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## Environmental Sustainability

Cadmium  
Telluride  
Technology



### Abound Solar: Dedicated to clean energy

Abound Solar, formerly AVA Solar, is a leading manufacturer of next-generation, thin-film photovoltaic modules.

We believe we can transform the way energy is generated—and improve the health of our planet—while brightening the lives of people around the globe by ensuring an affordable supply of clean, renewable electricity.

Abound Solar™ modules are manufactured to be the most environmentally sustainable solar photovoltaic technology available. Designed with recycling in mind, manufactured using the industry's most energy efficient production process, and backed by a cradle-to-cradle recycling program, Abound Solar is leading the industry in environmental sustainability.

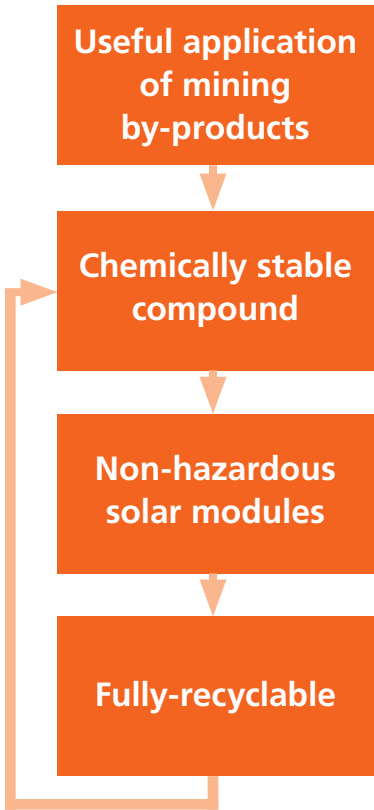
### Cadmium telluride is an excellent semiconductor for creating high-performance, low-cost solar modules for large-scale installations

Cadmium telluride (CdTe) is a mature and robust photovoltaic technology that has significantly driven down the cost of solar energy while reducing the environmental footprint of production.

- **98% less semiconductor required compared to crystalline silicon**  
A layer of cadmium telluride just microns thick is sufficient to convert the sun's energy into electricity.
- **Higher energy yields during real-world conditions**  
Photovoltaics employing cadmium telluride perform better than alternative technologies in both high-temperature and low-light conditions leading to more energy produced per watt of capacity.
- **Lower energy required to manufacture**  
The cadmium telluride deposition process utilized by Abound Solar requires far less energy than other technologies due to a proprietary design and fully-automated production equipment.

# Environmental Sustainability

# Cadmium Telluride Technology



## Solar modules are an environmentally-friendly use of CdTe

- Cadmium and tellurium are by-products of zinc and copper mining.
- Encapsulating semiconductor in a glass-glass package sequesters cadmium for lifetime of the module.<sup>1</sup>

## Cadmium telluride is a stable molecule that does not readily break down and propagate

- Cadmium telluride is not water soluble<sup>2</sup> and poses no risk to drinking water.
- Melting point of 1041°C, 400° higher than the melting point of aluminum; it will not vaporize during residential fires.<sup>3</sup>

## Abund Solar modules are non-hazardous

- CdTe modules do not pose a risk during fires.<sup>3</sup>
- PV modules contain less cadmium than a C-size battery.<sup>4</sup>

## Cradle-to-cradle recycling ensures sustainability

- Abund Solar pre-funds collection and recycling of modules at end-of-life.
- Recycling process returns materials back to useable streams of feedstock.

## Environmental sustainability of CdTe photovoltaic modules affirmed by scientific studies

<sup>1</sup> A. Jager-Waldau, "Peer Review of Major Published Studies on the Environmental Profile of Cadmium Telluride (CdTe) Photovoltaic (PV) Systems"

<sup>2</sup> P. Moskowitz, N. Bernholc, V. M. Fthenakis, R. Pardi, H. Steinberger, W. Thumm, "Environmental, Health and Safety Issues of Cadmium Telluride Photovoltaic Modules"

<sup>3</sup> V. M. Fthenakis, M. Fuhrmann, J. Heiser, A. Lanzirotti, J. Fitts, W. Wang, "Emissions and Encapsulation of Cadmium in CdTe PV Modules During Fires"

<sup>4</sup> K. Zweibel, V.M. Fthenakis, "Cadmium Facts and Handy Comparisons"

To learn more about Abund Solar™ modules, production process or Abund Solar's commitment to the environment, please visit our website at: [www.abund.com](http://www.abund.com) or email [info@abund.com](mailto:info@abund.com).

