The EssentiaList

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Hot Bath Canning at Home

The information in this document is from the following sources:

- Presto pressure canner instruction book, published in 1971 (provided by Jean Helps). Because not all models are identical, verify this information for your canner;
- MSU Extension Service Canning Guide (msuextension.org/publications/HomeHealthandFamily/MT198329HR.pdf)
- Ohio State University Extension Fact Sheet (ohioline.osu.edu/hyg-fact/5000/5338.html)
- Culinary Cafe Caning Guide: (www.culinarycafe.com/Canning.html#About)

How it Works

The process of canning is used to preserve food by killing and excluding microorganisms that would otherwise cause spoilage. During the canning process, the heat and pressure kills most of the bugs already in the food, and drives air from the jar. As the jar cools and seals, a vacuum is formed, preventing new microorganisms from entering and re-contaminating the food.

Because not all bugs are killed during canning, botulism being the most notable, other measures are included to kill them:

- Foods with adequate acid or sugar protects against the growth of many bugs; heating to the boiling point of water (212^0 F) is sufficient (hot water bath canning).
- Low acid foods, such as most vegetables and all meats, must be heated to higher temperatures that can only be reached under high pressure provided by a pressure canner. You can add acids to low-acid foods to avoid using a pressure canner; for example, adding vinegar to cucumbers.
- Tomatoes generally may be acidic, but for canning are considered low-acid and require either the addition of lemon juice or citric acid, or pressure canning.

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Basic Process for Hot Water Bath Canning

1. Food:

NOTE: only acidic foods and pickled products should be canned by this method. Low-acid foods, vegetables and meats should be canned in a pressure canner.

Keep plenty of boiling water handy.

Sort and clean food. Trim, slice or otherwise prepare for canning, then place in a bowl and cover with warm water to preheat, or pre-cook according to recipe.

2. Jars:

Inspect jars and lids: Discard any chipped or damaged jars; discard any lids that are bent, or have a damaged sealing ring. Sterilize 10 minutes in boiling water bath. Keep jars and lids warm in a water bath until ready to use (but not rings).

Jams & Jellies: It is not necessary to sterilize jars prior to canning, but if not sterilized first, the processing time is longer. Use of paraffin is no longer recommended because of possible mold toxin.

Fill jars, leaving required head space (see *Hot Bath Time Tables*). Work out bubbles with clean knife. Wipe rim and threads of jar with damp cloth to remove all bits of food. Place warm lid on jar, then screw on the ring to finger-tight. Do not over-tighten.

If canning tomatoes or tomato juice, add 1 Tablespoon lemon juice, or 1/4 teaspoon citric acid per pint. Double the amount for a quart.

3. Canner:

Most boiling-water canners are large aluminum or porcelain-covered-steel pots with a lid. They also come with removable racks/baskets for holding the jars. Your canner should be deep enough to allow at least 1” of rapidly boiling water to cover the lids of your cans during processing. Style of canner’s bottom varies with type of burner:

- Electric burner: Use flat-bottomed canner, no more than 4” wider than your burner.
- Gas burner: A ridged bottom canner works better with a gas burner.

Fill canner halfway with water. Add 1 teaspoon cream of tartar to canner (prevents mineral build-up on jars). Pre-heat to 140^0 F for raw-pack or 180 for hot-pack foods.

Load filled jars fitted with lids into canner basket, then use basket handles to lower into the hot water (or fill canner, one jar at a time using jar lifter). Add more hot water (if needed) so that the top of the jars are covered by at least 1”. Put lid on canner.

Turn heat to highest setting and bring water to a roiling boil. Begin timing as soon as it comes to boil. Lower heat to maintain a gentle boil for the required processing time (see *Hot Bath Time Tables*), adding more boiling water as needed to keep jars covered with water.

When processed for recommended time, turn off heat and remove canner lid carefully.

4. Cooling Jars:

Remove basket (or individual jars using jar lifter). Place jars on a towel, leaving about 1" of space between jars so air can circulate. If liquid is withdrawn from jars during processing, DO NOT OPEN to refill. Loss of liquid will not interfere with keeping qualities of the food; opening of the jar will cause food to spoil.

Let jars rest 24 hours. As jars cool, the lids may 'pop' as they seal. Inspect each lid to ensure it is slightly indented, indicating a good seal. Gently press on the center of the lid; if it springs when released, it is not properly sealed.

5. Unsealed Jars: What to Do?

Unsealed jars need to be reprocessed within 24 hours, or discarded. Generally, the quality of reprocessed food is poor.

If you want to reprocess: remove lid and check jar-sealing surface for tiny nicks or bits of food. If necessary, replace jar. Always use a fresh, properly prepared lid, and reprocess for the same processing time.

6. Storage of Canned Food:

Once jars are tightly sealed and cooled, they are ready to be stored.

- Wash lid and jar to remove food residue; rinse and dry jars.
- Label and date jars.
- Store in cool dark, dry place (50 - 70 degrees F is ideal). Do not store above 95 degrees, or near hot pipes, a range, a furnace, in an uninsulated attic, or in direct sunlight. These are all conditions to induce spoilage.
- Plan to use within one year for optimum quality.

7. Cleanup:

Wash and sterilize any jars in which food spoilage has occurred.

Carefully wash canner and basket; allow to dry thoroughly and store in a dry place.

Canner Canning Capacity

Refer to the canning guide/instruction manual for your canner.

Processing Time

Processing times for fruits and fermented/pickled foods are dependent on type of food, size of jars, and elevation; refer to *Hot Bath Time Tables.*

Processing times for jelly, jam, preserves, marmalades and butters are dependent upon whether the jars are sterilized or not (allow 1/4" head-space):

- If jars are sterilized: 5 minutes below 1,000 feet; add 1 minute per 1,000 feet.
- If unsterilized: 10 minutes below 1,000 feet; add 1 minute per 1,000 feet.

How to Identify & Handle Spoiled Canned Food

NEVER TASTE food from a jar with an unsealed lid, or food that shows signs of spoilage. As you use jars of food, examine lid for tightness and seal; lids with concave centers have good seals.

Before opening jar, examine contents for rising gas bubbles and unnatural color.

While opening jar, smell for unnatural odors; look for spurting liquid and mold growth (white, blue or green) on the top food surface and underside of lid.

If food is spoiled:

Do not discard where it can be eaten by humans or pets.

Treat all jars of spoiled low-acid foods (including tomatoes) as though they contain botulinum toxin, and handle in one of two ways:

1. If jars are still sealed, place in heavy garbage bag. Close bag and place in regular trash container or bury in a landfill.
2. Unsealed, open, or leaking jars: detoxify (destroy the bacteria) before disposal. Place jars and lids on their sides in an 8-quart or larger pan. Wash hands thoroughly. Carefully add water to cover containers by at least 1 inch; avoid splashing water. Place lid on pan; heat water to boiling. Boil 30 minutes.

   Cool and discard lids and food in the trash, or bury in soil. Sanitize all counters, containers, and equipment that may have touched the food or containers. Don't forget the can opener, your clothing, and hands. Place any sponges or washcloths used in the cleanup in a plastic bag and discard.

Recommended Tools for Canning

Hot bath canner, with rack or basket, and lid

Jar lifter

Canning funnel (glass or stainless steel)

Kitchen Tongs

Towels

Sources

Canners & Parts

Target

Montana Ace 755-9701

CHS Farm Store 755-7427

Canners, part & tools: www.canningpantry.com and www.lehmans.com

Internet Resources

- MSU Extension Service Canning Guide (http://msuextension.org/publications/HomeHealthandFamily/MT198329HR.pdf)
- Ohio State University Extension Fact Sheet (http://ohioline.osu.edu/hyg-fact/5000/5338.html)
- Culinary Cafe Caning Guide: (www.culinarycafe.com/Canning.html#About)
- USDA Complete Guide to Home Canning (http://www.uga.edu/nchfp/publications/publications_usda.html)
- Online Canning and Food Preservation Course from National Center for Home Food Preservation: https://www.uga.edu/nchfp/exception_account.html

Canning Books

You can write to the following for more canning information:

- *Ball Blue Book*, 1995. Home Canners Catalog, Alltrista Corp., P.O. Box 2005, Muncie, IN 47307. $4.95 + $1 S&H.
- *Kerr Home Canning and Freezing Guide* (1996). Published by Kerr Glass Manufacturing Corporation. P.O. Box 76961. Los Angles, California 90076
- *So Easy to Preserve (*1993), University of Georgia Extension Service, Agriculture Business Department. Send $15 to 203 Conner Hall, Athens, GA 30602.