

Recommended procedure for cleaning solar panels

SAFETY FIRST

Thought it is okay to clean the modules while they are producing power, it is strongly recommended to clean the modules when it is dark or almost dark. For added safety, you may want to consider switching the system off as recommended by the manufacturer. However, this may not be optimal solution, as this will affect the system production.

EQUIPMENTS

1. A good quality soft brush and a squeegee with a plastic blade on one side and a cloth covered sponge on the other (see picture 1) coupled with a long extension can make for the perfect tools allowing you to stay on the ground.
2. Use a hose with a suitable nozzle to allow the stream of water to reach the panels.
3. Distilled Water (0-TDS) water if possible. Else, use normal tap water.
4. Required PPE as necessary



Picture 1: Typical squeegee with long extension

PROCEDURE

For safety reasons, it's also wise to clean your panels from the ground if possible (picture 2).

NOTE: If cleaning your panels from the ground is not possible, do not attempt to access your rooftop unless you have the appropriate safety equipment and training. If you don't; hire a suitably qualified professional instead.



Picture 2: Proper grounding of cleaning personal and cleaning direction

Clean your panels on an overcast day, early in the morning or in the evening. If the sun is beating down on the panels, any water used can quickly evaporate and dirt will become smeared.

Early morning can be a particularly good time for cleaning as dew that has settled on the panels overnight will likely have softened grime; meaning you'll need to use less water and less energy to clean your solar panels.

IMPORTANT: EQUIPMENTS USED SHOULD BE IN GOOD CONDITION TO AVOID SCRATCHES



Picture 3: Clean the modules in dark or when it is cool outside. This reduces evaporation of water.

If the panels are dry, before starting the cleaning of the modules with water, brush off any loose materials first – this will make cleaning easier and faster.

Don't use metal objects or harsh abrasive products like hard brush, sharp scrapers or chisels for removing caked on materials – scratching the glass on a solar panel can affect its performance as scratches will cast shadows.

Avoid using detergents if possible as these may streak the glass of the panel. Use of abrasive powders also risks scratching the panels.

If possible, the most optimal cleaning is to use 0 TDS (distilled water) with squeegee as this is the most effective and low cost cleaning process.

Given the nature of good quality [solar panel glass](#), clean water and a little scrubbing with a coarse cloth covered sponge or soft brush should remove the most stubborn grime. Plastic scourers may also be used.

- Use 0 TDS water. No need of soap.
- Use soft brushes instead of squeegee as much as possible. This removes fine dust from the patterns on the inside the glass. Also brushes help remove hidden dirt between the glass and the frame.



Picture 4: Typical cleaning process with water and squeegee

FREQUENCY OF CLEANING

There is no certain set rule on frequency of cleaning or the type of cleaning to be used. There are factors like environmental and location of plant and its vicinity that drives the method and frequency of cleaning.

However, it is recommended to start cleaning in the follow format

1.	Soft brush without water	Once a week
2.	Water with squeegee	Once a month

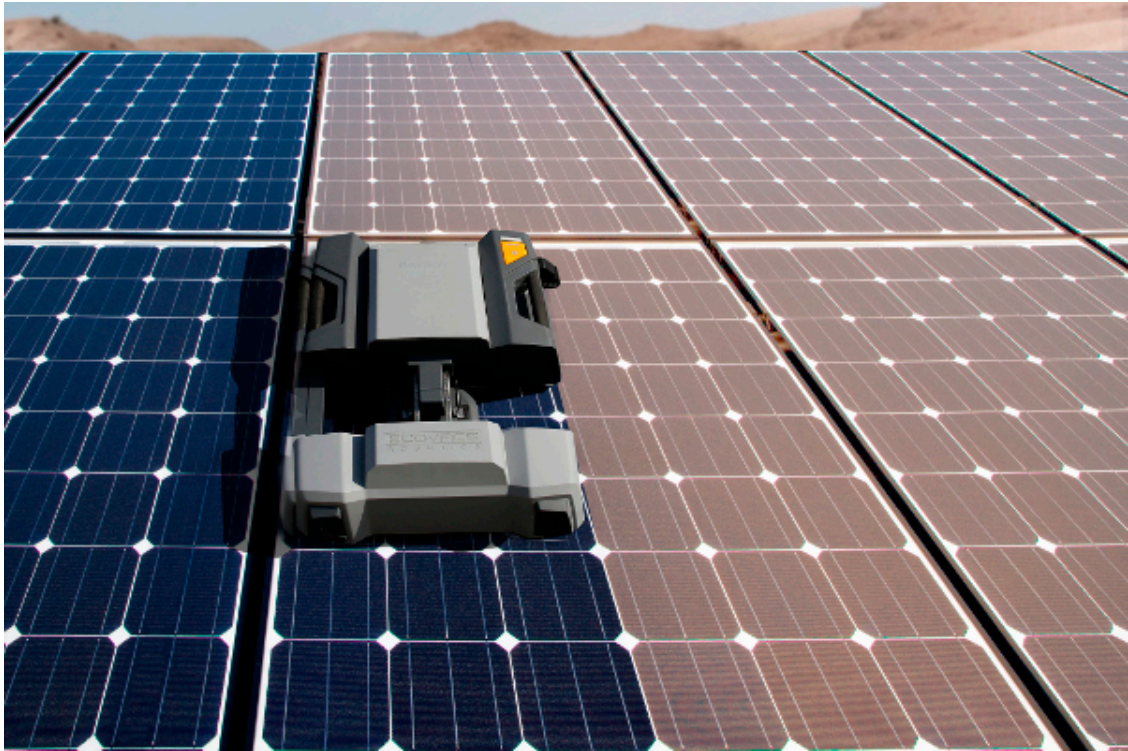
It is important to adapt the regime to optimize the needs of the system owner, who may have different priorities. It is always, as a rule, important to find a balance between frequency (and associated costs of cleaning and effective increase in energy production – in terms of revenues generated)

CLEANING WITH HARD WATER

If your mains-supplied water is hard (mineral-rich) and SOFTWATER is available; use that as a final rinse; then squeegee dry. If hard water is all you have, just be sure to squeegee well as mineral-laden water can form deposits on glass as it dries.

CLEANING WITHOUT WATER

Apex Power Concepts offers solutions that uses NO WATER and is automated using robots. This allows for frequent cleaning, with very minimum operation and maintenance expenses. The cleaning is extremely effective and reduces use of humans in the process.



Picture 5: Automatic robotic water-less cleaning offered by Apex Power Concepts – Dubai.

DEALING WITH OILY STAINS

Oily stains can occur in some installation scenarios, such as if you live near an airport and are under a flight path or if you live adjacent to and downwind of a major roadway frequented by trucks. If oily stains start appearing on your panels; isopropyl alcohol can be used as a spot-cleaning substance..

FINAL WORD

Every day that you're not cleaning the panels, it's going to get dirtier.

There are two things with cleaning: You must use clean water, and don't allow the panels to get dirty. Once they're dirty, it's harder to get clean