Solar still definition

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A solar still is a device that uses the sun’s energy to purify water by distillation. It is a simple and effective way to obtain clean drinking water from contaminated sources such as seawater, brackish water, or even dirty rainwater. Solar stills are commonly used in areas where access to clean water is limited, such as remote locations or during emergencies.

A solar still works by harnessing the heat from the sun to evaporate water and then condense the vapor to produce clean drinking water. The process begins with the contaminated water being poured into a basin or container placed inside the still. The sun’s rays heat the water, causing it to evaporate and rise to the top of the still. The vapor then condenses on a sloped surface, such as a clear plastic sheet, and drips down into a collection container as purified water.

There are several benefits to using a solar still to purify water. One of the main advantages is that it requires no electricity or fuel to operate, making it a cost-effective and environmentally friendly solution. Solar stills are also easy to use and maintain, making them ideal for use in remote or off-grid locations. Additionally, solar stills can effectively remove contaminants such as salt, bacteria, and other impurities from water, providing a reliable source of clean drinking water.

There are several different types of solar stills, each with its own design and method of operation. Some common types include single slope stills, double slope stills, and multiple effect stills. Single slope stills have a sloped surface that collects condensed water, while double slope stills have two sloped surfaces to increase the efficiency of water collection. Multiple effect stills use a series of chambers to further purify water through multiple distillation stages.

Building a solar still is a relatively simple process that can be done using common materials found around the home. To build a basic solar still, you will need a clear plastic sheet, a container for the contaminated water, and a collection container for the purified water. Start by placing the contaminated water in the container and covering it with the plastic sheet, making sure to seal the edges to prevent vapor from escaping. Place the still in direct sunlight and wait for the water to evaporate and condense on the plastic sheet, dripping down into the collection container.

Solar stills have a wide range of applications, from providing clean drinking water in remote areas to purifying water during emergencies or natural disasters. They can also be used for desalination to convert seawater into freshwater for agricultural or industrial purposes. Solar stills are a versatile and sustainable solution for water purification that can help improve access to clean water in communities around the world.

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The papers in the series were written, reviewed, and illustrated almost entirely by VITA Volunteer technical experts on a purely voluntary basis. Some 500 volunteers were involved in the production of the first 100 titles issued, contributing approximately 5,000 hours of their time. VITA staff included Maria Giannuzzi as editor, Suzanne Brooks handling typesetting and layout, and Margaret Crouch as project manager.

VITA is a private, nonprofit organization that supports people working on technical problems in developing countries. VITA offers information and assistance aimed at helping individuals and groups to select and implement technologies appropriate to their situations. VITA maintains an international Inquiry Service, a specialized documentation center, and a computerized roster of volunteer technical consultants; manages long-term field projects; and publishes a variety of technical manuals and papers. For more information about VITA services in general, or the technology presented in this paper, contact VITA at 1815 North Lynn Street, Suite 200, Arlington, Virginia 22209 USA.

Ninety-seven percent of the earth's water mass lies in its oceans. Of the remaining 3 percent, 5/6 is brackish, leaving a mere .5 percent as fresh water. As a result, many people do not have access to adequate and inexpensive supplies of potable water. This leads to population concentration around existing water supplies, marginal health conditions, and a generally low standard of living.