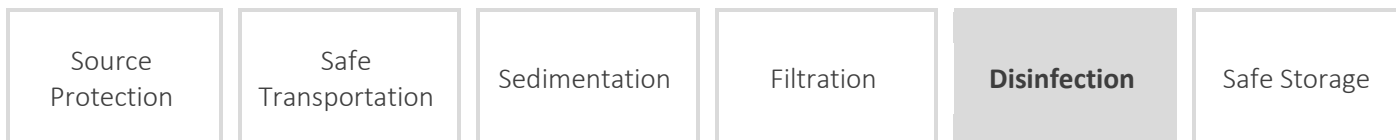


Solar Pasteurization



What is it?

Pasteurization is the process of heating water to kill pathogenic microorganisms, usually at temperatures below the boiling point (65–70°C). A simple method of pasteurizing water is to put containers of water in a solar cooker (a set of reflective panels, usually arranged as a box, that concentrate sunlight on the water container). As the water slowly heats up, pathogens begin to die. A thermometer or indicator is needed to tell when the temperature is high enough for effective pasteurization.

Performance

Microbiological Effectiveness:

Parameter	Effectiveness
Bacteria	Very Effective (>99%)
Viruses	Very Effective (>99%)
Protozoa	No independent tests
Helminths	No independent tests



Other Parameters

Not effective for turbidity, colour, or chemicals.

Source Water Requirements

No specific limits. Turbid water should be settled or filtered before using this method.

Capacity

Varies; volume treated depends on the size and capacity of the solar cooker. Treatment often takes one to four hours or more as the water heats up slowly from the sun's reflected rays.

Lifespan

Varies, depending on the type of solar cooker and whether it is homemade or manufactured.

Ease of Use & Acceptability

Operation & Maintenance

Users put water in a black container within a solar cooker. They place the cooker in the sun, repositioning it as needed to make sure it stays in direct sunlight. The cooker must stay in the sun until the water reaches at least 65°C. A thermometer or wax indicator (beeswax, soya bean fat, or Water Pasteurization Indicator, also called a WAPI) should be used to determine when the water has reached the required temperature.

Repair & Replacement

The cooker may need to be repaired over time (especially if homemade), and temperature indicators may need to be replaced.

User Considerations & Preferences

This method does not work on rainy or cloudy days. A thermometer, indicator device, or wax is needed to help the user know when the water reaches 65°C. Users must wait for water to cool before drinking.

Feasibility

Availability

There are many producers of solar cookers worldwide. Simple designs are freely available online.

Cost

Varies, depending on materials used.

Size & Weight

Varies, depending on the type of solar cooker used.

More Information

Details and references: www.hwts.info/products-technologies/4c156b83/Solar-Pasteurization

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