



## FOOD PRESERVATION

### How To Can Fresh Tomato Products:

# Tantalizing Tomatoes

Nutritional Sciences  
University of Missouri Extension

Select only disease-free, firm fruit for canning; vine-ripened is best. **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.** Use a pressure canner for higher-quality, more nutritious tomato products.

Tomatoes used to be considered an acid food, but most of today's varieties are low-acid. To safely can tomato sauce or whole, crushed or juiced tomatoes, you need to add acid whether you are using a boiling water canner or a pressure canner. Use 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 citric acid.

You may use vinegar (4 tablespoons of 5 percent vinegar per quart) instead of lemon juice or citric acid. However, vinegar may cause undesirable flavor changes. Add sugar, if desired, to offset an acid taste.

Carefully follow the directions in this guide when canning tomatoes to prevent the growth of *Clostridium botulinum*, the bacterium that causes botulism food poisoning.

If *Clostridium botulinum* bacteria survive and grow inside a sealed jar of



food, they can produce a poisonous toxin. Even a taste of food containing this toxin can be fatal. Please refer to MU publication GH1451, *Steps to Success in Home Canning*, for information on correct canning procedure and for the steps to follow in boiling-water and pressure canning.

### Spaghetti without meat

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

**Yield:** About 9 pints

#### Procedure:

**Caution: Do not increase the proportion of onions, garlic, peppers or mushrooms.** Wash tomatoes and dip in boiling water for 30 seconds to 60 seconds or until skins split. Dip in cold water, slip off skins, remove cores and quarter tomatoes. Boil 20 minutes, uncovered, in a large saucepan. Press tomatoes through a food mill or sieve.

Saute onions, garlic, celery or peppers and mushrooms (if desired) in vegetable oil until tender. Combine sauteed vegetables and tomatoes and add remainder of spices, salt and sugar. Bring to a boil. Lower heat and simmer, uncovered, until thick enough for serving or until volume is reduced by one-half. Stir frequently to avoid burning. Fill jars; leave 1-inch headspace. Adjust lids. See Table 3 for process times.

**Procedure for making sauce with meat:** Brown 2½ pounds of ground beef or Italian sausage. Drain well. Using the recipe for making sauce without meat, add the specified quantities for garlic, onion, celery or green pepper and mushrooms. Cook until vegetables are tender. Combine browned meat, vegetables and tomatoes. Then follow the directions above for making sauce without meat.

## Whole, halved or crushed tomatoes

**Quantity:** See Table 1 for guidelines.

**Procedure for whole or halved tomatoes packed in water:** Wash tomatoes and dip in boiling water for 30 seconds to 60 seconds or until skins split. Dip in cold water, slip off skins and remove cores. Leave whole or halve. **Add bottled lemon juice or citric acid to jars using directions on Page 1.**

**Hot pack:** Add enough water to cover the tomatoes and boil them gently for 5 minutes. Fill jars with hot tomatoes. Add 1 teaspoon salt per quart if desired and add enough hot cooking liquid to cover tomatoes; leave ½-inch headspace.

**Raw pack:** Fill jars with raw, peeled tomatoes. Add 1 teaspoon salt per quart if desired and add hot water to cover tomatoes; leave ½-inch headspace.

Adjust lids. See Table 2 or 3 for process times.

**Procedure for whole or halved tomatoes packed with tomato juice:** Prepare, peel and acidify tomatoes as described for tomatoes packed in water.

**Hot pack:** Put tomatoes in a large saucepan and add enough tomato juice to completely cover them. Boil tomatoes and juice gently for 5 minutes. Add 1 teaspoon salt per quart, if desired. Fill jars with hot tomatoes and cover with hot juice; leave ½-inch headspace.

**Raw pack:** Heat tomato juice in a saucepan. Fill jars with raw tomatoes. Add 1 teaspoon salt per quart, if desired. Cover tomatoes in the jars with hot tomato juice; leave ½-inch headspace.

Adjust lids. See Table 2 or 3 for process times.

**Procedure for whole or halved tomatoes without added liquid:** Prepare, peel and acidify tomatoes as described for tomatoes packed in water. Add 1 teaspoon salt per quart, if desired. Fill jars with raw tomatoes. Press tomatoes in the jars until spaces between them fill with juice. Leave ½-inch head space.

Adjust lids. See Table 2 or 3 for process times.

**Procedure for crushed tomatoes:** Wash tomatoes and dip in boiling water for 30 seconds to 60 seconds or until skins split. Dip in cold water, slip off skins and remove cores. Trim off 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 juice. Continue heating tomatoes, stirring to prevent burning. Once the tomatoes are boiling, gradually add remaining quartered tomatoes, stirring constantly. These remaining tomatoes do not need to be crushed; they will soften with heating and stirring. Boil gently five minutes. **Add bottled lemon juice or citric acid to jars using directions on Page 1.** Add 1 teaspoon salt per quart if desired. Fill jars immediately with hot tomatoes; leave ½-inch headspace.

Adjust lids. See Table 2 or 3 for process times.

## Tomato sauce

**Quantity:** See Table 1 for guidelines.

**Procedure:** Wash, remove stems and trim off discolored or bruised portions. To prevent sauce from separating, quickly cut about 1 pound of tomatoes into quarters and put directly into 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 remaining tomatoes. Lower heat and simmer five minutes after all tomatoes are added.

If you are not concerned about sauce separating, simply slice or quarter tomatoes into a large saucepan. Crush, heat and simmer for five minutes before pressing.

Press either type of heated tomatoes through a sieve or food mill to remove skins and seeds. Heat tomatoes again to boiling. Lower heat and simmer in a large saucepan until sauce reaches desired consistency. Simmer until volume is reduced by one-third for thin sauce, or by one-half for thick sauce. **Add bottled lemon juice or citric acid to jars using directions on Page 1.** Add 1 teaspoon salt to each quart jar, if desired. Fill jars; leave ¼-inch headspace.

Adjust lids. See Table 2 or 3 for process times.

## Mexican tomato sauce:

2½ to 3 pounds chile peppers  
18 pounds tomatoes  
3 cups onions, chopped  
1 tablespoon salt  
1 tablespoon oregano  
½ cup vinegar

**Yield:** About 7 quarts

**Procedure:**

**Caution: Wear rubber gloves while handling chiles or wash hands thoroughly with soap and water before touching your face.** Boil peppers 1 minute to 2 minutes in water to blister skins. Cool and slip off skins. Discard seeds and chop peppers.

Wash tomatoes and dip in boiling water for 30 seconds to 60 seconds or until skins split. Dip in cold water, slip off skins and remove cores. Coarsely chop tomatoes and combine chopped peppers and remaining ingredients in a large saucepan.

Bring to a boil. Cover. Reduce heat and simmer 10 minutes. Fill jars; leave 1-inch headspace.

Adjust lids. See Table 3 for process times.

## Tomato juice

**Quantity:** See Table 1 for guidelines.

**Procedure:** Wash, remove stems and trim off bruised or discolored portions. To prevent juice from separating, quickly cut about 1 pound of fruit into quarters and put directly into 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. Lower heat and simmer five minutes after adding all tomatoes.

If you are not concerned about juice separation, simply slice or quarter

tomatoes into a large saucepan.

Crush, heat and simmer for five minutes before juicing.

Press both types of heated tomatoes through a sieve or food mill to remove skins and seeds. **Add bottled lemon juice or citric acid to jars using directions on Page 1.** Reheat juice to boiling. Add 1 teaspoon salt per quart, if desired. Fill jars with hot tomato juice; leave ½-inch headspace.

Adjust lids. See Tables 2 or 3 for process times.

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**For best quality and nutritional value, use home-canned tomato products within one year.**

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## Tomato and vegetable juice blend

**Quantity:** See Table 1 for guidelines. No more than 3 cups of other vegetables may be added for each 22 pounds of tomatoes.

**Procedure:** Crush and simmer tomatoes as for making tomato juice. Add no more than 3 cups of any combination of finely chopped celery, onions, carrots, and peppers for each 22 pounds of tomatoes. Simmer mixture 20 minutes. Press hot cooked tomatoes and vegetables through a sieve or food mill to remove skins and seeds. **Add bottled lemon juice or citric acid to jars using directions on Page 1.** Add 1 teaspoon of salt per quart to the jars, if desired. Reheat tomato-vegetable juice blend to boiling. Fill jars; leave ½-inch headspace.

Adjust lids. See Table 2 or 3 for process times.

## Tomato ketchup

24 pounds ripe tomatoes  
3 cups onions, chopped  
¾ teaspoon ground red pepper (cayenne)  
3 cups cider vinegar (5 percent)  
4 teaspoons whole cloves  
3 sticks cinnamon, crushed  
1½ teaspoons whole allspice  
3 tablespoons celery seeds  
1½ cups sugar  
¼ cup salt

**Yield:** 6 pints to 7 pints

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

Combine spices in a spice bag, place in a 2-quart saucepan, add vinegar and bring to a boil. Remove spice bag and combine vinegar and tomato mixture. Boil about 30 minutes. Put boiled mixture through a food mill or sieve. Return juice to pot. Add sugar and salt, boil gently and stir frequently until volume is reduced by one-half or until mixture rounds up on spoon without separation. Fill pint jars; leave 1/8-inch headspace.

Adjust lids. See Table 2 for process times.

## Salsa

### Salsa selection and preparation of ingredients

#### Acids

The acid ingredients help preserve canned salsas. You must add the acid to these salsas processed in a boiling water canner because the natural acidity of the mixture without it may not be high enough. The acids are usually commercially bottled lemon juice or vinegar so the acidity level will be standardized. Use only vinegar that is at least 5 percent acidity; do not use homemade vinegar or fresh squeezed lemon juice because the acidity can vary and will be unknown. The amounts of vinegar or lemon juice in these recipes cannot be reduced for safe boiling-water canning. Sugar can be used to offset the tartness of the acid. **An equal amount of bottled lemon juice may be substituted for vinegar in recipes, but do not substitute vinegar for lemon juice. This substitution will result in a less acid and potentially unsafe canned salsa.**

#### Tomatoes

The type of tomato will affect the consistency of salsa. Paste tomatoes such as Roma have more, and usually firmer, flesh than slicing tomatoes. They will produce thicker salsas than large slicing tomatoes which usually yield a thinner, more watery salsa. Poor quality or overripe tomatoes will yield a thin salsa and one that may spoil. Green tomatoes or tomatillos may be used for ripe tomatoes in these recipes, but the flavor of the recipe will change.

#### Tomatillos

Tomatillos are also known as Mexican husk tomatoes. The dry outer husk must be removed, but they do not

need to be peeled or have the seeds removed. They will need to be washed well after the husk is removed.

#### Peppers

Use only high-quality peppers that are unblemished and free of decay. You may substitute one type of pepper for another, including bell peppers (mild) for some or all of the chiles. Canned chiles may be used in place of fresh. However, **do not increase the total amount (pounds or cups) of peppers in any recipe. Do not substitute the same number of whole peppers of a large size for the number of peppers of a smaller size.** For example, do not use 6 bell peppers or long chiles in place of 6 jalapeños or serranos. This will result in changing the final acidity of the mixture and potentially unsafe canned salsa.

Milder varieties of peppers include Anaheim, ancho, college, Colorado and Hungarian yellow wax. When the recipe calls for "long green chiles" choose a mild pepper.

Jalapeño is a very popular hot pepper. Other hot varieties include cayenne, habañero, serrano and Tabasco. **Caution: Wear plastic or rubber gloves and do not touch your face, particularly the area around your eyes, when you are handling or cutting hot chiles.** If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

Usually when peppers are finely chopped in a salsa, they do not need to be peeled. However, many recipes say to peel the peppers because the skin may be tough after canning, particularly the skin of long green chiles. If you choose to peel chiles, or if a recipe directs you to peel the peppers, use the following.

**Peeling peppers:** Wash and dry

peppers; slit each pepper along the side to allow steam to escape. Blister skins using one of these two methods:

**Oven or broiler method to blister skins:** Place peppers in a hot oven (400 degrees F) or under a broiler for 6 to 8 minutes until skins blister.

**Range-top method to blister skins:** Cover hot burner (either gas or electric) with heavy wire mesh. Place peppers on burner for several minutes until skins blister.

To peel after blistering skins, place peppers in a pan and cover with a damp cloth. This will make peeling the peppers easier. Cool several minutes; peel off skins. discard seeds and chop.

#### Spices and herbs

Spices and herbs add unique flavoring to salsas. The amounts of dried spices and herbs in the following recipes (black pepper, salt, dried oregano leaves, and ground cumin) may be altered or left out. For a stronger cilantro flavor in recipes that list cilantro, it is best to add fresh cilantro just before serving instead of adding more before canning.

#### Onions

Red, yellow or white onions may be substituted for each other. **Do not increase the total amount of onions in any recipe.**

**Important: Follow the directions carefully for each recipe. Use the amounts of each vegetable (peppers, onions, tomatoes, tomatillos, etc.) listed in the recipe. If the procedures call for chopped tomatoes, use the whole tomato after peeling and coring. Do not drain the tomato, or remove all the liquid and juices. Add the amount of vinegar or lemon juice as listed. The only changes you can safely make in salsa recipes are to**

substitute bottled lemon juice for vinegar and to change the amount of dried spices and herbs. Do not alter the proportions of vegetables to acid and tomatoes because it might make the salsa unsafe. Do not thicken salsas with flour, cornstarch or other starches before canning. If a thicker salsa is desired, you can pour off some of the liquid or add these thickening ingredients after opening. Do not can salsas that do not follow these or other research-tested recipes. (They may be frozen or stored in the refrigerator.)

### Tomatillo green salsa

- 5 cups chopped tomatillos (or green tomatoes may be used)
- 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

**Yield:** About 5 pints

**Procedure:**

**Caution: Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers.** If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

Peel and prepare chile peppers as described above, if desired. Combine all ingredients in a large saucepan and stir frequently over high heat until mixture begins to boil, then reduce heat and simmer for 20 minutes, stir-

ring occasionally. Fill jars, leave ½-inch headspace.

Adjust lids. See Table 2 for process times.

### Tomato salsa (using slicing tomatoes)

- 4 cups peeled, cored, chopped tomatoes
- 2 cups seeded, chopped long green chiles
- ½ cup seeded, chopped jalapeño peppers
- ¾ cup chopped onion
- 4 cloves garlic, finely chopped
- 2 cups vinegar (5 percent)
- 1 teaspoon ground cumin (optional)
- 1 tablespoon oregano leaves (optional)
- 1 tablespoon fresh cilantro (optional)
- 1½ teaspoons salt

**Yield:** About 4 pints

**Procedure:**

**Caution: Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers.** If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

Peel and prepare chile peppers as described above, if desired. 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. Combine all ingredients in a large pot and bring to a boil, stirring frequently. Reduce heat and simmer 20 minutes, stirring occasionally. Fill jars, leave ½-inch headspace.

Adjust lids. See Table 2 for process times.

### Tomato taco sauce

- 8 quarts peeled, cored, finely chopped paste tomatoes\*
- 2 cloves garlic, crushed
- 5 cups chopped onions
- 4 jalapeño peppers, seeded, chopped
- 4 long green chiles, seeded, chopped
- 2½ cups vinegar
- 2 tablespoons salt
- 1½ tablespoons black pepper
- 1 tablespoon sugar
- 2 tablespoons oregano leaves (optional)
- 1 teaspoon ground cumin (optional)

*\*This recipe works best with paste tomatoes, as slicing tomatoes will yield a thin watery salsa.*

**Yield:** About 16 to 18 pints

**Procedure:**

**Caution: Wear plastic or rubber gloves and do not touch your face while handling or cutting hot peppers.** If you do not wear gloves, wash hands thoroughly with soap and water before touching your face or eyes.

Peel and prepare chile peppers as described above, if desired. 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. Combine ingredients in a large saucepan. Bring to a boil, reduce heat and simmer, stirring frequently until thick (about 1 hour). Fill jars, leave ½-inch headspace.

Adjust lids. See Table 2 for process times.

**Table 1: Quantities of fresh tomatoes needed for tomato products<sup>1</sup>**

Product	Pounds of fresh tomatoes needed for:			
	One quart	One pint	A canner load of: 7 quarts      9 pints	
Juice	3¼	1½	23	14
Whole, halved, crushed, or tomato-vegetable juice blend	3	1½	22	14
Thin sauce	5	2½	35	21
Thick sauce	6½	3¼	46	28
Ketchup	7½	4	53	36
Spaghetti sauce	6⅓	3⅓	44	30
Mexican sauce	2½	1⅓	18	12

<sup>1</sup>These are general guidelines. See recipes for exact amounts.

**Table 2: Recommended process times for tomatoes in a boiling-water canner**

Product	Style of pack	Jar size	Minutes of processing at different altitudes (in feet)	
			0–1,000 feet	1,001–3,000 feet
Tomato juice	Hot	Pints	35	40
		Quarts	40	45
Crushed tomatoes	Hot	Pints	35	40
		Quarts	45	50
Whole or halved tomatoes packed in water	Hot or raw	Pints	40	45
		Quarts	45	50
Whole or halved tomatoes packed in juice	Hot or raw	Pints or quarts	85	90
			85	90
Whole or halved tomatoes packed without added liquid	Raw	Pints or quarts	85	90
Tomato ketchup	Hot	Pints	15	20
Tomato sauce	Hot	Pints	35	40
		Quarts	40	45
Tomato-vegetable blend	Hot	Pints	35	40
		Quarts	40	45
Salsas	Hot	Pints	15	20

**Table 3: Recommended process times for tomatoes in a pressure canner**

				Canner gauge pressure needed at different altitudes (in feet)		
Product	Style of pack <sup>1</sup>	Jar size	Process time (minutes)	Dial gauge (pounds)	Weighted gauge (pounds)	
				0–2,000	0–1,000	Above 1,000
Tomato juice, or crushed tomatoes	Hot	Pints or quarts	20	6	5	10
			15	11	10	15
			10	Not recommended	15	Not recommended
Whole or halved tomatoes packed in water	Hot or raw	Pints or quarts	15	6	5	10
			10	11	10	15
			1	Not recommended	15	Not recommended
Whole or halved tomatoes packed in juice	Hot or raw	Pints or quarts	40	6	5	10
			25	11	10	15
			15	Not recommended	15	Not recommended
Whole or halved tomatoes without added liquid	Raw	Pints or quarts	40	6	5	10
			25	11	10	15
			15	Not recommended	15	Not recommended
Tomato-vegetable blend	Hot	Pints or quarts	20	6	5	10
			15	11	10	15
			10	Not recommended	15	Not recommended
Tomato sauce	Hot	Pints or quarts	20	6	5	10
			15	11	10	15
			10	Not recommended	15	Not recommended
Spaghetti sauce without meat	Hot	Pints or quarts	20	11	10	15
			25	11	10	15
Spaghetti sauce with meat	Hot	Pints or quarts	60	11	10	15
			70	11	10	15
Mexican tomato sauce	Hot	Pints or quarts	20	11	10	15
			25	11	10	15

<sup>1</sup>Hot pack is preferable for quality and safety.

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