

Home Canning Tomatoes and Tomato Products

Home canning tomatoes and tomato products can help you save money and gain control over what's in your food while preserving the bounty of summer for your family's year-round enjoyment. To ensure safe, high quality home-canned products, always follow research-based recommendations when canning.

Ingredients

When canning tomatoes and tomato products, start with disease-free, preferably vine-ripened, firm tomatoes. Do not use tomatoes that are over-ripe or beginning to spoil. Do not can tomatoes from dead or frost-killed vines. Green tomatoes can be safely substituted for ripe tomatoes in USDA-approved recipes, but the taste of the final products will be different.

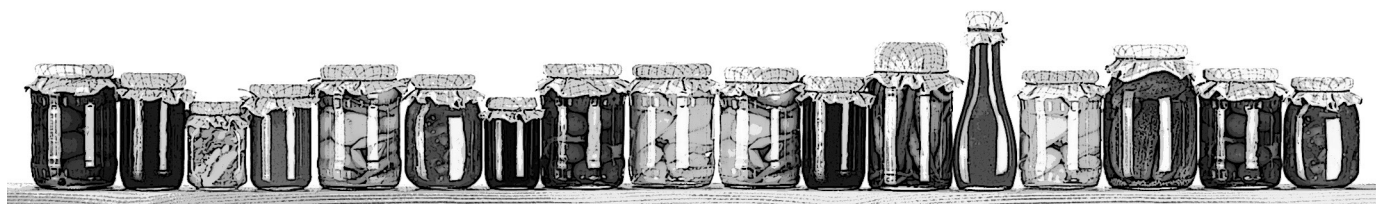
The recipes included in this publication are research-based for safe home canning. Do not change the proportions of ingredients or reduce the amount of lemon juice or vinegar specified in each recipe. To ensure a safe level of acidity in the final product, use only bottled lemon juice and commercial vinegar that is at least 5 percent acidity.

Salt is optional in canning tomatoes and tomato products. It is used only for seasoning and does not help to preserve the food. If salt is used, canning salt is recommended to prevent cloudiness in the canned product. Sugar can be added to taste if desired, and spices and herbs can be varied.

Why Add Acid?

High acid foods, those with pH values less than 4.6, can be safely processed in a boiling water canner. Low acid foods, those with pH values greater than 4.6, must be processed in a pressure canner to reach temperatures high enough to kill the spores that can cause botulism.

Tomatoes are often thought of as being a high acid food. However, their natural acidity varies, depending on the variety, how and where they are grown, and their ripeness. Many have pH values higher than 4.6. For this reason, whole, crushed or juiced tomatoes must be acidified with bottled lemon juice or citric acid before processing, whether in a boiling water canner or in a pressure canner. Currently, there are no USDA-approved recipes for home canning tomatoes without the addition of an acid.



Filling Jars

There are two methods that can be used for packing food into the jars—raw pack or hot pack. Raw pack means putting raw, unheated food into the jars; hot pack involves cooking or heating the food for a specified length of time before packing. Some recipes have directions for both raw and hot packs; others specify one or the other. Always use the type of pack specified in the recipe and the processing method and time that goes with that pack. If given a choice, the hot pack will yield better color and flavor, especially when processing in a boiling water canner. In addition, an enzyme in fresh tomatoes causes the solids and liquids in canned tomato products to separate. Quick heating in the hot pack method inactivates this enzyme and prevents separation.

Processing

Many tomato products are mixtures of high and low acid foods. Whether these are processed in

a boiling water canner or a pressure canner will depend in part on whether enough acid has been added to bring the pH of the mixture below 4.6, the cut-off for safe boiling water canning. For recipes that specify only one processing method, that method must be used. *There are no USDA-approved conversions between boiling water canner and pressure canner processing times available to home canners.*

Some USDA-approved home canning recipes give you the option of using either a boiling water canner or a pressure canner. For these recipes, either method can be used, although pressure canning will generally yield higher quality and more nutritious canned tomato products. Whichever processing method you use, it is important to follow all of the preparation steps and processing instructions given in the recipe.

For more information on safe home canning, please see *Home Canning Basics*, publication FCS3-578.

Altitude affects processing times and pressures. The processing times and pressures given in this publication are based on canning at or below 1,000 feet above sea level. If you live at an altitude greater than 1,000 feet, please consult the web site for the National Center for Home Food Preservation located at <http://nchfp.uga.edu/>.

Step-By-Step Canning

Boiling Water Method

1. Assemble all equipment and utensils.
2. Visually examine jars, lids and bands for defects. Wash in hot, soapy water and rinse well. Place the jars in simmering water to keep hot until filled. Dry the bands and set aside. Follow the manufacturer's instructions for preparing the lids. Many no longer require preheating before use. Do not boil the lids.
3. Fill the boiling water canner half full of clean warm water. Center the canner over the burner and preheat the water to 180°F. Begin preparing the recipe while the water is preheating. The water will begin to boil in about 20 to 30 minutes.
4. Use top-quality ingredients; wash fresh produce well. Prepare the recipe, following the directions given.
5. Fill the hot jars, leaving the headspace specified in the recipe. Remove air bubbles and adjust headspace, if necessary. Wipe jar rims with a dampened clean paper towel. Center lids on jars and apply bands fingertip tight. Do not over tighten.
6. Load filled jars into the canner, using a jar lifter. Keep jars upright at all times. Add boiling water to cover the jars by one to two inches. Turn the heat up so the water boils vigorously, and place the lid on the canner.
7. Begin timing the process when the water has reached a full boil. Set a timer for the total number of minutes indicated in the recipe. The water must remain at a boil for the whole processing time. Add boiling water, if necessary, to keep the water level at least one inch above the jar tops.
8. When the processing time specified in the recipe is complete, turn off the heat and remove the canner lid. Wait five minutes before removing jars.
9. Remove jars from canner, keeping them upright. Carefully place them onto a towel, leaving a one-inch space between the jars for proper cooling.
10. After 12 to 24 hours, test seals and remove bands.
11. Wash outside of jars and lid surfaces. Label and store sealed jars in a cool, dark, dry place for up to two years.
12. Enjoy your very own tomato products.

Step-By-Step Canning

Pressure Canner Method

1. Assemble all equipment and utensils.
2. Visually examine jars, lids and bands for defects. Wash in hot, soapy water and rinse well. Place the jars in simmering water to keep hot until filled. Dry the bands and set aside. Follow the manufacturer's instructions for preparing the lids. Many no longer require preheating before use. Do not boil the lids.
3. Use top-quality ingredients; wash fresh produce well. Prepare the recipe, following the directions given.
4. Fill the hot jars, leaving the headspace specified in the recipe. Remove air bubbles and adjust headspace, if necessary. Wipe jar rims with a dampened clean paper towel. Center lids on jars and apply bands fingertip tight. Do not over tighten.
5. Following your manufacturer's instructions, place one to two inches of hot water in the pressure canner. Load filled jars into the canner, using a jar lifter. Keep jars upright at all times. Fasten the canner lid securely. Leave the weight off the vent port or open the petcock.
6. To vent the canner, heat on high until the water boils and generates steam that can be seen escaping in a funnel shape through the open vent port or petcock. Set a timer for 10 minutes. After 10 minutes of continuous steam, close the petcock or place the counterweight or weighted gauge over the vent port to begin building pressure in the canner. The canner should pressurize within three to ten minutes.
7. Start timing the process when the pressure reading on the dial gauge indicates that the recommended pressure has been reached or when the weighted gauge begins to jiggle or rock as the manufacturer describes. Regulate the heat under the canner to maintain a steady pressure at, or slightly above, the correct gauge pressure for the whole processing time.
8. When the processing time specified in the recipe is complete, turn off the heat to allow the canner to cool naturally and return to zero pressure. After the canner is completely depressurized, remove the weight from the vent port or open the petcock. At this point, the canner and its contents will still be hot. Wait 10 minutes, then unfasten the lid and remove it carefully, with the underside away from you so that the steam coming out of the canner does not burn your face.
9. Remove jars from canner, keeping them upright. Carefully place them onto a towel, leaving a one-inch space between the jars for proper cooling.
10. After 12 to 24 hours, test seals and remove bands.
11. Wash outside of jars and lid surfaces. Label and store sealed jars in a cool, dark, dry place for up to two years.
12. Enjoy your very own tomato products.

Recipes for Beginners

Tomatoes Packed in Water

Ingredients

- 2½ to 3½ pounds tomatoes per quart
- 2 tablespoons bottled lemon juice per quart
- 1 teaspoon salt per quart (optional)
- hot water to cover

Directions

Raw Pack

- Prepare tomatoes: Blanch tomatoes in a large saucepan of boiling water for 30 to 60 seconds or until skins begin to split. Remove from boiling water. Dip immediately into cold water. Slip off skins and remove cores. Leave tomatoes whole or cut into halves.
- Add 1 tablespoon bottled lemon juice to each pint jar or 2 tablespoons bottled lemon juice to each quart jar.
- Pack tomatoes into hot jars, leaving ½-inch headspace.
- Ladle hot water over tomatoes, leaving ½-inch headspace.
- Add ½ teaspoon salt to each pint jar or 1 teaspoon salt to each quart jar, if desired.
- Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 40 minutes, quart jars 45 minutes, in a boiling water canner.

Hot Pack

- Prepare tomatoes: Blanch tomatoes in a large saucepan of boiling water for 30 to 60 seconds or until skins begin to split. Remove from boiling water. Dip immediately into cold water. Slip off skins and remove cores. Leave tomatoes whole or cut into halves.
- Place tomatoes in a large saucepan; add enough water to cover tomatoes. Boil gently 5 minutes, stirring to prevent sticking.
- Add 1 tablespoon bottled lemon juice to each pint jar or 2 tablespoons bottled lemon juice to each quart jar.
- Pack hot tomatoes into hot jars, leaving ½-inch headspace.
- Ladle hot cooking liquid over tomatoes, leaving ½-inch headspace.
- Add ½ teaspoon salt to each pint jar or 1 teaspoon salt to each quart jar, if desired.
- Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 40 minutes, quart jars 45 minutes, in a boiling water canner.

Yield: An average of 21 pounds tomatoes is needed per canner load of 7 quart jars; an average of 13 pounds is needed per canner load of 9 pint jars.

Nutritional Analysis (½ cup): 40 calories, 0.5 g fat, 8 g carbohydrate, 1 g protein

Recipe adapted from *USDA Complete Guide to Home Canning*. Used with permission for educational purposes only.

Recipes for Beginners

Tomatoes Packed in Their Own Juice

(Boiling Water Canner)

Ingredients

- 2½ to 3½ pounds tomatoes per quart
- 2 tablespoons bottled lemon juice per quart
- 1 teaspoon salt per quart (optional)

Directions

Raw Pack

- Prepare tomatoes: Blanch tomatoes in a large saucepan of boiling water for 30 to 60 seconds or until skins begin to split. Remove from boiling water. Dip immediately into cold water. Slip off skins and remove cores. Leave tomatoes whole or cut into halves.
- Add 1 tablespoon bottled lemon juice to each pint jar or 2 tablespoons bottled lemon juice to each quart jar.
- Pack tomatoes into hot jars, pressing gently on tomatoes until the spaces between them fill with juice, leaving ½-inch headspace.
- Add ½ teaspoon salt to each pint jar or 1 teaspoon salt to each quart jar, if desired.
- Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint or quart jars 1 hour and 25 minutes in a boiling water canner.

Yield: An average of 21 pounds of tomatoes is needed per canner load of 7 quart jars; an average of 13 pounds is needed per canner load of 9 pint jars.

Nutritional Analysis (½ cup): 40 calories, 0.5 g fat, 8 g carbohydrate, 1 g protein

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Intermediate Recipes

Tomato Juice

Ingredients

- 3 to 3½ pounds tomatoes per quart
- 2 tablespoons bottled lemon juice per quart
- 1 teaspoon salt per quart (optional)

Directions

- Remove stems from tomatoes and trim off bruised or discolored portions. To prevent juice from separating, quickly cut about 1 pound of tomatoes into quarters and put directly into a large saucepan. Heat immediately to boiling while crushing. Continue to slowly add and crush freshly cut tomato quarters to the boiling mixture. Make sure the mixture boils constantly and vigorously while you add the remaining tomatoes. Simmer 5 minutes after you add all the pieces. (If you are not concerned about juice separation, simply slice or quarter tomatoes into a large saucepan. Crush, heat, and simmer for 5 minutes before juicing.)
- Juice cooked tomatoes in a food processor or food mill.
- Strain tomato juice to remove peels and seeds.
- Add 1 tablespoon bottled lemon juice to each pint jar or 2 tablespoons bottled lemon juice to each quart jar. Add ½ teaspoon salt to each pint jar or 1 teaspoon salt to each quart jar, if desired.
- Reheat tomato juice to boiling.
- Ladle hot juice into hot jars, leaving ½-inch headspace. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 35 minutes, quart jars 40 minutes, in a boiling water canner.

Yield: An average of 23 pounds of tomatoes is needed per canner load of 7 quart jars; an average of 14 pounds is needed per canner load of 9 pint jars.

Nutritional Analysis (*½ cup*): 45 calories, 0.5 g fat, 9 g carbohydrate, 1 g protein

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Intermediate Recipes

Tomato-Vegetable Juice Blend

Ingredients

- 22 pounds tomatoes
- $\frac{3}{4}$ cup finely chopped carrots
- $\frac{3}{4}$ cup finely chopped celery
- $\frac{3}{4}$ cup finely chopped green or red pepper
- $\frac{3}{4}$ cup finely chopped onion
- 2 tablespoons salt (optional)
- 14 tablespoons bottled lemon juice

Quantities of vegetables can be varied to taste, as long as no more than 3 cups (total) of chopped carrots, celery, peppers, and onions are added for each 22 pounds of tomatoes.

Directions

- Remove stems from tomatoes and trim off bruised or discolored portions. To prevent juice from separating, quickly cut about 1 pound of tomatoes into quarters and put directly into a large saucepan. Heat immediately to boiling while crushing. Continue to slowly add and crush freshly cut tomato quarters to the boiling mixture. Make sure the mixture boils constantly and vigorously while you add the remaining tomatoes. Simmer 5 minutes after you add all the pieces. (If you are not concerned about juice separation, simply slice or quarter tomatoes into a large saucepan. Crush, heat, and simmer for 5 minutes before adding vegetables.)
- Add carrots, celery, peppers, and onions. Simmer mixture 20 minutes, stirring to prevent sticking.
- Juice tomato-vegetable mixture in a food processor or food mill.
- Strain juice to remove peels and seeds.
- Stir in salt, if desired.
- Add 1 tablespoon bottled lemon juice to each pint jar or 2 tablespoons bottled lemon juice to each quart jar.
- Reheat tomato-vegetable juice to boiling.
- Ladle hot juice immediately into hot jars, leaving $\frac{1}{2}$ -inch headspace. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 35 minutes, quart jars 40 minutes, in a boiling water canner.

Yield: about 14 pint jars or 7 quart jars

Nutritional Analysis ($\frac{1}{2}$ cup): 45 calories, 0.5 g fat, 9 g carbohydrate, 1 g protein

Recipe adapted from *USDA Complete Guide to Home Canning*. Used with permission for educational purposes only.

Intermediate Recipes

Tomatoes Packed in Their Own Juice

(Pressure Canner)

Ingredients

- 2½ to 3½ pounds tomatoes per quart
- 2 tablespoons bottled lemon juice per quart
- 1 teaspoon salt per quart (optional)

Directions

Raw Pack

- Prepare tomatoes: Blanch tomatoes in a large saucepan of boiling water for 30 to 60 seconds or until skins begin to split. Remove from boiling water. Dip immediately into cold water. Slip off skins and remove cores. Leave tomatoes whole or cut into halves.
- Add 1 tablespoon bottled lemon juice to each pint jar or 2 tablespoons bottled lemon juice to each quart jar.
- Pack tomatoes into hot jars, pressing gently on tomatoes until the spaces between them fill with juice, leaving ½-inch headspace.
- Add ½ teaspoon salt to each pint jar or 1 teaspoon salt to each quart jar, if desired.
- Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint or quart jars 25 minutes at 10 pounds pressure in a weighted-gauge pressure canner or at 11 pounds pressure in a dial-gauge pressure canner.

Yield: An average of 21 pounds of tomatoes is needed per canner load of 7 quart jars; an average of 13 pounds is needed per canner load of 9 pint jars.

Nutritional Analysis (½ cup): 40 calories, 0.5 g fat, 8 g carbohydrate, 1 g protein

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Intermediate Recipes

Stewed Tomatoes

Ingredients

- 4 quarts chopped tomatoes
- ½ cup chopped green peppers
- ½ cup chopped onions
- 4 teaspoons celery salt
- 4 teaspoons sugar
- ½ teaspoon salt

Directions

- Combine all ingredients in a large saucepan. Cover and cook 10 minutes, stirring occasionally to prevent sticking.
- Ladle hot vegetables into hot pint or quart jars, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 15 minutes, quart jars 20 minutes, at 10 pounds pressure in a weighted-gauge pressure canner or at 11 pounds pressure in a dial-gauge pressure canner.

Yield: about 6 pint jars or 3 quart jars

Nutritional Analysis (½ cup): 25 calories, 0 g fat, 6 g carbohydrate, 1 g protein

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Advanced Recipes

Barbecue Sauce

Ingredients

- 4 quarts chopped, peeled, cored tomatoes
- 2 cups chopped celery
- 2 cups chopped onions
- 1½ cups chopped sweet red or green peppers
- 2 hot red peppers, cored and chopped
- 1 teaspoon black peppercorns
- 2 cloves garlic, crushed
- 1 cup brown sugar
- 1 tablespoon dry mustard
- 1 tablespoon paprika
- 1 tablespoon salt
- 1 teaspoon hot pepper sauce
- ⅛ teaspoon cayenne pepper
- 1½ cups vinegar

When cutting or seeding hot peppers, wear plastic or rubber gloves to prevent hands from being burned. Wash hands with soap and water immediately afterward. Do not touch your face or eyes.

Directions

- Combine tomatoes, celery, onions and peppers in a large saucepan. Cook until vegetables are soft, about 30 minutes.
- Purée vegetables using a food processor, blender or food mill.
- Cook purée until reduced by about one half, about 45 minutes.
- Tie peppercorns in a spice bag; add spice bag and remaining ingredients to tomato purée. Cook slowly until mixture is the consistency of ketchup, about 1½ to 2 hours. As mixture thickens, stir frequently to prevent sticking. Remove spice bag.
- Ladle hot sauce into hot pint or half-pint jars, leaving ½-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint or half-pint jars 20 minutes in a boiling water canner.

Yield: about 4 pint jars or 8 half-pint jars

Nutritional Analysis (2 tablespoons): 25 calories, 0 g fat, 6 g carbohydrate, 1 g protein

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Advanced Recipes

Spaghetti Sauce without Meat

Ingredients

- 30 pounds tomatoes, peeled, cored and quartered
- 1 cup chopped onions
- 5 cloves garlic, minced
- 1 cup chopped celery or green pepper
- 1 pound fresh mushrooms, sliced (optional)
- ¼ cup vegetable oil
- 2 tablespoons oregano
- 4 tablespoons minced parsley
- 2 teaspoons black pepper
- 4½ teaspoons salt
- ¼ cup brown sugar

Do not increase the proportion of onions, celery, peppers or mushrooms.

Directions

- Boil tomatoes 20 minutes, uncovered, in a large saucepan.
- Put cooked tomatoes through a food mill or sieve.
- Sauté onions, garlic, celery or peppers, and mushrooms (if desired) in vegetable oil until tender.
- Combine sautéed vegetables with tomato pulp in a large saucepan. Add spices, salt and sugar; bring to a boil. Simmer, uncovered, until volume is reduced by nearly one half and sauce is thick enough for serving. Stir frequently to prevent burning.
- Ladle hot sauce into hot pint or quart jars, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 20 minutes, quart jars 25 minutes, at 10 pounds pressure in a weighted-gauge pressure canner or at 11 pounds pressure in a dial-gauge pressure canner.

Yield: About 9 pint jars or 4 quart jars

Nutritional Analysis (½ cup): 110 calories, 3 g fat, 20 g carbohydrate, 3 g protein

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Advanced Recipes

Spaghetti Sauce with Meat

Ingredients

- 30 pounds tomatoes, peeled, cored, and quartered
- 2½ pounds ground beef or sausage
- 1 cup chopped onions
- 5 cloves garlic, minced
- 1 cup chopped celery or green peppers
- 1 pound fresh mushrooms, sliced (optional)
- 2 tablespoons oregano
- 4 tablespoons minced parsley
- 2 teaspoons black pepper
- 4½ teaspoons salt
- ¼ cup brown sugar

Do not increase the proportion of meat, onions, celery, peppers or mushrooms.

Directions

- Boil tomatoes 20 minutes, uncovered, in a large saucepan.
- Put cooked tomatoes through a food mill or sieve.
- Sauté beef or sausage until brown. Add onions, garlic, celery or peppers, and mushrooms (if desired). Cook until vegetables are tender.
- Combine sautéed meat and vegetables with tomato pulp in a large saucepan. Add spices, salt and sugar; bring to a boil. Simmer, uncovered, until volume is reduced by nearly one-half and sauce is thick enough for serving. Stir frequently to prevent burning.
- Ladle hot sauce into hot pint or quart jars, leaving 1-inch headspace. Remove air bubbles and adjust headspace if needed. Wipe jar rims with a dampened clean paper towel; apply two-piece metal caps.
- Process pint jars 1 hour, quart jars 1 hour 10 minutes, at 10 pounds pressure in a weighted-gauge pressure canner or at 11 pounds pressure in a dial-gauge pressure canner.

Yield: About 9 pint jars or 4 quart jars

Nutritional Analysis (½ cup): 170 calories, 6 g fat, 20 g carbohydrate, 9 g protein

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References

- Andress, E. L., & Harrison, J. A. (2011). *So Easy to Preserve* (5th ed.). Athens, GA: Cooperative Extension, University of Georgia.
- FDA/Center for Food Safety & Applied Nutrition (2007). *Approximate pH of Foods and Food Products*. Retrieved July 26, 2013 from <http://www.foodscience.caes.uga.edu/extension/documents/fdaapproximatephoffoodslacf-phs.pdf>
- Jarden Home Brands (2012). *Ball Blue Book Guide to Preserving*. Daleville, IN: Hearthmark.
- National Center for Home Food Preservation, University of Georgia (n.d.). *How Do I?...Can Tomatoes*. Retrieved July 26, 2013 from http://nchfp.uga.edu/how/can3_tomato.html.
- United States Department of Agriculture (2009). *USDA Complete Guide to Home Canning* (Agriculture Information Bulletin No. 539). Retrieved July 26, 2013 from http://nchfp.uga.edu/publications/publications_usda.html.

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