Online Publications

FCS3-121

# Canning Tomatoes and Tomato Juice

## Featuring new, research-based recommendations for safer and better quality food at home

*Prepared by Fudeko Maruyama and Sue Burrier, former Extension Food and Nutrition Specialists*
*Contact: Sandra Bastin, Ph.D., R.D., Extension Food and Nutrition Specialist*

This fact sheet for safe home-canned tomatoes and tomato juice is based on new recommendations from the U.S. Department of Agriculture. The recommendations reflect new research and developments in food technology. For example, some tomato varieties have been found to be lower in acidity and more solid than other varieties. This means they must be acidified and processed longer to kill bacteria. Also, modern lightweight canners heat and cool faster than the old heavy ones, so filled jars must be processed longer to get the same bacteria-killing effect.

# Quality

Select only disease-free, preferably vine-ripened, firm fruit for canning. Do not can tomatoes from dead or frost-killed vines because the tomatoes will have less acidity than is required for safe canning. Green tomatoes are more acidic than ripened fruit and may be canned safely with any of the methods described here.

# Quantity

TOMATO JUICE: An average of 23 pounds of tomatoes is needed per canner load of 7 quarts; 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.

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

# Food Acidity and Safety

Although tomatoes usually are considered an acid food, some are now known to have insufficient acidity. To ensure safe acidity in canned tomatoes or tomato juice, add bottled lemon juice or food-grade citric acid to the jars before processing.

- If using bottled lemon juice, use 1 tablespoon per pint or 2 tablespoons per quart.
- If using citric acid, use ¼ teaspoon per pint or ½ teaspoon per quart.

Salt is optional in canning tomatoes; it does not affect keeping quality. Use ½ teaspoon of canning salt per pint or 1 teaspoon per quart, if desired.

# Use of Pressure Canners for Tomatoes

Tomatoes may be canned in a pressure canner. A somewhat better quality product with higher nutritive value can be obtained this way. Tomatoes or juice must be acidified according to the recommendations above, whether canned in a pressure or a boiling-water canner.

# Raw or Hot Pack

Some recipes for tomato products specify only hot pack canning. This is because an enzyme present in cut or crushed tomatoes causes separation of solid and liquid in the finished product when the raw pack method is used. Heating the tomatoes or juice quickly, as required in hot pack recipes, inactivates the enzyme and prevents separation. In raw pack, the enzyme has a longer period of time to act before the heat of the canning process inactivates it.

# Headspace

The unfilled space above the food and below the lid in the jar is termed headspace. This space is needed for the expansion of food as jars are being processed and for forming vacuums in cooled jars. The recommended headspace for tomatoes and tomato juice canned in a boiling-water or a pressure canner is ½ inch.

# Lid Selection, Preparation, and Use

The common self-sealing lid consists of a flat metal lid held in place during processing by a metal screw band. The flat lid is crimped around its bottom edge to form a trough, which is filled with a colored gasket material. When jars are processed, the lid gasket softens and flows slightly to cover the jar-sealing surfaces, yet allows air to escape from the jars. The gasket then forms an airtight seal as the jars cool. To ensure a good seal, carefully follow the manufacturer's directions in preparing lids for use.

After filling jars with food, release air bubbles by inserting a flat plastic (not metal) spatula between the food and the jar. Slowly turn the jar and move the spatula up and down to allow air bubbles to escape. Adjust the headspace and then clean the jar rim (sealing surface) with a dampened paper towel. Place the lid, gasket down, onto the cleaned jar-sealing surface. Uncleaned jar-sealing surfaces may cause seal failures.

Fit the metal screw band over the flat lid. Follow the manufacturer's guidelines enclosed with or on the box for tightening the jar lids properly.

Do not retighten lids after processing jars. As jars cool, the contents in the jar contract, pulling the self-sealing lid firmly against the jar to form a high vacuum.

# Processing Times

When using the recipes in this guide to can tomatoes and tomato juice, begin counting processing time when water comes to a vigorous boil after the jars are placed in the water. The water level should be at least 1 inch above the tops of the jars.

Be sure to vent all pressure canners, including weighted-gauge types, for 10 minutes before the pressure is allowed to build. Otherwise, air trapped in a canner reduces the inside temperature and results in underprocessing. Begin counting the processing time after the desired pressure is reached.

# Cooling Jars

Cool jars at room temperature for 12 to 24 hours. Jars may be cooled on racks or towels to minimize heat damage to counters. The food level and liquid volume of raw packed jars will be noticeably lower after cooling because air is lost during processing and food shrinks. If a jar loses excessive liquid during processing, do not open it to add

more liquid. As long as the seal is good, the product is still usable.

# Recipes

## Tomato Juice

PROCEDURE: Wash tomatoes. 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 a saucepan. Heat immediately to boiling while crushing. Continue to slowly add and crush 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, slice or quarter tomatoes into a large saucepan. Crush, heat, and simmer for 5 minutes before juicing.

Press heated juice through a sieve or food mill to remove skins and seeds. Heat juice again to boiling. To acidify tomatoes, add 2 tablespoons of lemon juice per quart to the jar. Add 1 teaspoon of salt per quart to the jar, if desired. Fill jars with hot tomato juice, leaving ½inch headspace. Adjust lids and process.

PROCESSING TIME:

- *Boiling-water Canner*—Hot Pack: process pints for 40 minutes; quarts, 45 minutes.
- *Dial-gauge Pressure Canner*—Hot Pack: process pints or quarts for 15 minutes at 12 pounds of pressure.
- *Weighted-gauge Pressure Canner*—Hot Pack: process pints or quarts for 15 minutes at 15 pounds of pressure.

## Tomatoes, crushed, with no added liquid

A high-quality product ideally suited for use in soups, stews, and casseroles.

PROCEDURE: 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. 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 so their juices are released. Continue heating the tomatoes, stirring to prevent burning. Once the tomatoes are boiling, gradually add remaining quartered tomatoes, stirring constantly. The remaining tomatoes do not need to be crushed. They will soften with heating and stirring. Continue until all tomatoes are added, then boil gently for 5 minutes. To acidify tomatoes, add 2 tablespoons of lemon juice per quart to the jar. Add 1 teaspoon of salt per quart to the jar, if desired. Fill jars immediately with hot tomatoes, leaving ½inch headspace. Adjust lids and process.

PROCESSING TIME:

- *Boiling-water Canner*—Hot Pack: process pints for 40 minutes: quarts, 50 minutes.
- *Dial-gauge Pressure Canner*—Hot Pack: process pints or quarts for 15 minutes at 12 pounds of pressure.
- *Weighted-gauge Pressure Canner*—Hot Pack: process pints or quarts for 15 minutes at 15 pounds of pressure.

## Tomatoes, whole or halved, packed in water

PROCEDURE: Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; dip in cold water. Slip off skins and remove cores. Leave whole or halve. To acidify tomatoes, add 2 tablespoons of lemon juice per quart to the jar. Add 1 teaspoon of salt per quart to the jar, if desired.

Hot pack—Put tomatoes in a large saucepan. Cover with water. Boil gently for 5 minutes. Fill jars with hot tomatoes; cover with hot cooking liquid, leaving ½ inch headspace.

Raw pack—Fill jars with raw, peeled tomatoes, leaving ½inch headspace. Add hot water to cover, leaving ½ inch headspace. Adjust lids and process.

PROCESSING TIME:

- *Boiling-water Canner*—Hot or Raw Pack: process pints for 45 minutes; quarts, 50 minutes.
- *Dial-gauge Pressure Canner*—Hot or Raw Pack: process pints or quarts for 10 minutes at 12 pounds of pressure.
- *Weighted-gauge Pressure Canner*—Hot or Raw Pack: process pints or quarts for 10 minutes at 15 pounds of pressure.

## Tomatoes, whole or halved, packed in tomato juice

PROCEDURE: Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; dip in cold water. Slip off skins and remove cores. Leave whole or halve. To acidify tomatoes, add 2 tablespoons of lemon juice per quart to the jar. Add 1 teaspoon of salt per quart to the jar, if desired.

Hot pack—Put tomatoes in a large saucepan. Cover with tomato juice. Boil tomatoes and juice gently for 5 minutes. Fill jars with hot tomatoes, leaving ½ inch headspace. Add hot tomato juice to cover, leaving ½ inch headspace.

Raw pack—Fill jars with raw tomatoes, leaving ½ inch headspace. Cover tomatoes with hot tomato juice, leaving ½ inch headspace. Adjust lids and process.

PROCESSING TIME:

- *Boiling-water Canner*—Hot or Raw Pack: process pints or quarts for 90 minutes.
- *Dial-gauge Pressure Canner*—Hot or Raw Pack: process pints or quarts for 25 minutes at 12 pounds of pressure.
- *Weighted-gauge Pressure Canner*—Hot or Raw Pack: process pints or quarts for 25 minutes at 15 pounds of pressure.

## Tomatoes, whole or halved, packed raw without added liquid

PROCEDURE: Wash tomatoes. Dip in boiling water for 30 to 60 seconds or until skins split; dip in cold water. Slip off skins and remove cores. Leave whole or halve. To acidify tomatoes, add 2 tablespoons of lemon juice per quart to the jar. Add 1 teaspoon of salt per quart to the jar, if desired. Fill jars with raw tomatoes, leaving ½ inch headspace. Press tomatoes in the jars until spaces between them fill with juice, leaving ½ inch headspace. Adjust lids and process.

PROCESSING TIME:

- *Boiling-water Canner*—Raw Pack: process pints or quarts for 90 minutes.
- *Dial-gauge Pressure Canner*—Raw Pack: process pints or quarts for 25 minutes at 12 pounds of pressure.
- *Weighted-gauge Pressure Canner*—Raw Pack: process pints or quarts for 25 minutes at 15 pounds of pressure.

## Salsa

4 cups peeled, cored, chopped tomatoes (about 2½ pounds)

2 cups seeded, chopped green peppers (about 1 pound)

1 cup seeded, chopped hot peppers (about ½ pound)

¾ cup chopped onion

1 teaspoon salt

2 cloves garlic, minced

1½ cups cider vinegar

Combine all ingredients in a large saucepan. Bring mixture to a boil. Reduce heat and simmer about 20 minutes. Pour hot into hot jars, leaving ¼-inch head space. Adjust lids. Process 30 minutes in boiling-water canner. Yield: about 6 half-pints.

For milder salsa, select mildly hot peppers. For hot salsa, use jalapeno, serrano, or other very hot variety peppers.

**Caution: Wear rubber gloves while handling hot peppers, and avoid touching face or eyes.**

---

**Equal opportunity statement**