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MONTANA STATE UNIVERSITY EXTENSION

MontGuide

# Processing Fruit and Tomato Products in a Pressure Canner

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**Charts with processing times and pressures for various fruits and tomato products. Stresses importance of elevation in determining pressures.**

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## Safety is the Top Priority

Safely canning foods at home requires using processing methods that not only preserve the food but also destroy bacteria and molds that cause foodborne illness, such as botulism. Botulism, caused by a toxin of the bacteria *Clostridium Botulinum*, can be fatal. This bacteria can grow and reproduce in improperly processed home-canned foods. Protect yourself and others when sharing home-canned foods by learning safe preservation techniques. The safest recipes and resources are those that have been researched and rigorously tested by the United States Department of Agriculture (USDA) and Extension Services associated with land-grant universities. Many home-preserved recipes are not tested for safety, so it is critical to use the resources below.

## Recommended Research-based Food Preservation Resources

National Center for Home Food Preservation (NCHFP), USDA sponsored website is the most current source for publications, video clips, tutorials for the beginning home food preserver, frequently asked questions, and seasonal tips: http://nchfp.uga.edu/

USDA Complete Guide to Home Canning, 2015. Available on NCHFP website, above, click on 'publications'.

*So Easy to Preserve,* 6th edition only, 2014. MSU Extension does not recommend earlier editions. http://www.soeasytopreserve.com

Free Canning Timer & Checklist app https://catalog.extension.oregonstate.edu/pnw689

The following publications are available at local stores or order online: *The All New Ball Blue Book of Canning and Preserving,* 1st ed., 2016; *The Best Ball Home Canning and Preserving Recipes: Fresh Flavors All Year Long,* 1st ed. 2016; *Ball Blue Book Guide to Preserving,* 37th ed., 2014. Earlier editions not recommended.

## Two Questions of Safety

Before beginning home-canning, ask yourself the following questions:

**TABLE 1. Altitudes* of County Seats in Montana**

| County Seat | Elevation | County Seat | Elevation |
|---|---|---|---|
| Anaconda | 5239 | Hysham | 2618 |
| Baker | 2968 | Jordan | 2640 |
| Big Timber | 4199 | Kalispell | 2984 |
| Billings | 3153 | Lewistown | 3936 |
| Boulder | 4938 | Libby | 2198 |
| Bozeman | 4806 | Livingston | 4557 |
| Broadus | 3091 | Malta | 2275 |
| Butte | 5539 | Miles City | 2362 |
| Chester | 3162 | Missoula | 3232 |
| Chinook | 2411 | Phillipsburg | 5357 |
| Choteau | 3799 | Plentywood | 2068 |
| Circle | 2500 | Polson | 2930 |
| Columbus | 3599 | Red Lodge | 5562 |
| Conrad | 3523 | Roundup | 3198 |
| Cut Bank | 3793 | Ryegate | 3775 |
| Deer Lodge | 4609 | Scobey | 2461 |
| Dillon | 5118 | Shelby | 3300 |
| Ekalaka | 3494 | Sidney | 1967 |
| Forsyth | 2510 | Stanford | 4288 |
| Fort Benton | 2698 | Superior | 2813 |
| Glasgow | 2088 | Terry | 2228 |
| Glendive | 2053 | Thompson Falls | 2519 |
| Great Falls | 3398 | Townsend | 3869 |
| Hamilton | 3625 | Virginia City | 5804 |
| Hardin | 2903 | W. Sulphur Spr. | 5091 |
| Harlowton | 4185 | Wibaux | 2650 |
| Havre | 2493 | Winnett | 2975 |
| Helena | 4068 | Wolf Point | 2043 |

*accessed March, 2017, http://geoinfo.msl.mt.gov/geography/geography_facts/elevation_of_montana_cities.aspx

### *1. What is my altitude?*

In order to decrease the risk of food-related illness and death, determine the correct home-canning processing times and pressures for your altitude. While water boils at 212°F at sea level, it boils at a much lower temperature at higher altitudes. Consequently, at higher altitudes home-canned foods must be processed for longer times or at higher pressures (see Table 1).

### *2. Is the food I am home-canning a high-acid or low-acid food?*

Most high acid foods, such as fruits and properly acidified tomato products, such as salsa, can be processed using either a boiling water canner or a pressure canner. Information on using a boiling water canner can be found in the MontGuide *Home-canning Using Boiler Water Canners and Pressure Canners* (MT200905HR) or the resources on page 1. This MontGuide provides information on times and pressures for using a pressure canner for processing fruist and properly acidified tomatoes and tomato products. It is critically important to use a tested recipe based on USDA recommendations (see Resources, pg. 4) when using a mixture of ingredients, such as salsa.

NOTE: In recent years, the recommendations for safely canning tomatoe products, such as salsa, have changed. Because tomatoes grown today may have less acidity, they need to be acidified before canning by adding 2 tablespoons of bottled lemon juice or ½ teaspoon of citric acid per quart. When canning salsa, only use recipes based on USDA recommendations. These salsa recipes have been tested to determine a safe level of acidity.


## Acknowledgements

This revised MontGuide has been reviewed by Dr. Elizabeth Andress, Director, National Center for Home Food Preservation, University of Georgia Extension Food Safety Specialist; Laurie Lautt, Big Horn County Extension agent, retired; and Kelly Moore, Missoula County Extension agent.


**TABLE 2. Dial gauge pressure canner processing times in this table are only for foods prepared according to the recipes found in the Recommended Resources found on page 1.**

| | | | | Canner Pressure (PSI) at Altitudes of: | | | |
|---|---|---|---|---|---|---|---|
| **Fruit** | **Style of Pack** | **Jar Size** | **Time (Minutes)** | **0-2,000 ft.** | **2,00l-4,000 ft.** | **4,001-6,000 ft.** | **6,001 8,000 ft.** |
| **Applesauce** | hot | pints | 8 | 6 lb. | 7 lb. | 8 lb. | 9 lb. |
| | hot | quarts | 10 | 6 | 7 | 8 | 9 |
| **Apples, sliced** | hot | pints/quarts | 8 | 6 | 7 | 8 | 9 |
| **Berries, whole** | hot | pints/quarts | 8 | 6 | 7 | 8 | 9 |
| | raw | pints | 8 | 6 | 7 | 8 | 9 |
| | raw | quarts | 10 | 6 | 7 | 8 | 9 |
| **Cherries, sour or sweet** | hot | pints | 8 | 6 | 7 | 8 | 9 |
| | | quarts | 10 | 6 | 7 | 8 | 9 |
| | raw | pints/quarts | 10 | 6 | 7 | 8 | 9 |
| **Fruit purees** | hot | pints/quarts | 8 | 6 | 7 | 8 | 9 |
| **Peaches, Apricots and Nectarines** | hot or raw | pints/quarts | 10 | 6 | 7 | 8 | 9 |
| **Pears** | hot | pints/quarts | 10 | 6 | 7 | 8 | 9 |
| **Plums** | hot or raw | pints/quarts | 10 | 6 | 7 | 8 | 9 |
| **Rhubarb** | hot | pints/quarts | 8 | 6 | 7 | 8 | 9 |
| **Tomato juice** | hot | pints/quarts | 20 | 6 | 7 | 8 | 9 |
| | | pints/quarts | 15 | 11 | 12 | 13 | 14 |
| **Tomatoes, crushed and heated 5 minutes** | hot | pints/quarts | 20 | 6 | 7 | 8 | 9 |
| | | pints/quarts | 15 | 11 | 12 | 13 | 14 |
| **Tomato sauce** | hot | pints/quarts | 20 | 6 | 7 | 8 | 9 |
| | | pints/quarts | 15 | 11 | 12 | 13 | 14 |
| **Tomatoes, whole, waterpacked** | hot or raw | pints/quarts | 15 | 6 | 7 | 8 | 9 |
| | | pints/quarts | 10 | 11 | 12 | 13 | 14 |
| **Tomatoes, whole, juice-packed** | hot or raw | pints/quarts | 40 | 6 | 7 | 8 | 9 |
| | | pints/quarts | 25 | 11 | 12 | 13 | 14 |
| **Tomatoes, raw, pressed-in, no added liquid** | raw | pints/quarts | 40 | 6 | 7 | 8 | 9 |
| | | pints/quarts | 25 | 11 | 12 | 13 | 14 |
| **Mexican tomato salsa*** | hot | pints | 20 | 11 | 12 | 13 | 14 |
| | | quarts | 25 | 11 | 12 | 13 | 14 |

*See recipe on page 4. For safety concerns, do not modify recipe.

## SAFE EQUIPMENT

❑ Jar lifters ❑ Canning funnels ❑ Canning jars and lids ❑ Non-metallic spatulas

**Pressure canners** are used for low- and high-acid foods. There are two types of pressure canners: dial gauge and weighted pressure gauge. Of the two pressure canners, a dial-gauge pressure canner allows more flexibility in pressure settings needed for altitude adjustments, therefore the quality of the product may be higher than when using a weighted gauge canner where pressure is not as precise. Dial gauge canners must be tested yearly to ensure accurate readings. Contact your local county Extension agent, hardware store, or the Presto Company for free gauge testing. Contact Presto at 1-800-877-0441 or https://www.gopresto.com/ for instructions.

**Equipment and methods *not* recommended:** Processing of freshly-filled jars in conventional ovens, microwave ovens, dishwashers, pressure cooker/sauce pans and open-kettles are not recommended because they will not prevent growth of deadly botulism. Jars with wire bails and glass caps, one-piece zinc, or porcelain-lined caps are not recommended.

## PREPARING

Use only high quality foods which are at proper maturity and free of molds, diseases, and major bruises. Trim small bruises from food. Never use over-ripe foods. Never use tomatoes from dead vines or vines that have frosted; freezing lowers their acidity, leading to an unsafe product.

## PACKING

**Style of pack:** Many fresh foods contain 10-30 percent air. Hot packed foods will remove more air from the foods, prevent floating of food, and yield a higher quantity than raw packing.

*Raw-pack:* Foods are not cooked or heated in any way prior to packaging. In a raw pack, raw food is placed directly in jars. Then hot, boiling liquid is poured over the contents. Pack firmly, but do not crush. Free the bubbles or trapped air between the pieces of food.

*Hot-pack:* heating food to boiling or cooking food for a specified amount of time and then packing the hot food into the jar and adding boiling liquid to cover the food. Since shrinkage will already have occurred, food should be packed loosely.

**Jar size:** Follow directions for packing in either ½ pint, pint or quart jars.

**Head space:** Follow directions in your recipe.

**Lids:** Follow manufacturer's directions for lids.

## PROCESSING

**Follow manufacturer's directions for pressure canners, except ALWAYS vent your pressure canner even if manufacturer does not recommend or include directions. Important: if processing is interrupted, start again using the same method, timing and pressure as in the original directions.**

❑ Determine pressure and times for altitude. See Tables 1, 2 and 3.

❑ Fasten the canner lid securely. Leave the weight off the vent pipe. To vent your canner, 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. While maintaining the high heat setting, continue to vent for a full 10 minutes. Place gauge on vent pipe. The canner should pressurize within 5 minutes. After gauge reaches recommended pressure, adjust heat to maintain the pressure for the entire processing period. Set the timer for the length stated in the recipe. Frequently check to make sure the correct pressure is maintained.

## COOLING & SEALING

❑ Remove canner from stove, cool at room temperature until pressure returns to zero. Do not force cool the canner by opening vent, removing weight, or running under cold water. After canner is depressurized, remove the weight or open the vent. Wait 10 minutes, then unfasten the pressure canner lid and remove carefully.

❑ Place jars on rack or towel so air can circulate. Never tip a jar to remove water from lid. Do not cover with towels or expose to drafts. Do not touch or tighten lids. Jars will cool within 12 hours.

## STORAGE

❑ After jars are sealed and cool, remove rings. Wash and label jars. Store in cool, dry, dark place. Best quality if used within one year. If seals fail while in storage, food should be discarded. Do not taste.

## CONSUMING

❑ If you are uncertain about the safety of home-canned foods, follow the advice **“When in doubt, throw it out.”**

❑ Botulism and other deadly foodborne illness causes are not detected in food by sight, smell, and taste. Foods may show no sign of spoilage! If a canned food looks spoiled, foams or even has an “off” odor, dispose of it.

**TABLE 3. Weighted gauge pressure canner processing times in this table when are only for recipes prepared according to the recommendations found in the Recommended Resources on page 1.**

| Fruit | Style of pack | Jar Size | Time (Minutes) | Canner Pressure (PSI) Altitudes Above 1,000 ft. |
|---|---|---|---|---|
| **Applesauce** | hot | pints | 8 | 10 lbs. |
| | | quarts | 10 | 10 |
| **Apples, sliced** | hot | pints/quarts | 8 | 10 |
| **Berries, whole** | hot | pints/quarts | 8 | 10 |
| | raw | pints | 8 | 10 |
| | | quarts | 10 | 10 |
| **Cherries, sour** | hot | pints | 8 | 10 |
| | | quarts | 10 | 10 |
| | raw | pints/quarts | 10 | 10 |
| **Fruit purees** | hot | pints/quarts | 8 | 10 |
| **Peaches, apricots and nectarines** | hot or raw | pints/quarts | 10 | 10 |
| **Pears** | hot | pints/quarts | 10 | 10 |
| **Plums** | hot or raw | pints/quarts | 10 | 10 |
| **Rhubarb** | hot | pints/quarts | 8 | 10 |
| **Tomato juice** | hot | pints/quarts | 20 | 10 |
| | | pints/quarts | 15 | 15 |
| **Tomatoes, crushed and heated 5 minutes** | hot | pints/quarts | 20 | 10 |
| | | pints/quarts | 15 | 15 |
| **Tomato sauce** | hot | pints/quarts | 20 | 10 |
| | | pints/quarts | 15 | 15 |
| **Tomatoes, whole, water-packed** | hot or raw | pints/quarts | 15 | 10 |
| | | pints/quarts | 10 | 15 |
| **Tomatoes, whole juice-packed** | hot or raw | pints | 40 | 10 |
| | | quarts | 25 | 15 |
| **Tomatoes, raw pressed-in, no added liquid** | raw | pints/quarts | 40 | 10 |
| | | pints/quarts | 25 | 15 |
| **Mexican Tomato Salsa*** | hot | pints | 20 | 15 |
| | | quarts | 25 | 15 |

*For safety concerns, do not modify recipe.

## Mexican Tomato Salsa

**Yield:** About 7 quarts

2½ to 3 lbs. chile peppers
1 Tbsp. salt
18 lbs. tomatoes
1 Tbsp. oregano
3 cups chopped onion
½ cup vinegar

**Caution:** Wear rubber gloves while handling chiles or wash hands thoroughly with soap and water before touching your face.

**Procedure:** Wash and dry chiles. Slit each pepper on its side so steam can escape. Peel peppers using one of the following methods.

**Oven or broiler method:** Place chiles in oven (400°F) or broiler for 6-8 minutes until skins blister. **Range-top method:** Cover hot burner, either gas or electric, with heavy wire mesh. Place chiles on burner for several minutes until skins blister.

Let peppers cool. Place in a pan and cover with a damp cloth. This will make peeling the peppers easier. After several minutes, peel each pepper. Cool and slip off skins. Discard seeds and chop peppers. Wash tomatoes and dip in boiling water for 30 to 60 seconds or until skins split. Dip in cold water, slip off skins and remove cores. Coarsely chop tomatoes and combine the chopped peppers and remaining ingredients in a large saucepan. Bring to boil. Cover. Simmer 10 minutes. Fill jars, leaving 1 inch headspace. Adjust lids and process using times and pressures on page 2 or 4.


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