



# How to Pasteurize

Two Methods: [Double Boiler](#) [Direct Heating](#)

Raw fruit juices, raw ciders, and raw milk should all undergo pasteurization before being consumed. When properly done, pasteurization destroys most types of harmful bacteria commonly found in these liquids. The double boiler method is arguably the best home method to use, but direct heating is an appropriate alternative.

## Steps



### Before You Begin: Sterilizing Storage Containers

- 1 Place your storage containers in a large stockpot.** Carefully arrange your storage containers and covers in a large stockpot. They should be able to stand upright without knocking into each other.
  - Note that the size of your stockpot will vary depending on the size of your storage containers, and the size of your storage containers will vary depending on how much liquid you have.
  - Glass containers work best. Canning jars with metal lids are recommended for beginners, but thick glass bottles with cork stoppers can also be used.
  - To prevent the containers from knocking into each other during the sterilization process, you may wish to place a clean dish towel at the bottom of the stockpot. Do so now instead of waiting until after the water boils.
- 2 Cover the containers with water.** Fill the stockpot with enough water to completely cover the storage containers and covers.
  - It is best to arrange the containers inside of the stockpot before bringing the water to a boil. Glass tends to crack or otherwise break when exposed to rapid changes in temperature, so submerging the jars after the water has already reached a boil is not recommended.
- 3 Boil the water.** Set the stockpot on the stove over high heat. Continue heating the water until it reaches a steady boil, then allow the containers and covers to stay submerged for 10 minutes.
  - Start the time only after the water has reached a steady boil. Do not start the time as soon as you place the stockpot on the stove.
- 4 Remove and let dry.** Turn the heat off and carefully lift the containers and covers out of the hot water. Set them aside on clean, dry dish towels and allow them to air dry.
  - Use caution when removing the glass containers since they can still break easily at this stage. Lift the containers out using jar tongs or a similar utensil; do not attempt to use your bare hands.
  - Even though air drying is recommended, you can speed up the process by drying the containers and covers with clean, dry dish towels. Wait until after the jars and covers have had a chance to cool down slightly, though, to prevent the hot glass from burning your skin. Also note that cork will need to air dry; you will not be able to sufficiently dry a cork stopper using a towel.
  - Do not place the containers in a refrigerator or freezer to speed the cooling process. Doing so will cause the glass to break.
  - It is strongly recommended that you do not allow the containers to cool completely to room temperature. Containers that are slightly warm are less likely to break during pasteurization.

Method  
1

## Double Boiler

- 1 Set up a double boiler.** Fill the bottom pan of a double boiler with approximately 2 inches (5 cm) of water. Place the smaller, top pan into the first.
  - If you do not have a double boiler, you can use the combination of a large stockpot and a small saucepan, metal bowl, or thick glass bowl. The smaller dish must be small enough to fit into the larger stockpot.
  - To prevent the bottom of the smaller dish from touching the bottom of the larger stockpot, place a metal cookie cutter inside the stockpot and rest the smaller dish on top of it.<sup>[1]</sup>
  - Note that the water level inside of the larger stockpot should not be high enough to reach the bottom of the smaller dish.
- 2 Pour the liquid into the smaller dish.** Pour the liquid to be pasteurized into the smaller dish of the double boiler.
  - Since this liquid will not actually reach a boil, you can fill the dish fairly high. Leave at least 1 to 2 inches (2.5 to 5 cm) of empty headspace at the top of the dish to further reduce the risk of overflow, however.
- 3 Heat the double boiler on the stove.** Place the entire double boiler on the stove and heat it over medium to medium-high.
  - The water in the bottom portion of the double boiler should begin to boil, but the liquid in the top portion should not be allowed to reach a boil.
  - Stir the liquid frequently as the double boiler heats to further reduce the risk of burning or curdling.
- 4 Retain the proper temperature.** Allow the liquid being pasteurized to reach a temperature of 162 degrees Fahrenheit (72 degrees Celsius). Hold that temperature for no fewer than 16 seconds before removing the top portion of the double boiler from the heat.<sup>[2]</sup>
  - Alternatively, heat the liquid to a temperature of 150 degrees Fahrenheit (63 degrees Celsius) and hold it for no fewer than 30 minutes before removing it from the heat.
  - Check the temperature of the liquid by keeping a cooking thermometer submerged inside. The tip of the thermometer should only be about two-thirds deep into the liquid. Do not allow it to rest on the bottom or sides of the dish.
  - If any skin forms while the liquid heats, remove it with a ladle or spoon.
- 5 Pour the hot liquid into sterilized containers.** Carefully pour the liquid into previously sterilized containers as soon as you remove the liquid from the heat.
  - Leave 1 to 2 inches (2.5 to 5 cm) of empty headspace at the top of each jar when pouring the liquid. After filling the jars, cover them with an appropriate lid.
  - You may wish to use a funnel or ladle to minimize accidental spills.
  - For best results, use containers that are both sterilized and preheated. Glass can break when exposed to dramatic changes in temperature.<sup>[3]</sup>
- 6 Cool rapidly.** Place the filled containers in cold water and allow them to sit for 15 minutes.
  - Use a sink or large basin for this step.
  - The water does not need to be ice cold, but it should be notably cooler than room temperature. Extremely cold temperatures may cause the glass to break, however, so you should not place the containers in the refrigerator or freezer immediately after filling them.
- 7 Store in cool conditions.** After rapidly cooling the jars in cold water, transfer them to a refrigerator.
  - The liquid should cool to a temperature below 40 degrees Fahrenheit (4 degrees Celsius) within the first six hours.
  - Even after the initial cooling process, you should continue to store the liquid in the refrigerator. Pasteurized milk

can last for up to two weeks, while juice and cider may last twice that amount of time.

Method  
2

## Direct Heating

- 1 Pour the liquid into sterilized containers.** Pour the liquid you wish to pasteurize into previously sterilized glass containers. Seal the containers with appropriate lids.
  - Leave 1 to 2 inches (2.5 to 5 cm) of empty headspace at the top of each container. The liquid can expand during the pasteurization process, and if the containers are too full when this happens, they could break.
  - Note that a tightly sealed cover is essential for this method. If using bottles with corks, place the corks in the filled bottles and use kitchen twine to tie them down. Metal lids should not need to be tied down.
- 2 Place the containers in a large stockpot of water.** Lay the glass containers down in the bottom of a large stockpot. Fill the stockpot with enough water to completely cover the jars.
  - Glass containers lying down in a horizontal position are less likely to knock into each other and break during pasteurization.
  - If you choose to keep the bottles upright, it might be a good idea to place a clean dish towel or jar rack at the bottom of the stockpot to help prevent the glasses from moving around and crashing into each other.
- 3 Heat the water and retain the proper temperature.** Place the filled stockpot on your stove over medium heat. Gradually heat the water until it reaches a temperature of 175 degrees Fahrenheit (80 degrees Celsius), then hold that temperature for 20 minutes before removing the glass jars.<sup>[4]</sup>
  - Heat the water slowly. Rapid heating can break the glass and may disrupt the pasteurization process.
  - Use a cooking thermometer to monitor the temperature of the water. Submerge the tip of the thermometer two-thirds deep into the water. Do not allow it to come into contact with the sides or bottom of the pan.
- 4 Remove and cool quickly.** Once the bottles have been properly heated, remove them from the hot water and submerge them in cool water for 15 minutes.
  - Fill a clean sink or basin for this purpose. Use water that is just slightly cooler than room temperature since ice-cold water can cause the glass to break.
  - Do not place the hot bottles directly in the freezer or refrigerator.
  - Use jar tongs or a similar utensil to remove the glass containers from the hot water. Do not use your bare hands.
- 5 Store in cool temperatures.** After cooling the filled glasses in cool water, move them to a refrigerator. Store until ready to consume.
  - Note that the pasteurized liquid should cool to a temperature below 40 degrees Fahrenheit (4 degrees Celsius) within six hours to be considered safe.
  - When stored in the refrigerator, pasteurized milk can last for up to two weeks. Juices and ciders can last up to a month in the refrigerator.

## Things You'll Need

### Jar Sterilization

- Stove
- Large stockpot
- Glass jars and lids
- Jar tongs

- Clean, dry dish towels

### Double Boiler Method

- Stove
- Refrigerator
- Double boiler (large stockpot *and* small saucepan, metal bowl, or thick glass bowl)
- Metal cookie cutter (optional)
- Ladle and/or funnel
- Cooking thermometer
- Sterilized glass containers with lids
- Sink or basin

### Direct Heating Method

- Stove
- Refrigerator
- Sterilized glass containers with lids
- Large stockpot
- Cooking thermometer
- Jar tongs
- Sink or basin

### Sources and Citations

- <http://www.eatwell101.com/make-a-double-boiler-how-to-set-up-a-bain-marie-homemade-double-boiler>
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- <http://www.bccdc.ca/NR/rdonlyres/08C056CF-B2B2-4CBD-A306-5E452C416602/0/pasteurizejuiceandcidersafely.pdf>

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