



SNS COLLEGE OF ENGINEERING



Kurumbapalayam(Po), Coimbatore - 641 107

Approved by AICTE, Recognized by UGC & Affiliated to Anna University,
Chennai

Department of Electronics and Communication Engineering
**19OE625 - SUSTAINABLE ENERGY SYSTEMS AND
TECHNOLOGIES**

Working of Solar Cookers



Introduction to Solar Cookers

A solar cooker is a device that harnesses the sun's energy to cook food. It's a sustainable and eco-friendly alternative to traditional cooking methods, reducing reliance on fossil fuels.



How Solar Cookers Work

1

Sunlight Concentration

Solar cookers use reflective surfaces, like mirrors or panels, to focus sunlight onto a cooking pot.

2

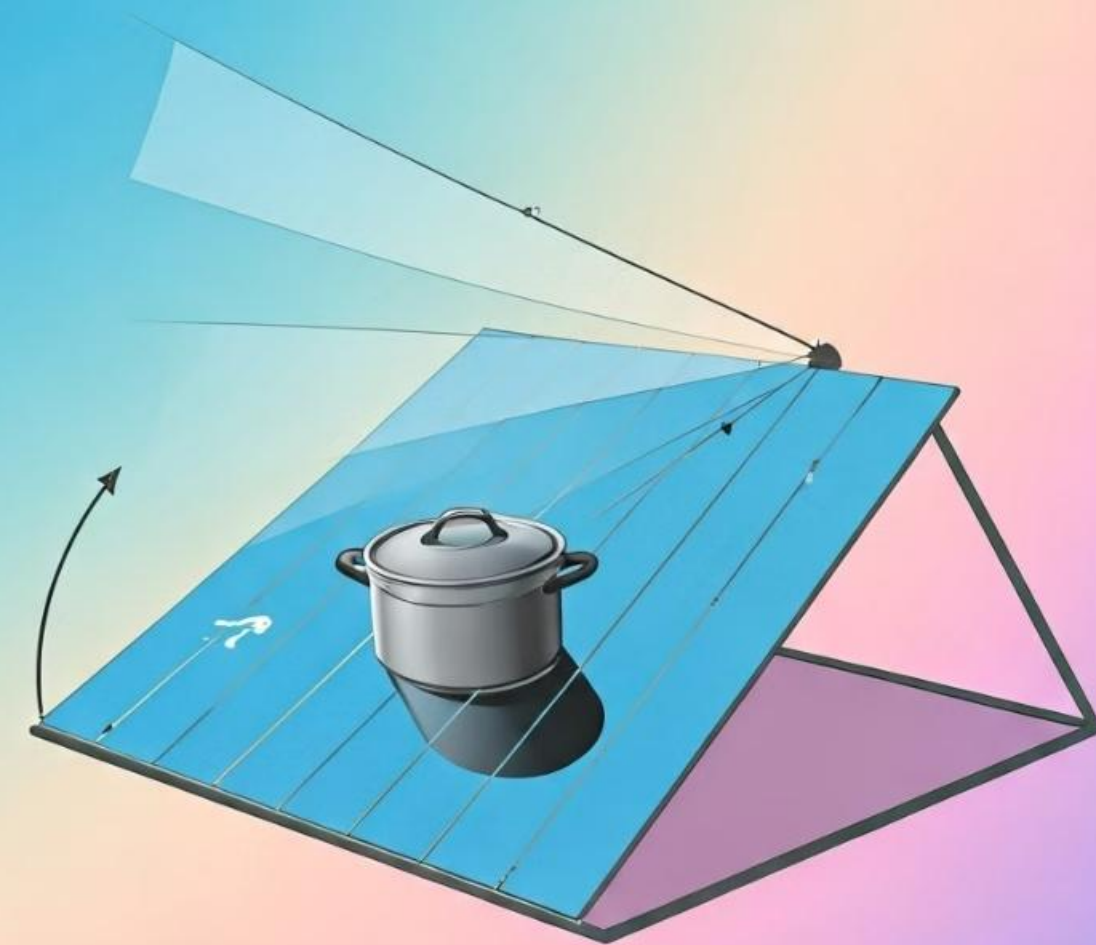
Heat Absorption

The concentrated sunlight heats the cooking pot, which then transfers heat to the food inside.

3

Food Preparation

Food can be cooked in a solar cooker using various methods, including baking, roasting, steaming, and even frying.



Advantages of Solar Cookers

1 Environmentally Friendly

Solar cookers don't produce harmful emissions, reducing pollution and contributing to a cleaner environment.

3 Energy Independence

They provide a reliable source of energy, especially in areas with limited access to electricity.

2 Cost-Effective

Solar cookers are a one-time investment, eliminating the need for expensive fuel or electricity.

4 Improved Health

Cooking with solar energy eliminates smoke and harmful fumes, promoting a healthier indoor environment.



Types of Solar Cookers

Box Cookers

These cookers use a reflective box to focus sunlight onto a cooking pot placed inside.

Panel Cookers

They use a large, flat panel of reflective material to concentrate sunlight onto a cooking pot below.

Parabolic Cookers

These cookers use a parabolic dish to focus sunlight onto a small area, creating very high temperatures for cooking.

Components of a Solar Cooker

Reflector

The reflector is responsible for focusing sunlight onto the cooking pot.

Cooking Pot

The cooking pot is usually made of dark-colored material to absorb heat efficiently.

Insulation

Insulation helps to trap heat inside the cooker, ensuring that the food cooks evenly.

Stand

A stand or frame supports the cooking pot and reflector, ensuring proper alignment.



Factors Affecting Solar Cooker Performance

Sunlight Intensity	More sunlight means faster cooking times.
Angle of the Sun	Adjusting the angle of the cooker to maximize sunlight absorption is crucial.
Cloud Cover	Clouds can block sunlight, significantly reducing cooking efficiency.
Cooking Pot Material	Darker pots absorb more heat, leading to faster cooking.
Wind Conditions	Wind can disrupt the heat flow, making cooking less efficient.



Maintenance and Care of Solar Cookers

1

Regular Cleaning

Clean the reflector and cooking pot regularly to remove dirt and dust.

2

Proper Storage

Store the cooker in a dry and safe place when not in use.

3

Handle with Care


Avoid dropping or damaging the cooker's delicate components.



Conclusion and Future Outlook

Solar cookers offer a sustainable and beneficial cooking solution, promoting environmental protection and reducing reliance on traditional fuel sources. With advancements in technology and design, solar cookers are poised to play a crucial role in meeting the world's growing energy and food security needs.





THANK

YOU