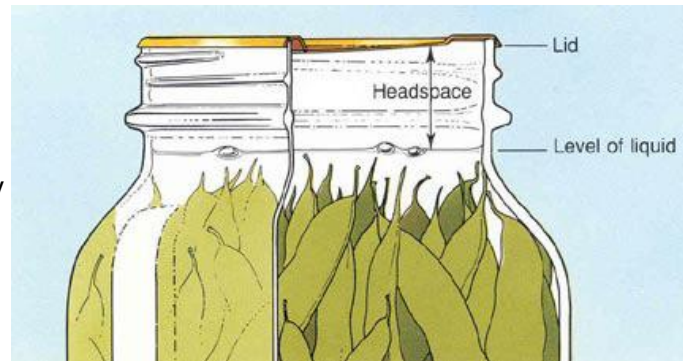
Let's Get Started!

- Before every use, wash empty jars in hot soapy water and rinse well by hand, or wash in a dishwasher.
Note: This process does NOT sterilize your jars.
- **If you are pressure canning**, you do not need to sterilize your jars before using. Just make sure they are clean. The pressure canning process will sterilize everything inside and outside of the jar.
- **If you are water bath canning**, you will need to sterilize your jars before using them by putting them in boiling water for 10 minutes, or by putting them on the sterilization option in your dishwasher.
- Keep your jars warm if filling with hot product. You can do this by leaving your jars in the dishwasher, putting your jars in a slightly warm oven, or by covering them with a towel on the counter.
- Place your lids into a saucepan with simmering water for about 5 minutes. Then turn to low and keep warm until ready to use. This isn't a requirement anymore, but I still do it because it softens up the rubber ring.
- **IF WATER BATH CANNING:** Fill your large stock pot or Water Bath Canner with water deep enough to cover your jars fully, with at least 1-2 inches of water over top of the jars. I like to fill a jar with water and place it in the canner so I know the exact depth is correct. If you start filling your canner and find that there is too much water, you can ladle it out. If there is not enough water, you can keep a tea kettle with boiling water in it nearby to top off the canner once the jars are in.
- **IF PRESSURE CANNING:** Fill your pressure canner with 2 quarts of water and add the rack in the bottom.



How to Water Bath Can

1. After sterilizing and preparing your canner according to the previous slide, **make your desired recipe to be canned**. You can find recipes for things like pickles, salsa, jams, and fruit-in-syrups online or in the Ball Canning Book. There are also other books with recipes and recommendations.
2. Leave a 1-inch headspace when filling the jars (see graphic below).
3. Wipe rims with a clean rag. Place lids on top and turn your ring to only fingertip tightness. Do not over tighten.
4. Place the rack in your canner and carefully lower the jars into the water onto the rack.
5. Make sure there is at least 1 to 2 inches of water completely covering the tops of the jars.
6. Process the jars according to the time necessary in your book or recipe.
7. When ready, slowly pull the rack and jars out of the canner. Be sure not to set your jars down onto a cold surface, or else they will shatter. Set them on the counter on top of a towel or rag.
8. Allow to cool at room temp for 24-hours.
9. Remove rings, if desired, after 24-hours.
10. Inspect seals to make sure they are sealed before storing.





How to Pressure Can

1. After sterilizing and preparing your canner according to the previous slide, **make your desired recipe to be canned**. You can find recipes for things like pickles, salsa, jams, and fruit-in-syrups online or in the Ball Canning Book. There are also other books with recipes and recommendations.
2. If you are canning veggies, scrub your vegetables free of dirt. For vegetables with skin, remove the skins before canning.
3. If you are canning raw meat, simply cut into small pieces and raw pack into jars. You do not need to add water, as your meat will naturally release liquid.
4. Leave a 1-inch headspace when filling the jars (see previous slide).
5. Wipe rims with a clean rag. Place lids on top and turn your ring to only fingertip tightness. Do not over tighten.
6. Place the rack in your canner and carefully lower the jars into the water onto the rack.
7. Pressure canning only requires 2 quarts of water, so the water will not cover your jars.
8. Place the canner lid on, bring to a temperature (med to high heat) until the vent has a steady stream of steam for 10 mins before putting the weight on.

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1. Process the jars according to the time necessary in your book or recipe.
2. Once done and the steam has released, crack open the lid of the canner and allow to set for about 15 mins so that the jars can acclimate to the cool air.
3. Pull your jars out and set on the counter to cool. Be sure not to set your jars down onto a cold surface, or else they will shatter. Set them on the counter on top of a towel or rag.
4. Allow to cool at room temp for 24-hours.
5. Remove rings, if desired, after 24-hours.
6. Inspect seals to make sure they are sealed before storing.



Some Tips!

- *It is not necessary to purchase special cookware for water bath canning. A large, deep saucepot equipped with a lid and a rack works well. As long as it is large enough to fully immerse the jars in water by 1-2 inches—and allow the water to boil rapidly when covered—the pot is adequate. If you don't have a rack designed for home preserving, use a cake cooling rack or extra bands tied together to cover the bottom of the pot.*
- *If you have jars that do not seal properly, you can re-process these jars with a new lid. Or you can simply stick them in the fridge and use them up that week.*
- *It is not recommended that you stack your jars more than two jars high. If you plan to stack higher, make sure you place a long piece of cardboard or board between the jars.*
- *False seals can happen. You'll know a jar was properly sealed when you open it and there is great resistance when opening.*



Storage of Home Canned Goods

Home canned food can last up to 18-months when stored in a cool, dark place like a pantry, basement, or root cellar.

While home canned food has been known to last even up to three years, it is not recommended by the National Center for Home Food Preservation to keep after 18-months.

Do what you feel most comfortable doing!



Home Canning Cheat Sheet

Item	Style	0-2000'				2001-4000'				4001-6000'				6001-8000'			
		Pints		Quarts		Pints		Quarts		Pints		Quarts		Pints		Quarts	
		lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min
Green Beans	Pressure Canner, Weighted Gauge	11	20	11	25	12	20	12	25	13	20	13	25	14	20	14	25

Item	Style	0-1000'				1001-3000'				3001-6000'				6000'+			
		Half Pints		Pints		Half Pints		Pints		Half Pints		Pints		Half Pints		Pints	
		lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min
Jelly or Jam	Hot Pack																
	Water Bath Canner	5		5		5		5		10		10		15		15	

Item	Style	0-2000'				2001-1000'				4001-6000'				6001-8000'			
		Pints		Quarts		Pints		Quarts		Pints		Quarts		Pints		Quarts	
		lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min
Meat, Ground	Pressure Canner, Weighted Gauge	11	75	11	90	12	75	12	90	13	75	13	90	14	75	14	90

Item	Style	0-2000'				2001-4000'				4001-6000'				6001-8000'			
		Pints		Quarts		Pints		Quarts		Pints		Quarts		Pints		Quarts	
		lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min
Meat Stock	Hot Pack																
	Pressure Canner, Weighted Gauge	11	20	11	25	12	20	12	25	13	20	13	25	14	20	14	25

Item	Style	0-1000'				1001-3000'				3001-6000'				6000'+			
		Pints		Quarts		Pints		Quarts		Pints		Quarts		Pints		Quarts	
		lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min
Peaches, Halved or Sliced	Hot Pack																
	Water Bath Canner	20		25		25		30		30		35		35		40	

Item	Style	0-1000'				1001-3000'				3001-6000'				6000'+			
		Pints		Quarts		Pints		Quarts		Pints		Quarts		Pints		Quarts	
		lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min	lbs	min
Pears, Halved or Sliced	Hot Pack																
	Water Bath Canner	20		25		25		30		30		35		35		40	

Source: National Center for Canning and Food Preservation <https://nchfp.uga.edu>



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