



Product Sampling Policy

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Goals and Rationale

The Quality Testing Methodology (QTM) described in the test methods used for testing solar products, IEC 62257-9-5:2018 (also written as IEC/TS 62257-9-5 ed.4) provides valuable third-party information on product performance and quality to stakeholders across the value and decision chain in the off-grid solar market. Proper sample procurement – the first step in the testing process – is critical for maintaining the fairness and credibility of the QTM. These sampling methods are also used for market check testing and renewal of test results.

The goals of product sample procurement are:

- To randomly select the number of product samples needed for testing that are representative of those entering the retail market.
- To ensure the samples are representative of a commercial production run.
- To ensure no bias is introduced from preferential pre-selection ('cherry-picking') on the part of manufacturers, warehouses, or distributors.
- To efficiently ship the samples from the procurement location to the test lab(s) to minimize the time in transit and to avoid delays in the testing process.

To meet those goals, VeraSol and approved third party sampling agents will use one of two random methods for sampling: (i) retail sampling or (ii) warehouse sampling. The product samples should be selected and shipped to the test lab according to the random sampling guidelines outlined in Annex E of IEC/TS 62257-9-5. Retail sampling is the preferred sampling method because it provides the most representative view of product performance and quality from the perspective of end-users. Warehouse sampling is also acceptable in cases where retail sampling is infeasible and is commonly used for QTM testing when the test labs are not located near the retail markets. For warehouse sampling, the cost of sampling is included in the VeraSol certification fees paid by the manufacturer, and the manufacturer is responsible for the costs of shipping the products to the test lab. The manufacturer provides the samples at no cost to VeraSol. When conducting retail sampling for a 2-sample primary market check test, VeraSol typically procures the samples at no additional cost to the manufacturer. In all other cases of retail sampling, the manufacturer may pay into a fund for sample procurement through the VeraSol certification fees or may be required to reimburse VeraSol for the full cost of procuring and shipping the samples.

Retail Sampling

In the case of retail sampling, agents will select and purchase samples from a variety of retail outlets in the market. No more than six samples should be purchased at a given location and it is preferable to procure samples from a geographically diverse set of outlets. VeraSol may require manufacturers or distributors to provide a list of no fewer than 10 outlets where product samples are available for sale; sampling locations may be chosen from a subset of those outlets or from others that are independently identified.

Retail sampling is often cost-prohibitive, so it is acceptable to use warehouse sampling instead; this can be true even when retail sampling would be feasible. The choice of retail or warehouse sampling is left to VeraSol's discretion.

Warehouse Sampling

Warehouse sampling is a process in which agents select representative products from among those that are stored at a warehouse, distributorship, factory, or other bulk storage location.

The agent will make email or telephone contact with representatives at the sampling location at least 24 hours before sampling takes place. The following general criteria must be satisfied for warehouse sampling to take place:

- The actual **sampling location should be the main bulk storage location in the region** and must be specified before undertaking – unless the sampling agent specifically asks for an alternative arrangement.
- Every relevant product (i.e., those that are the model being sampled) at the location must be made available to the sampling agent.
- Stock available for sampling must meet **minimum allowable stock** requirements. If the minimum allowable stock is not available at the time of sampling, the samples will not be collected, sampling will be rescheduled and additional sampling fees will apply. The minimum stock requirements for Pico and SHS products are detailed in the "Stock Requirements" section below.
- **The samples to choose from should not be isolated from the general stock of the warehouse (e.g., stacked in the front office).** While it is acceptable and welcome for personnel at the warehouse to facilitate the sampling process, the agent should have sufficient access to the facility to ensure that the sampling criteria are being met.
- The following practices are NOT ACCEPTABLE:
 - Setting aside or isolating the minimum number of stock required for sampling.
 - *The sampling agent needs access to all the stock present.*
 - Requesting the agent to sample from a specified location or subset of the stock in the warehouse, such as from the latest production run.

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- Moving a subset of stock to an alternative site (e.g., the sales office) for sampling.
 - *The sampling location should be the typical bulk storage location in the region.*

Once the agent is satisfied the sampling criteria are met, they will use random selection procedures to pick samples from among those that are available. The procedures generally require that multiple cartons or boxes be opened with a subset of the contents chosen as samples. This ensures the goals of product sampling are met.

Stock Requirements:

Pico products:

- The required number of samples for testing is dependent on the number and type of tests required. The samples collected must not exceed 3.5% of the total available products. For QTM testing, pico products are typically sampled as complete kits and 18 samples are required, **therefore there should be no less than 500 units of stock available to sample from.**
 - If batteries are required during the lumen maintenance test, an additional 4 batteries shall be provided or procured, but these batteries need not be randomly sampled. Examples of products that must provide 4 additional batteries are those with batteries that have anti-tampering mechanisms and don't work when disconnected from the battery or products that have timers to turn the lights off unless receiving a PV charge. If cell balancing or protection is included in the control box, 6 additional control boxes should be sampled as well.
- **Component sampling:** Pico products can be sampled on a component basis at the discretion of VeraSol. The samples collected must not exceed 3.5% of the total available products for each component type. If the minimum stock requirement calculated for any one component exceeds 1500, a minimum stock of 1500 units will suffice:
 - PV module: 9
 - PV mounting material, if applicable: 1
 - Control box with battery: 18
 - Battery only: 6 (These additional batteries are only required if needed for the lumen maintenance test as per the note above. If cell balancing or protection is included in the control box, 6 additional control boxes should be sampled with the batteries.)
 - Included lighting appliances: 13 of each type, plus an additional 6 units multiplied by the number of that light type that are included in the kit. For a kit that includes only one of each light, select 18 samples of each type. An example for a product with multiple light points is as follows: if the product includes five light points, three of

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Type A and two of Type B, select 31 samples of Type A (13 samples plus 6 x 3) and 25 samples of Type B (13 samples plus 6 x 2).

- Included non-lighting appliances (or lighting appliances that are not required to undergo the lighting tests): 13 of each type
- Included lighting appliance with its battery: 18 of each type

SHS Products:

- **Standard Option:** The required number of samples for testing is dependent on the number and type of tests required. The samples collected must not exceed 8% of the total available products. For QTM testing of SHS products sampled as complete kits, 12 samples are required, **therefore there should be no less than 150 units of stock available from which to sample.**
 - If batteries are required during the lumen maintenance test, an additional 4 batteries shall be provided or procured, but these batteries need not be randomly sampled. Examples of products that must provide 4 additional batteries are those with batteries that have anti-tampering mechanisms and don't work when disconnected from the battery or products that have timers to turn the lights off unless receiving a PV charge.
- **Component sampling:** Though it is more complicated if a company prefers that component, rather than full kits be selected, use the following as guidelines for the quantity of each component that must be selected to complete the tests. The samples collected must not exceed 8% of the total available products for each component type. If the minimum stock requirement calculated for any one component exceeds 500 (based on the required percentage), a minimum stock of 500 units will suffice.
 - PV module: 7
 - PV mounting material, if applicable: 1
 - Control box with battery: 12
 - Battery only: 4 (These additional batteries are only required if needed for the lumen maintenance test as per the note above. If cell balancing or protection is included in the control box, 4 additional control boxes should be sampled with the batteries.)
 - Included lighting appliances: 9 of each type, plus an additional 4 units multiplied by the number of that light type that is included in the kit. For a kit that includes only one of each light, select 13 samples of each type. An example for a product with multiple light points is as follows: if the product includes five light points, three of Type A and two of Type B, select 21 samples of Type A (9 samples plus 4 x 3) and 17 samples of Type B (9 samples plus 4 x 2).
 - Included non-lighting appliances (or lighting appliances that are not required to undergo the lighting tests): 9 of each type

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- Included lighting appliance with its battery: 13 of each type

Confidentiality

VeraSol personnel and appointed third party sampling agents by VeraSol will ensure information gleaned during product sampling remains confidential, except information that is required for record-keeping about the sampling process by VeraSol and the necessary information provided to the testing laboratory to conduct testing.

Sampling Preparation Tips

Proper sample procurement is an essential component of the Quality Test Method (QTM). One of the goals of product sample procurement is to procure and efficiently ship the samples from the procurement location to the test lab(s). **Some tips to ensure sampling goes well and testing can get underway quickly are:**

- 1) Ensure the sampling location has at least the minimum required stock of products available for sampling.**

In the case of random warehouse sampling, agents select representative products from among those stored at a warehouse, distributorship, factory, or other bulk storage locations.

- 2) Notify the procurement warehouse's manager of the product sampling.**

VeraSol personnel have direct contact with one or more representatives in your company who may not be located at the warehouse or sampling location. Communications issues can then arise because the warehouse (sampling locations) personnel are unaware that a sampling agent will be contacting them to schedule a random sampling of a particular product for VeraSol certification testing. This generally results in delayed sample procurement and shipping, which leads to a later start date for the testing. To avoid this issue, please provide VeraSol with the sampling location's representative's (person who will accompany the sampling agent) contact information and notify them and their manager that the sampling agent will be in contact with them soon to schedule the sampling.

- 3) Be ready to ship the products to the designated test laboratory(-ies) on the same day the products are sampled.**

It is the manufacturer's responsibility to ship the product samples to the laboratory(-ies) that will conduct the sampling. This means that all of the shipping costs (including duties, fees, etc.) are the responsibility of the manufacturer. Once the sampling agent has selected the required number of units, he/she will record the serial numbers of the samples (if available), ensure the samples are packaged for shipping, and then sign across the packaging tape to ensure no further tampering occurs with the samples before they are shipped. After this, the manufacturer should plan to get the package(s) shipped out to the test laboratory(-ies) on the same day.

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The manufacturer is expected to complete all questions in the sampling survey, which can be accessed through this link: <https://zfrmz.com/xVWucEISNt09T8kcrhn2>.

About VeraSol

An evolution of Lighting Global Quality Assurance, the VeraSol program supports high-performing, durable off-grid products that expand access to modern energy services. VeraSol builds upon the strong foundation for quality assurance laid by the World Bank Group and expands its services to encompass off-grid appliances, productive use equipment, and component-based solar home systems. Like Lighting Global Quality Assurance, the VeraSol program is managed by CLASP in collaboration with the Schatz Energy Research Center at Humboldt State University. Foundational support is provided by the World Bank Group's Lighting Global program, UKaid, IKEA Foundation, Good Energies Foundation, and others.

Please visit VeraSol.org for more information