Harvest the Sunshine

Premium Cells, Premium Modules

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CLEANING METHOD OF JA SOLAR PHOTOVOLTAIC MODULES' GLASS

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This manual is a detailed description for cleaning the anti-reflection coated glass (referred to as ARC-glass) and the normal tempered glass (referred to as Tempered glass) of JA's photovoltaic solar modules (referred to as module).

With the passage of time, dirt and dust may accumulate on the glass surface of the module, reducing the power output of the module. JA recommends regular cleaning of modules to ensure maximum power output, especially in low rainfall areas.

01.DETAILED DESCRIPTION

- Do not use bare fingers or hands without gloves to touch or handle the glass surface of modules. Wear clean gloves to prevent fingerprints and other dirt from staying on the glass.
- It is not allowed to use metal tools such as blades, knives, steel wool and other abrasive materials.
- All types of soft foam materials, non-woven fabrics, whisks, soft sponges, soft brushes and hair brushes may be used.
- Cleaning brush specifications: Material of special wires for cleaning brushes bristles: nylon wire 1010; Required diameter of cleaning brushes bristles for cleaningARC-glass: 0.1-0.06 mm.

The blue hard surface of the sponge can only be used for cleaning the aluminum frame of modules. Cleaning the glass with the blue hard surface will scratch the ARC-glass.

A wiper blade for windowpane cleaning can be used for cleaning the glass of Modules.

- All types of commercial glass cleaners, alcohol / ethanol / methanol may also be used.
- Do not use abrasive powders, abrasive cleaners, scrubber cleaners, polishers, sodium hydroxide, benzene, nitro-thin-ners, acid or alkali and other chemical substances.
- The pressure of the cleaning water should be less than 690KPa. It is not recommended to use water with high mineral content as it may deposit on the glass surface when the water left to dry on the panels. Most municipal water can meet the above two requirements.
  The recommended quality of cleaning water is:
  Water PH Value between 6.5-8.5;
  Total dissolved solids of cleaning water （TDS）≤1500mg / L;
  Hardness≤450mg / L;
- Do not use steam or corrosive chemicals to speed up the cleaning.
- Do not try to clean broken glass or modules with broken lines or exposed wires, as it may cause electric shock.
- Do not step, stand or sit on the modules to cleaning.

02. SELECTION OF CLEANING TIME

The module glass cleaning should be done in the early morning, in the evening, at night or on rainy days. At the same time, when cleaning in the morning or evening, select the period when sunshine is not strong.

03. PLANNING OF CLEANING CYCLE AND REGION

For a large-scale photovoltaic station with large floor area and a large number of modules, the time appropriate for the cleaning operations is short each day; it is necessary to plan the cleaning cycle and divide regions according to the specific circumstances of the electric field so as to complete the cleaning work of the photovoltaic station with less manpower.

The subregion division in the cleaning work should be carried out according to the electrical structure of the photovoltaic station, and should ensure that each of the cleaning work can cover all components connected to a number of combiner boxes or inverters.

04. ROUTINE STEPS OF CLEANING

STEP 1: WHISKING

Deposits such as dry floating dust and leaves on the module surface should be whisked off with a dry whisk or cloth.
If there are no other deposits on the module surface, and the module has been cleaned in this step, the following steps may be dispensed with.
If the Modules were installed in the desert, due to less water and more dust. Recommend to use the gas to blow the sand, remove away most of the sand on the surface of Modules.

STEP 2: SCRAPING

If there is hard foreign matter such as dirt, bird droppings, plant branches, leaves, etc., stuck to the module , the module should be scrubbed with non-woven fabric or cleaning brush and must not be scratched with high-hardness objects; if the foreign matter is removed, do not scratch regions without hard deposits.

STEP 3: WASHING

If there are colored substances such as bird droppings, plant juices, etc., on the module surface, or dust that cannot be whisked off due to high indoor humidity, the colored substances need to be removed by cleaning. The colored substances are generally removed with clean water by spraying the clean water onto the region with pollutants and scrubbing with a cleaninghair brush.
Oily substances, if any, may be removed by coating water blended with alcohol onto the colored region and scrubbing with a cleaning hair brush after the solution penetrates through the pollutants.
For ARC-glass, if necessary, the module may be cleaned with commercial glass cleaner, together with non-woven fabric.
For normal tempered glass, if necessary, the module may be cleaned with commercial glass cleaner and wiper blade at the end.

05. CLEANING OF SNOW

JA modules are designed to be able to withstand high snow pressure. However, if you need to clear snow to improve power output, use a cleaning brush to gently remove the snow, and use of air to blow the snow too. But do not try to remove frozen snow or ice on the modules.