Photovoltaic Module Cleaning

Over the life of a solar module, it is common for dust and dirt particles to accumulate on the surface of the module. This build up can reduce the performance of the module as well as contribute to the growth of moss and molds. Normally, the buildup of dust particles will be washed away by periodic rainfall, but in some instances mosses and molds may appear. If significant moss or mold growth appears on the module surface cleaning may be required. To ensure maximum solar module performance, it is recommended that this be done once or twice a year. Ideally just after spring and just after summer. One recommended method is cleaning the module surface with a sodium per carbonate solution, similar to the household-cleaning product Oxiclean™.

Mixing the sodium percarbonate solution - Sodium percarbonate is a dry white powder that can be mixed with warm water to create an environment-friendly oxidizing agent. The mixture of sodium percarbonate and warm water effectively breaks down organic matter. Do NOT use bleach to clean solar modules, as it is hazardous to the environment. To create the cleaning solution, mix 1/2 cup of dry sodium percarbonate with a gallon of warm water (100-120° F). The mixture will retain its cleaning power for 5 to 6 hours.

System preparation and safety precautions- Cleaning should only be completed by the system installer or someone with equivalent fall protection safety training. If you are going up onto the roof to clean the modules, ensure that the proper amount of fall protection is being worn. Follow all warnings at the end of this technical bulletin.

Applying the cleaning solution to the modules - Apply the cleaning mixture to the modules with a clean lawn sprayer. The sprayer should have a large enough chamber to hold the entire warm water / sodium percarbonate solution; it should not be a hose end sprayer. Once the cleaning mixture has been applied, let the solution stand on the modules between 20 and 30 minutes. If necessary, scrub the module surface to remove any remaining particles. Thoroughly rinse the module surface to remove the cleaning solution.

Key points:

• This procedure should only be completed by the system installer or someone with equivalent fall protection safety training.

• Fall protection should be worn at all times while cleaning any modules on a roof mounted system.

• Do not drop, allow objects to fall on, stand or step on solar modules. Do not walk, lean, sit or rest heavy objects on solar panels.

• Solar modules have a protective glass front. Broken solar module glass is an electrical safety hazard (electric shock and fire). These modules cannot be repaired and must be replaced immediately. If you have a broken module, turn your system off. If your solar module is broken do not clean.

• Do not touch the solar modules or the mounting structures with your bare hands during the cleaning process. When these surfaces are exposed to sunlight they can become extremely hot. Protective gloves should be worn when touching the system components.

• Sharp edges may exist on the components. Protective gloves should be worn while cleaning the solar array system.

• Exposing the anodized aluminum frame to the sodium percarbonate cleaning solution for longer than 10 hours may cause surface staining on the aluminum.

• The sodium percarbonate cleaning solution attacks organic matter and should be kept from directly contacting plants. In the event the cleaning solution comes in direct contact with plants that you intend to keep, thoroughly rinse the plant leaves to remove the solution.

To set-up a Module Array Clean-Up by our service department, please call our office or send us an email to service@pocosolar.com