

# VeraSol Appliance Testing

VeraSol tests off-grid appliances and productive use equipment and generates consistent and comparable performance data to fill critical information gaps and inspire market competition.<sup>1</sup>

Manufacturers, distributors and other parties can submit off-grid appropriate TVs, fans, refrigerators, solar water pumps, or electric pressure cookers for third-party testing and performance evaluation. After testing, VeraSol will publish the results on the [VeraSol Product Database](#), a tool investors, development programs, and companies use to source and verify the performance of off-grid appliances.

This document contains information on the process for companies or organizations that are interested in testing an off-grid appliance through VeraSol. If you would like to submit a product for testing, please review the below information, fill out [this form](#), and the VeraSol team will contact you. If you have any questions, please contact us at [testing@verasol.org](mailto:testing@verasol.org).

## Product Scope

VeraSol tests solar standalone TVs, fans, refrigerators, solar water pumps, or electric pressure cookers that are intended for or compatible with off-grid energy systems (e.g., low-voltage DC systems, AC or DC mini-grids). The specific product sub-categories or other product requirements for testing are listed below:

Product	Product Sub-Categories / Other Requirements
TVs	LED-backlit or CCFL-backlit LCD TVs
Fans	Table, pedestal or ceiling fans
Refrigerators	Refrigerators, refrigerator-freezer combination units, freezers, or solar direct drive refrigerators
Solar Water Pumps	Surface, submersible, or battery-integrated pumps <sup>2</sup>
Electric Pressure Cookers	Electric cookers with a pressure cooking mode

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<sup>1</sup>VeraSol is an evolution of [Lighting Global Quality Assurance](#). The program builds upon the strong foundation laid by the World Bank Group for solar energy kits and merges it with comparable product data for off-grid appliances and productive use equipment formerly housed under [Equip Data](#). Learn more: <https://www.verasol.org/>

<sup>2</sup>The pumps must also be intended for smallhold farmer or individual household use, designed to operate at a depth anywhere from 0 meters up to 140 meters, with the flow rate up to 350 liter per minute, and with a solar energy system capacity up to 2.4 kW.

## Steps for Testing an Off-Grid Appliance through VeraSol



### Step 1: Product Sampling & Shipping

The VeraSol team works with sampling agents to conduct random sampling in order to eliminate preferential pre-selection bias of products and to ensure that the test data are representative of products from a commercial run. The VeraSol team will coordinate warehouse sampling with a third-party sampling agent. The sampling agents will work with companies to coordinate a time and date to conduct warehouse sampling, and then the agent will randomly select samples that will be shipped for testing.

Companies are responsible for providing samples, two units per model from a specified minimum stock, for testing. Two samples are required to be sampled and shipped in case of damage during transportation, but only one sample will be tested. The minimum stock requirement from which the two units will be selected depends on the product type, but please [contact us](#) if you have trouble meeting this requirement:

- TVs: Minimum stock of 50 units
- Fans: Minimum stock of 50 units
- Refrigerators: Minimum stock of 20 units
- Solar water pumps: Minimum stock of 20 units
- Electric pressure cookers: Minimum stock of 50 units

After the products have been randomly sampled, companies are responsible for shipping product samples to a designated test lab under the [VeraSol test lab network](#). The following test labs are approved to test off-grid solar appliances and productive use equipment:

<b>TVS</b>	Intertek UK – Milton Keynes, UK
<b>FANS</b>	TUV SUD Hong Kong – Hong Kong
<b>REFRIGERATORS</b>	Re/genT – Helmond, The Netherlands
<b>SOLAR WATER PUMPS</b>	Schatz Energy Research Center – Arcata, California, USA
<b>ELECTRIC PRESSURE COOKERS</b>	Colorado State University – Fort Collins, Colorado, USA

## **Step 2: Product Testing**

Independent laboratory testing and evaluation assesses the extent to which products meet their advertised performance claims and measures the design elements that make them suitable for off-grid use. VeraSol coordinates and advises [a global network of ISO-accredited test laboratories](#) to test products. Testing is performed in accordance with the Global LEAP test methods for off-grid appliances:

- [Global LEAP Off-Grid TV Test Method](#)
- [Global LEAP Off-Grid Fan Test Method](#)
- [Global LEAP Off-Grid Refrigerator Test Method](#)
- [Global LEAP Off-Grid Solar Water Pump Test Method](#)
- [Global LEAP Electric Pressure Cooker Test Method](#)

Product testing can take anywhere between one to three months depending on the test lab's capacity and the complexity of the product.

## **Step 3: Review Test Results Review**

Once testing has concluded, the lab shares the test results with the VeraSol team. During this time, the team reviews the results, conducts data quality checks, and works with test labs to update the results as necessary. The goal of this step is to ensure the accuracy and comparability of the test results. Prior to publishing the data, the VeraSol team will share the test results, product performance evaluation, and draft website posting with you to review.

## **Step 4: Data Sharing**

The test data is uploaded and organized into VeraSol's interactive, easy-to-use [online database](#). VeraSol's open-access database enables users to easily view the product data. Buyers and other market actors use this database to identify and source products.

## **Costs**

For more information on costs associated with appliance testing, please reach out to the VeraSol team at [testing@verasol.org](mailto:testing@verasol.org).