

Tomatoes



Freezing

Quantity

One bushel (45 lbs.) of tomatoes will yield 26 to 34 frozen pints and for juice 20 to 28 pints.

Frozen tomatoes will have a mushy texture when thawed and are suitable only for cooking, i.e. in soups, stews, spaghetti sauces, etc. In addition, tomatoes that are frozen raw become watery and develop an off-flavor after a short period in the freezer. Tomatoes that are too ripe for safe canning, but are still sound and free from decay, can safely be frozen.

Freeze only up to 2 pounds of food per cubic foot of freezer capacity per day.

Procedure

Raw: Wash and dip the tomatoes into boiling water for 30 seconds to loosen the skins. Core and peel. Freeze whole or in pieces. Pack into containers, leaving 1-inch head space. Seal and freeze.

Juice: Wash, sort, and trim firm, vine-ripened tomatoes. Cut the tomatoes in quarters or eighths. Simmer 5 to 10 minutes. Press through a sieve. If desired, season with 1 teaspoon of salt to each quart of juice. Pour into the containers, leaving 1½-inch head space. Seal and freeze.

Stewed: Remove the stem ends, and peel and quarter ripe tomatoes. Cover and cook them until tender (10 to 20 minutes). Place the pan containing the tomatoes in cold water to cool. Pack into containers, leaving 1-inch head space. Seal and freeze.

Tomato products, such as sauce, puree, catsup, and chili sauce, can be frozen. Prepare as usual, cool rapidly, pack into rigid containers leaving head space, and freeze.

Canning

For detailed instructions on the use of boiling-water or pressure canners, refer to the instructions in the publication, *Preserving Vegetables*, MF-1181. Using a pressure canner will result in higher quality and more nutritious canned tomato products.

Quality

Select only disease-free, preferably vine-ripened, firm fruit for canning.

Caution: Do not can tomatoes from dead or frost-killed vines. Green tomatoes are more acidic than ripened fruit and can be canned safely with any of the following recommendations. Any color of tomato can be home canned, including low-acid tomatoes, with the following methods.

Food acidity and processing methods

Whether food should be processed in a pressure or boiling-water canner to control *Clostridium botulinum* bacteria depends on the acidity of the food. Acid may be natural, as in most fruits, or added, as in pickled food. Low-acid canned foods contain too little acid to prevent the growth of these bacteria.

Acid foods contain enough acid to block bacterial growth or to destroy them more rapidly when heated. The term pH is a measure of acidity; the lower the value, the more acid in the food. The acid level in foods can be increased by adding lemon juice, citric acid or vinegar.

Low-acid foods have pH values higher than 4.6. They include red meats, seafood, poultry, milk, and all fresh vegetables except for most tomatoes. Most mixtures of low-acid and acid foods also have pH values above 4.6 unless their recipes include enough lemon juice, citric acid, or vinegar to make them acid foods.

Acid foods have a pH of 4.6 or lower. They include fruits, pickles, sauerkraut, jams, jellies, marmalades, and fruit butters. Although tomatoes usually are considered an acid food, some are now known to have pH values slightly above 4.6.

Therefore, if they are to be canned as acid foods, tomato products must be acidified to a pH of 4.6 or lower with lemon juice or citric acid. Properly acidified tomatoes are an acid food and can be safely processed in a boiling-water canner.

Clostridium botulinum spores are very hard to destroy at boiling-water temperatures; the higher the canner temperature, the more easily they are destroyed. Therefore, all low-acid foods should be processed at temperatures of 240° to 250°F, attainable with pressure canners operated at 10 to 15 pounds of pressure.

At these temperatures, 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 the jars, and the size of the 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 a pressure canner varies from 5 to 85 minutes.

Acidification Instructions

To ensure a safe acid level in whole, crushed, or juiced tomatoes, add 2 tablespoons of bottled lemon juice or ½ teaspoon of citric acid per quart of tomatoes. For pints, use 1 tablespoon of bottled lemon juice or ¼ teaspoon of citric acid. Acid can be added directly to the jars before filling the jars with product. Add sugar to offset acid taste, if desired. Four tablespoons of a 5-percent-acidity vinegar per quart may be used instead of lemon juice or citric acid. However, vinegar may cause undesirable flavor changes. Tomatoes must be acidified for both boiling water and pressure canning.

Salt

Salt used in the following tomato products is used for flavor only and can be omitted, if desired.

Processing in a boiling-water canner

Preheat the canner filled halfway with water to 180°F. Load the closed jars onto the canner rack and lower with the handles, or load one jar at a time with a jar lifter onto the rack in the canner. Add boiling water, if needed, to a level of 1 inch above the jars and add the cover. When the water boils vigorously, reduce the heat to maintain a gentle boil and process the jars of product for the time shown in Table 1 on page 6.

Processing in a pressure canner

Pressure canning produces higher quality and more nutritious canned tomato products.

Place the jar rack, 2 inches of water, and the closed jars in the canner. Fasten the canner lid, and heat the

canner on a high setting. After the steam exhausts for 10 minutes, add the weighted gauge or close the petcock to pressurize the canner. Start timing the process when the desired pressure is reached. Regulate the heat to maintain a uniform pressure and process the jars for the time given in Table 2 on page 7.

When processing is completed, remove the canner from the heat. Air-cool the canner until it is fully depressurized. Slowly remove the weighted gauge or open the petcock, wait for 2 more minutes, and carefully remove the canner lid.

Remove the jars from the canner with a jar lifter and place them on a towel or rack. Do not retighten the screw bands. Air-cool the jars for 12 to 24 hours. Remove the screw bands and check the lid seals. If the center of the lid is indented, wash, dry, label, and store the jar in a clean, cool, dark place. If the lid is unsealed, examine and replace the jar if it is defective. Use a new lid and reprocess as before. Wash the screw bands and store separately.

The products are best if eaten within a year and safe as long as the lids remain vacuum sealed.

Tomato Juice

Quantity

An average of 23 pounds is needed per canner load of 7 quarts, or an average of 14 pounds per canner load of 9 pints. A bushel weighs 53 pounds and yields 15 to 18 quarts of juice — an average of 3¼ pounds per quart.

Procedure

Wash, remove the stems, and trim bruised or discolored portions. To prevent juice from separating, quickly cut about 1 pound of fruit into quarters and put directly into a saucepan. Heat immediately to boiling while crushing. Continue to slowly add to the boiling mixture and crush the freshly cut tomato quarters. Make sure the mixture boils constantly and vigorously while you add the remaining tomatoes. Simmer 5 minutes after you add all pieces.

If you are not concerned about juice separation, simply slice or quarter the tomatoes into a large saucepan. Crush, heat, and simmer for 5 minutes before juicing.

Press both types of heated juice through a sieve or food mill to remove the skins and seeds. Add bottled lemon juice or citric acid to the jars. See acidification

instructions on page 2. Heat the juice again to boiling. Add 1 teaspoon of salt per quart to the jars, if desired. Fill the jars with hot tomato juice, leaving ½-inch head space. Adjust the lids and process according to Table 1 on page 6 or Table 2 on page 7.

Tomato and Vegetable Juice Blend

Quantity

An average of 22 pounds of tomatoes is needed per canner load of 7 quarts. Not more than 3 cups of other vegetables may be added for each 22 pounds of tomatoes.

Procedure

Crush and simmer the tomatoes as for making tomato juice (see page 2). Add no more than 3 cups of any combination of finely chopped celery, onions, carrots, and peppers for each 22 pounds of tomatoes. Simmer the mixture 20 minutes. Press hot cooked tomatoes and vegetables through a sieve or food mill to remove the skins and seeds. Add bottled lemon juice or citric acid to the jars. See acidification directions on page 2. Add 1 teaspoon of salt per quart to the jars, if desired. Reheat the tomato-vegetable juice blend to boiling and pour immediately into the jars, leaving ½-inch head space. Adjust the lids and process according to Table 1 on page 6 or Table 2 on page 7.

Tomatoes, Whole or Halved

The tomatoes are packed raw without added liquid.

Quantity

An average of 21 pounds is needed per canner load of 7 quarts; an average of 13 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 15 to 21 quarts — an average of 3 pounds per quart.

Procedure

Wash the tomatoes. Dip them in boiling water for 30 to 60 seconds or until the skins split. Then dip them in cold water, slip off the skins, and remove the cores. Leave the tomatoes whole or halved. Add bottled lemon juice or citric acid to the jars. See acidification instructions on page 2. Add 1 teaspoon of salt per quart to the jars, if desired.

Fill the jars with raw tomatoes, leaving ½-inch head space. Press the tomatoes into the jars until spaces between them fill with juice. Leave ½-inch head

space. Adjust the lids and process according to Table 1 on page 6 or Table 2 on page 7.

Tomatoes, Crushed

The tomatoes are packed with no added liquid. This high-quality product is ideally suited for use in soups, stews, and casseroles.

Quantity

An average of 22 pounds is needed per canner load of 7 quarts; an average of 14 fresh pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 17 to 20 quarts of crushed tomatoes — an average of 2¾ pounds per quart.

Procedure

Wash the tomatoes and dip them in boiling water for 30 to 60 seconds or until the skins split. Then dip them in cold water, slip off the skins and remove the cores. Trim any bruised or discolored portions and quarter.

Heat one-sixth of the quarters quickly in a large pot, crushing them with a wooden mallet or spoon as they are added to the pot. This will exude the juice. Continue heating the tomatoes, stirring to prevent burning. Once the tomatoes are boiling, gradually add the remaining quartered tomatoes, stirring constantly. These remaining tomatoes do not need to be crushed. They will soften with the heating and stirring. Continue until all of the tomatoes are added. Then boil gently 5 minutes.

Add bottled lemon juice or citric acid to the jars. See acidification directions on page 2. Add 1 teaspoon of salt per quart to the jars, if desired. Fill the jars immediately with the hot tomatoes, leaving ½-inch head space. Adjust the lids and process according to Table 1 on page 6 or Table 2 on page 7.

Standard Tomato Sauce

Quantity

For thin sauce: An average of 35 pounds is needed per canner load of 7 quarts; an average of 21 pounds is needed per canner load of 9 pints. A bushel weighs 53 pounds and yields 10 to 12 quarts of sauce — an average of 5 pounds per quart.

For thick sauce: An average of 46 pounds is needed per canner load of 7 quarts; an average of 28 pounds is needed per canner load of 9 pints. A bushel weighs

53 pounds and yields 7 to 9 quarts of sauce — an average of 6½ pounds per quart.

Procedure

Prepare and press as for making tomato juice (see page 2). Simmer in a large-diameter saucepan until the sauce reaches the desired consistency. Boil until the volume is reduced by about one-third for thin sauce, or by one-half for thick sauce. Add bottled lemon juice or citric acid to the jars. See acidification directions on page 2. Add 1 teaspoon of salt per quart to the jars, if desired. Fill the jars, leaving ¼-inch head space. Adjust the lids and process according to Table 1 on page 6 or Table 2 on page 7.

Tomatoes with Okra or Zucchini

Quantity

An average of 12 pounds of tomatoes and 4 pounds of okra or zucchini is needed per canner load of 7 quarts. An average of 7 pounds of tomatoes and 2½ pounds of okra or zucchini is needed per canner load of 9 pints.

Procedure

Wash the tomatoes and okra or zucchini. Dip the tomatoes into boiling water 30 to 60 seconds or until the skins split. Then dip them in cold water, slip off the skins, remove the cores, and quarter. Trim the stems from the okra and slice into 1-inch pieces or leave whole. Slice or cube the zucchini, if used.

Bring the tomatoes to a boil and simmer 10 minutes. Add okra or zucchini and boil gently 5 minutes. Add 1 teaspoon of salt for each quart to the jars, if desired. Fill the jars with the mixture, leaving 1-inch head space. Adjust the lids and process according to Table 2 on page 7.

Variation: You may add four or five pearl onions or two onion slices to each jar.

Spaghetti Sauce without Meat

Yield: About 9 pints
30 pounds tomatoes
1 cup chopped onions
5 cloves garlic, minced
1 cup chopped celery or green pepper
1 pound fresh mushrooms, sliced (optional)
4½ teaspoons salt
2 tablespoons oregano
4 tablespoons minced parsley

2 teaspoons black pepper
¼ cup brown sugar
¼ cup vegetable oil

Procedure

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

Wash the tomatoes and dip them in boiling water for 30 to 60 seconds or until the skins split. Dip them in cold water, slip off the skins, remove the cores and quarter. Boil 20 minutes, uncovered, in a large saucepan. Put through a food mill or sieve.

Saute the onions, garlic, celery or peppers, and mushrooms (if desired) in vegetable oil until tender. Combine the sauteed vegetables and tomatoes and add the remainder of the spices, salt, and sugar. Bring to a boil. Simmer uncovered until it is thick enough for serving. At this time, the initial volume will have been reduced by nearly one-half. Stir frequently to avoid burning.

Fill the jars, leaving 1-inch head space. Adjust the lids and process according to Table 2 on page 7.

Mexican Tomato Sauce

Yield: About 7 quarts
2½ to 3 pounds chile peppers
18 pounds tomatoes
3 cups chopped onions
1 tablespoon salt
1 tablespoon oregano
½ cup vinegar or bottled lemon juice

Procedure

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

Wash and dry the chiles. Slit each pepper on its side to allow the steam to escape. Peel the peppers using one of the following methods.

Oven or broiler method: Place the chiles in the oven (400°F) or broiler for 6 to 8 minutes until the skins blister.

Range-top method: Cover the hot burner, either gas or electric, with heavy wire mesh. Place the chiles on the burner for several minutes until the skins blister.

Allow the peppers to cool. Place them 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 the skins. Discard the seeds and chop the peppers.

Wash the tomatoes and dip them in boiling water for 30 to 60 seconds or until the skins split. Dip them in cold water, slip off the skins, and remove the cores. Coarsely chop the tomatoes and combine the chopped peppers and remaining ingredients in a large saucepan. Bring to a boil. Cover. Simmer 10 minutes. Fill the jars, leaving 1-inch head space. Adjust the lids and process according to Table 2 on page 7.

Chile Salsa

Chile salsa is a hot tomato-pepper sauce.

Yield: 6 to 8 pints

5 pounds tomatoes

2 pounds chile peppers

1 pound onions

1 cup vinegar (5%) or bottled lemon juice

3 teaspoons salt

½ teaspoon pepper

Procedure

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

Peel and prepare the chile peppers as described in making Mexican Tomato Sauce above. Wash the tomatoes and dip them in boiling water for 30 to 60 seconds or until the skins split. Dip them in cold water, slip off the skins, and remove the cores. Coarsely chop the tomatoes and combine the chopped peppers, onions and remaining ingredients in a large saucepan. Heat to a boil, and simmer 10 minutes. Fill the jars, leaving ½-inch head space. Adjust the lids and process according to Table 1 on page 6.

Tomato Ketchup

Yield: 6 to 7 pints

24 pounds ripe tomatoes

3 cups chopped onions

¾ teaspoon ground red pepper (cayenne)

3 cups cider vinegar (5%)

4 teaspoons whole cloves

3 sticks cinnamon, crushed

1½ teaspoons whole allspice

3 tablespoons celery seeds

1½ cups sugar

¼ cup salt

Procedure

Wash the tomatoes. Dip them in boiling water for 30 to 60 seconds or until the skins split. Dip them in cold water, slip off the skins, and remove the cores. Quarter the tomatoes into a 4-gallon stock pot or a large kettle. Add the onions and red pepper. Bring to a boil and simmer 20 minutes, uncovered. Cover, turn off the heat, and let stand for 20 minutes.

Combine the spices in a spice bag and add to the vinegar in a 2-quart saucepan. Bring to a boil. Remove the spice bag and combine the vinegar and tomato mixture. Boil about 30 minutes. Put the boiled mixture through a food mill or sieve, and return to the pot.

Add the sugar and salt, boil gently, and stir frequently until the volume is reduced by one-half or until the mixture rounds up on spoon without separation. Fill pint jars, leaving ⅛-inch head space. Adjust the lids and process according to Table 1 on page 6.

Fiesta Salsa

Yield: about 4 pints

7 cups chopped, seeded, peeled, cored tomatoes

2 cups chopped, seeded, peeled cucumbers

2 cups chopped and seeded banana peppers

1 cup slice green onion

½ cup chopped, peeled, roasted Anaheim peppers

½ cup chopped jalapeno peppers

¼ cup minced cilantro

3 cloves garlic, minced

1 tablespoon minced fresh marjoram

1 teaspoon salt

½ cup cider vinegar or bottled lemon juice

2 tablespoons lime juice

Procedure

Combine all ingredients in a large saucepot. Bring mixture to a boil. Reduce heat and simmer 10 minutes. Ladle hot salsa into hot jars, leaving ¼-inch headspace. Adjust two-piece caps. Process in boiling-water canner and process according to Table 1 on page 6.

Note: When cutting or seeding hot peppers, wear rubber gloves to prevent hands from being burned.

Tomatillo Green Salsa

Yield: 5 pints

5 cups chopped tomatillos*

1½ cups seeded, chopped long green chiles

½ cup seeded, finely chopped jalapeño peppers

4 cups chopped onions

1 cup bottled lemon juice

6 cloves garlic, finely chopped

1 tablespoon ground cumin (optional)

3 tablespoons oregano leaves(optional)

1 tablespoon salt

1 teaspoon black pepper

* You may use green tomatoes in this recipe instead of tomatillos.

Procedure

Caution: Wear plastic or rubber gloves while handling hot chiles.

The skin of long green chiles may be tough and can be removed by heating the peppers. Usually when peppers are finely chopped, they do not need to be skinned. Hot peppers, such as the jalapeño, do not need to be peeled but the seeds are often removed.

If you choose to peel chiles, do so as described in making Mexican Tomato Sauce on page 5. Wash the tomatoes and dip them in boiling water for 30 to 60 seconds or until the skins split. Dip them in cold water, slip off the skins, and remove the cores. Chop the ingredients above.

Combine all of the ingredients in a large saucepan and stir frequently over high heat until the mixture begins to boil, then reduce the heat and simmer for 20 minutes, stirring occasionally. Ladle the hot mixture into pint jars, leaving ½-inch head space. Adjust the lids and process in a boiling-water canner according to Table 1.

Note: Spices add flavor to salsas. The amounts of spices and herbs may be altered in these recipes. Cilantro and cumin are often used in spicy salsas. You may leave them out if you prefer a salsa with a milder taste. For a stronger cilantro flavor, add fresh cilantro just before serving the salsa.

Table 1

Recommended processing times for tomatoes in a boiling-water canner

Product	Style of pack	Jar size	Minutes of processing at different altitudes (in ft.)		
			0- 1,000	1,001-3,000	3,001-6,000
Tomato juice	Hot	Pints	35	40	45
		Quarts	40	45	50
Crushed tomatoes	Hot	Pints	35	40	45
		Quarts	45	50	55
Whole or halved tomatoes packed without added liquid	Raw	Pints or quarts	85	90	95
Tomato ketchup	Hot	Pints	15	20	25
Tomato sauce	Hot	Pints	35	40	45
		Quarts	40	45	50
Chile salsa	Hot	Pints	15	20	20
Tomato/vegetable juice blend	Hot	Pints	35	40	45
		Quarts	40	45	50
Fiesta salsa	Hot	Pints	15	20	20
Tomatillo green salsa	Hot	Pints	15	20	25

Table 2

Recommended processing times for tomatoes in a pressure canner (in minutes)

Product	Style of pack	Jar size	Process time	Canner gauge pressure needed at different altitudes (in ft.)			
				Dial gauge (lbs.)		Weighted gauge (lbs.)	
				0- 2,000	2,001-4,000	0- 1,000	Above 1,000
Tomato juice or crushed tomatoes	Hot	Pints or quarts	20	6	7	5	10
		Pints or quarts	15	11	12	10	15
Whole or halved tomatoes packed without added liquid	Raw	Pints or quarts	40	6	7	5	10
		Pints or quarts	25	11	12	10	15
Tomato sauce	Hot	Pints or quarts	20	6	7	5	10
		Pints or quarts	15	11	12	10	15
Spaghetti sauce without meat	Hot	Pints	20	11	12	10	15
		Quarts	25	11	12	10	15
Mexican tomato sauce	Hot	Pints	20	11	12	10	15
		Quarts	25	11	12	10	15
Tomatoes with okra or zucchini	Hot	Pints	30	11	12	10	15
		Quarts	35	11	12	10	15
Tomato/vegetable juice blend	Hot	Pints or quarts	20	6	7	5	10
		Pints or quarts	15	11	12	10	15

Preserving Tomatoes Nutrition Information

Tomatoes	Serving size	Calories	Fat (g)	Carbohydrates (g)	Fiber (g)	Vit. C (mg)	Sodium (mg)
Tomato juice (with salt)	6 fl. oz.	31	0.09	7.72	0.7	33.3	490.0
Tomato and vegetable juice blend (without salt)	6 fl.oz.	40	0.18	8.32	1.4	50.2	127.0
Tomatoes, whole or halved	½ cup	20	0.0	4.0	1.0	12.0	190.0
Tomatoes, crushed	½ cup	30	0.0	7.0	2.0	12.0	350.0
Standard tomato sauce	½ cup	51	0.24	10.67	1.8	16.0	13.0
Tomatoes with okra or zucchini	½ cup	15	0.0	4.0	1.0	15.0	200.0
Spaghetti sauce without meat	½ cup	30	0.0	5.0	1.0	21.0	105.0
Mexican tomato sauce	2 tablespoons	25	0.0	5.0	1.0	42.0	65.0
Chile salsa	2 tablespoons	10	0.0	2.0	0.0	21.0	55.0
Tomato ketchup	1 tablespoon	15	0.0	3.0	0.0	9.0	130.0
Fiesta salsa	2 tablespoons	10	0.0	2.0	0.0	12.0	80.0
Tomatillo green salsa	2 tablespoons	10	0.0	2.0	0.0	9.0	90.0

Problems and Solutions

1. When pressure canning tomatoes, does lemon juice need to be added?

Yes, when either water bath canning or pressure canning, lemon juice must be added. See acidification instructions on page 2.

2. My tomatoes froze on the vines, are they safe to use?

Do not can tomatoes from dead or frost-killed vines. The acid level has changed in the tomato and should not be used for canning. They can be frozen or eaten as fresh.

3. Can yellow "acid free" tomatoes be used in canning?

Yes. They have the same acid content as red tomatoes but taste less acidic. They should be used as if they were red tomatoes.

4. Can I can my own salsa recipe?

Salsas are usually mixtures of acid and low-acid ingredients; they are an example of an acidified food. The specific recipe, and sometimes preparation method, will determine if a salsa can be processed in a boiling water canner or a pressure canner. A process must be scientifically determined for each recipe.

5. Why does tomato juice separate after canning?

This is an enzymatic change that occurs when cutting tomatoes. To reduce separation, heat tomatoes quickly to a simmering temperature.

Revised by Karen Blakeslee, M.S., Extension Associate, Food Science

Adapted from *Preserving Tomatoes* by Karen P. Penner, Ph.D., Foods and Nutrition, and Jeanne Dray, Extension Assistant, Foods and Nutrition, April 1995; *Complete Guide to Home Canning*, USDA AIB No. 539, 2009; and *So Easy to Preserve*, 5th ed., The University of Georgia Cooperative Extension Service.

Fiesta Salsa Recipe provided by Jarden Home Brands, makers of Ball® Brand Fresh Preserving Products.

©2010 Hearthmark, LLC dba Jarden Home Brands. All Rights Reserved. Distributed by Hearthmark, LLC dba Jarden Home Brands, Daleville, IN 47334. Hearthmark, LLC is a subsidiary of Jarden Corporation (NYSE: JAH).

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Publications from Kansas State University are available on the World Wide Web at: www.ksre.ksu.edu

Publications are reviewed or revised annually by appropriate faculty to reflect current research and practice. Date shown is that of publication or last revision. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Karen Blakeslee, et al., *Preserving Tomatoes*, Kansas State University, October 2010.