
SHINING SOME LIGHT ON

SOLAR PANELS

Here are some facts.

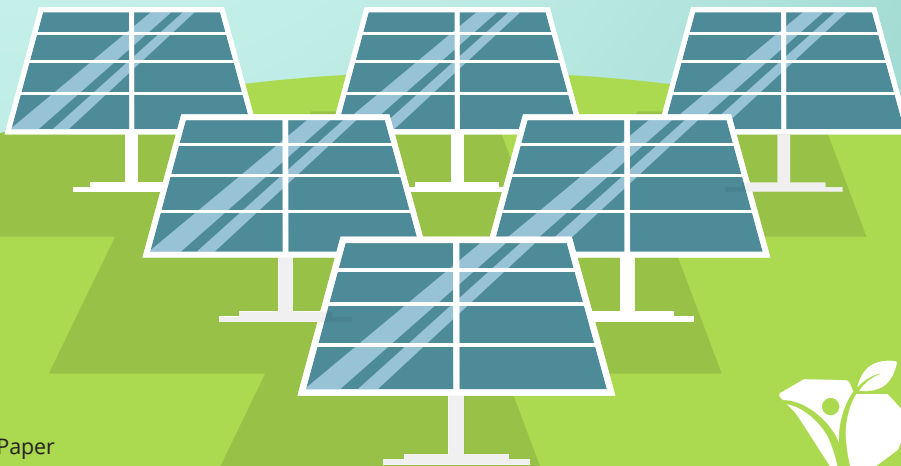
- A solar panel converts the sun's radiant energy into electricity using **photovoltaic cells** – commonly known as solar cells. Photovoltaic cells are thin small semiconductor devices made from silicon which converts light into electricity.
- Key ingredients in a solar panel include **solar cells, photovoltaic modules** and **semiconductors**.
- **Solar panels are the fastest growing energy source in America.** There are many types of solar panels in circulation. The main types are **monocrystalline silicon, polycrystalline silicon, cadmium telluride (CdTe)** and the newer thin-film types such as **copper indium gallium selenide (CIS/CIGS)**.
- An average home would need **28 to 34 panels** to meet its energy needs.
- Solar panels are designed to last **20 to 30 years** unless damaged or defective.
- An estimated **500,000 solar panels** are installed globally every day.

Managing Unwanted Solar Panels

Solar panels are not considered electronic devices or universal waste. Therefore, a determination must be made for hazardous or non-hazardous designation before disposal.

There are no regulatory exclusions specific to solar panels. Consult with the solar panel manufacturer to learn more about the product and to determine if it should be handled as a hazardous or non-hazardous waste. Toxicity Characteristic Leaching Procedure (TCLP) sampling analysis can be used to determine if a material is considered hazardous or non-hazardous.

Continued on the back



Hazardous Waste or Not?

Solar panel waste can include heavy metals such as silver, lead, arsenic and cadmium that – at certain levels – **may be classified as hazardous waste.**

Solar panels may be considered a waste when:

- **A generator decides to discard unused solar panels:** and
- **Used solar panels are disconnected/removed from service** and will not be reused.

It is important to remember that **some types and brands of solar panels are hazardous waste while other are not.**

The following are some panels that do or may contain toxic material.

- **CDTe solar panels** may be a hazardous due to cadmium.
- **Gallium arsenide (GaAs)** panels may be hazardous due to arsenic.
- **Some older silicon solar panels** may be hazardous waste for hexavalent chromium coatings.
- **Newer, thin-film solar panels contain CIS/CIGS** and may be hazardous due to copper and/or selenium.

Non-hazardous solar panels may be disposed of in a Municipal Solid Waste Class 3 Landfill in South Carolina. Recycling, however, is preferred to disposal as solar panels are bulky and hard to manage in a landfill. Some recycling options are provided below.

Recycling Options for Solar Panels in South Carolina

By weight, 80 percent of a solar panel is glass and aluminum, which is easy to recycle. Solar panels contain the rare elements gallium and indium that can be captured through recycling.

- There is one company in South Carolina that recycles solar panels – **Cleanlites** in Spartanburg. Learn more at cleanlites.com/solar-panel-recycling.
- There are three companies in North Carolina that recycle solar panels. Learn more about **Metech** at www.metechrecycling.com, **TT&E Iron & Metal Inc.** at www.ncscrapmetal.com/index.html and **United Scrap** at www.unitedscrap.com.

