

Anyone can do there and gone ...

We can do sustainable, too

Clean solar energy from start to end – Inventux stands for durability and consistent sustainability

Renewable energies like solar energy help to protect the environment. Nevertheless, even in this sector, there are fine differences. These differences range from the raw materials and the amount of energy used for production to the disposal at the end of a module's life span.

The micromorph thin-film solar modules made by Inventux are next-generation solar modules. Our objective is to produce highly powerful solar modules that are yet consistently sustainable. This is also the benchmark of our research and development department.



Outstandingly short energy payback time

It takes energy to manufacture a solar module. The period of time until this energy is recovered from the sun is called 'energy payback time'. The energy payback time of Inventux thin-film solar modules is particularly short, as much less energy is consumed

during their production than in the module production of many other photovoltaic technologies.

Inventux Plus:

- + Energy payback time in Central Europe **24 months**
- + Energy payback time in Southern Europe **15 months**
- + The ultra-thin active coating requires **minimal use of raw materials** (silane)
- + **Very low processing temperatures** of < 200 °C, compared to: > 1,200 °C for crystalline modules



Secure raw material availability

Technological progress requires raw materials. The scarcity of a raw material can lead to rapidly increasing prices and more complex extraction processes are undertaken – often at the cost of the environment. The micromorph thin-film solar modules from Inventux are based on silane

(gaseous silicon). The supply of this raw material is almost unlimited and it is easy to extract.

Inventux Plus:

- + **Nearly unlimited supply** of raw materials
- + **Falling prices** for silicon expected
- + **Deposits in the Earth's crust:** silicon – 25,800 ppm* (micromorph), compared with indium – 0.05 ppm (CIS), and tellurium – 0.01 ppm* (CdTe)
- + **Low-impact raw materials extraction**

*ppm = parts per million

We can do sun

Where other solar modules quit, we're just getting started. **Profitable, ecological, micromorph.**



No toxic substances

Solar technologies also differ in the varying substances they are made of, some of them are harmful to health and even toxic.

The solar industry is not yet subject to the EU-wide RoHS directive on electrical equipment, which drastically restricts the use of

substances hazardous to health and the environment, such as cadmium, lead and mercury. Inventux, as an ethical company, is complying voluntarily with the standards set in the directive. Our modules are completely free of toxic substances.

Inventux Plus:

- + Inventux modules are **100 % free of toxic substances**
- + **Voluntary compliance with the EU directive** on electrical and electronic equipment (RoHS)



Durable premium quality

Solar systems are long-term investments: The longer the solar system generates power, the higher the profits will be, so it is vital that solar modules provide outstanding quality over a long period of time. Inventux thin-film modules are designed for durability. Our

modules' quality has been certified by TÜV Rheinland and every step in their manufacturing follows a "Best-in-Class" concept.

Inventux Plus:

- + Premium quality **"Made in Germany"**
- + **Award-winning, TÜV-certified modules**
- + **"Best-in-Class"** production process
- + **ISO-certified** company
- + **Highly durable modules** due to stainless steel carrier profiles



Uncomplicated recycling

With some solar modules, the problems start only at the end of their productive lives, namely, with their disposal. Inventux thin-film solar modules however, are free of toxic substances and therefore do not need a special recycling concept. They are classified as

"building glass" and can thus be easily disposed as normal construction waste. Nevertheless, we yet recycle them. In this way we ensure that our modules' raw materials are re-used constructively.

Inventux Plus:

- + **No special, expensive recycling concept** necessary
- + Modules can be **deposited problem-free** with recycling companies
- + **Simple recycling process**
- + Modules are **classified for recycling as "building glass"**