

## Testing solar cookers for cooking efficiency

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### Abstract

Solar Cookers International (SCI) staff developed and implemented a calculation to measure the cooking efficiency of solar thermal cookers. The calculation complements and enhances SCI's existing performance evaluation process (PEP), which can now be used for determining both the standard cooking power and the cooking efficiency for solar thermal cookers. The standard cooking power value is a single measure of solar cooker performance taken when the temperature of the test water load is specifically 50 °C greater than ambient temperature. Cooking efficiency values extend the perspective of solar cooker performance, as they are applicable to a continuum of load temperature measurements made during a heating cycle. Cooking efficiency is the ratio of energy absorbed by the solar cooking load divided by the input solar energy intercepted by the device during a test interval. Examples of cooking efficiency calculations using water loads during three days of testing for an anonymous group of different types of solar cookers are: solar box oven (18.9 %), reflective-panel solar cooker (28.5 %), parabolic reflector (35.2 %), and evacuated-tube solar cooker (34.6 %).

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