

# Home canning

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**Home canning** or **bottling**, also known colloquially as **putting up** or **processing**, is the process of preserving foods, in particular, fruits, vegetables, and meats, by packing them into glass jars and then heating the jars to kill the organisms that would create spoilage.

## Contents

- 1 North America
- 2 United Kingdom
- 3 Australia
- 4 Germany
- 5 Standard jar sizes
- 6 See also
- 7 References
- 8 External links

## North America

In North America, home canning is usually done in Mason jars, which have thicker walls than single-use commercial glass jars. Unless the food being preserved has a high acid content (pH <4.6) or salt or sugar content resulting in water availability <0.85, such as pickles or jellies, the filled jars are also processed under pressure in a **canner**, a specialized type of pressure cooker. Ordinary pressure cookers are not recommended for canning as their smaller size and the reduced thickness of the cooker wall will not allow for the correct building up and reducing time of pressure, which is factored into the overall processing time and therefore will not destroy all the harmful microorganisms.<sup>[1]</sup> The goal in using a pressure canner is to achieve a "botulinum cook" of 121 °C for 3 minutes, throughout the entire volume of canned product. Canners often incorporate racks to hold Mason jars, and pressure canners are capable of achieving the elevated temperatures needed to prevent spoilage.

The most common configuration is a Mason jar with a flat lid and screw ring. The lid is generally made of plated or painted steel, with an elastomeric washer or gasket bonded to the underside of the rim. The lid also incorporates



Preserved food in Mason jars

**Can Your Peaches This Year in the Better, Easier Way**

**“Wear-Ever” Aluminum Roaster**

Peaches, plums, pineapples—all can be “put up” in the same easy way. In this same roaster you can steam vegetables, you can roast meat without boiling, you can bake fish in the oven, you can bake apples or potatoes on top of the stove, you can use it for a bread box. It is the pan you use every day the year around.

The enormous pressure of boiling and steaming that is made the roaster in “Wear-Ever” steels strong, hard and smooth. They give enduring satisfaction—cannot chip or rust—are pure and safe.

Replace steams that wear out With steams that “Wear-Ever”

“Wear-Ever” roaster is made of aluminum and is suitable for use on a stove. It is the pan you use every day the year around. It is the pan you use every day the year around.

For more information, write to the Aluminum Company of America, 100 Broadway, New York, N. Y.

Send no money now. We will send you a free catalog of “Wear-Ever” products. It will tell you all about the “Wear-Ever” roaster and the other products that are made of aluminum. It will also tell you how to use them.

A 1914 advertisement for a combination steam canner and roaster. The described method will not protect against botulism.

a slightly dimpled shape, which acts as an indicator of the vacuum (or lack thereof) inside a sealed jar. A newer reusable lid is now available that uses a flat plastic disk with a reusable rubber gasket. The ring threads onto the top of the jar over the lid to hold it in place while the jar cools after processing; the ring can be removed once a vacuum has been established in the jar. Jars are commonly in either pint or quart capacities, with two opening diameters, known as "standard" and "wide mouth".

When a jar has cooled and is properly sealed, pressing the dimple on the lid will not make any sound. An improperly sealed jar will allow the dimple to move up and down, sometimes making a popping noise. Lack of this noise does not necessarily indicate that the food in the jar is properly preserved. Typically, during the cooling process, a properly sealed lid will pop once as the pressure inside the jar is reduced enough that atmospheric pressure pushes the lid inward.

Older variations had a ceramic seal inside a one-piece zinc lid. Another method that is no longer recommended was the use of layer of hot paraffin wax poured directly over the top of the food (especially jams and jellies) to seal it from air, thus reducing growth of aerobic microorganisms like mold.

While it is possible to safely preserve many kinds of foodstuffs, home canning can expose consumers to botulism and other kinds of food poisoning if done incorrectly. The most common source of food-borne botulism is home-canned foods prepared in an unsafe manner.<sup>[2]</sup> Safety measures must be taken when performing home canning, since ingestion of toxin in food produced by *Clostridium botulinum* can cause death.<sup>[3]</sup> Because of the high risk of illness or death associated with improper canning techniques, the United States Department of Agriculture (USDA) considers it critical that consumers who intend to can at home obtain proper and current information from a reliable source.<sup>[4]</sup> At the basis of these recommendations is the balance between bringing the food to a high enough temperature for a long enough time that spoilage and disease-producing microorganisms are killed, while not heating the food so much that it loses nutritive value or palatability.

## United Kingdom

In the United Kingdom home bottling is done with Kilner jars in a similar way to the Mason jars in the USA, and although old-style Kilner jars have a glass lid without a "dimple" more recent varieties do.

<sup>[5][6][7]</sup> Most home bottling is done using the "open kettle method",<sup>[8]</sup> with hot food ladled into hot jars and lids placed on jars, with no water bath sterilization processing of the product afterward.

## Australia



Green beans in a pressure canner ready to be processed

In Australia the most popular home canning system is Fowler's Vacola. This system uses glass jars, single use seals, metal lids, and a water bath canning sterilization process. During the canning process the lids are secured by metal tension clips which are removed once a vacuum seal has formed.<sup>[9]</sup> Fowler's Vacola products are still produced and are available from some hardware stores. Used equipment is frequently sold on online auction sites and in opportunity shops.

## Germany

In Germany the most popular home canning system is Weck jar. This system uses glass jars (80ml-2.5l) and glass bottles (200ml-1l), reusable rubber seals, glass lids, and a water bath canning sterilization process. During the canning process the lids are secured by steel tension clips which can be removed once a vacuum seal has formed. During storage the vertical position of the rubber seal's external tongue indicates the status of the sealing. Weck products are still produced and are available from German hardware stores. Used equipment is frequently sold on online auction sites and in opportunity shops. They can be used for water bath canning and pressure canning. For water bath canning use two steel tension clips and for pressure canning use three steel tension clips. Remove them after vacuum has formed.

## Standard jar sizes

United States:

- 4 ounce (jelly)
- 8 ounce (jelly)
- 8 ounce (half US pint)
- 16 ounce (US pint)
- 24 ounce (US pint and a half)
- 32 ounce (US quart)
- 64 ounce (half US gallon)

Metric:

- 250 ml

## See also

- Canning
- Food preservation



A Dixie Can Sealer for home use. Now in Thinktank, Birmingham Science Museum.



Weck glass with rubber seal and steel tension clips. The red tongue showing downwards indicates an intact sealing

- Pickling
- Pressure cooking

## References

1. National Center for Home Food Preservation, Burning Issue: Canning in Pressure Cookers (<http://www.uga.edu/nchfp/publications/nchfp/factsheets/pressurecookers.html>)
2. Centers for Disease Control and Prevention: Botulism in the United States, 1899-1996. Handbook for Epidemiologists, Clinicians, and Laboratory Workers, Atlanta, GA. Centers for Disease Control and Prevention, 1998.
3. [1] ([http://www.cdc.gov/nationalsurveillance/botulism\\_surveillance.html](http://www.cdc.gov/nationalsurveillance/botulism_surveillance.html)), National Botulism Surveillance by CDC.
4. Andress, E, Kuhn, G. (1998). *Critical Review of Home Preservation Literature and Current Research*. Athens, GA: University of Georgia, Cooperative Extension Service. Reprinted (<http://www.uga.edu/nchfp/publications/usda/review/report.html>) by the National Center for Home Food Preservation.
5. Kilner Jars and Parts (<http://www.kilnerjarsuk.co.uk>)
6. Bottling or Canning Fruit and Vegetables (<http://www.allotment-garden.org/food/bottling-canning-preparation.php>)
7. Harvest Home (<http://www.askpg.com/general/september-special-harvest-home.html>)
8. <http://www.wisegeek.com/what-is-open-kettle-canning.htm>
9. Fowler's Method of Bottling Fruits and Vegetables, J. Fowler, 26th Edition

## External links

- USDA Complete Guide to Home Canning ([http://www.uga.edu/nchfp/publications/publications\\_usda.html](http://www.uga.edu/nchfp/publications/publications_usda.html))
- How Do I? ...*Can* ([http://www.uga.edu/nchfp/how/can\\_home.html](http://www.uga.edu/nchfp/how/can_home.html)), from the National Center for Home Food Preservation
- Preservation: Canning, Freezing & Drying ([http://www.clemson.edu/extension/hgic/food/food\\_safety/preservation/](http://www.clemson.edu/extension/hgic/food/food_safety/preservation/)) from the South Carolina Cooperative Extension at Clemson University
- Richard Roller Papers (<http://www.bsu.edu/library/article/0,,29253--,00.html>), documents the history of glass manufacturing, with an emphasis on fruit and vegetable canning jars at the Ball State University Archives and Special Collections Research Center
- Ball Blue Book Guide to Preserving, 100th anniversary edition 1909-2009 (<https://www.amazon.com/Ball-Blue-Book-Guide-Preserving/dp/B009Y5W1A4>): recent update to a book with recipes for home canning and preserving.

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