

## Profitability

Due to the decrease of light reflection and the resulting improved translucence, the efficiency of a treated solar module increases up to 3%.

A solar collector system with a rated output of 100 kW (peak) produces in Germany an annual output of **92.000 kWh**.

The application with **TA2210** puts out additionally:

$$3 \text{ kW} \times 920 \text{ sunshine hours/year} \\ \times 15 \text{ year} =$$

**41.400 kWh additional power**

The always clean surface avoids loss of performance. Depending on the degree of pollution, the loss of power can be up to 15%. In our example we suppose a medium performance loss by the polluted surface of ca. 5%.

With a plant performance of 100 kW (peak) it is once more:

$$5 \text{ kW} \times 920 \text{ sunshine hours/year} \\ \times 15 \text{ years} =$$

**69.000 kWh additional power**

These are convincing arguments!

## Advantages:

- ☑ Increase of energy efficiency due to reduction of light reflection on the solar module.
- ☑ Active self-cleaning avoids loss of power caused by dirt on the solar module.
- ☑ Furthering the longevity of solar modules by a better scratch resistance and hardness of the glass.
- ☑ Active environmental protection by photocatalytic air cleaning and decomposition of detrimental substances and fine dust.

**TitanShield®**  
Technology for our future!

## More performance and long-term protection

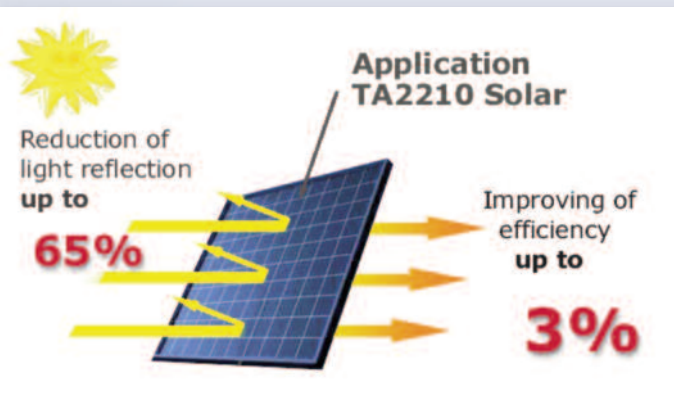
Solar modules covered with TitanShield® own unique properties. They clean themselves, protect the surface and due to the decrease of light-reflection the module is able to generate more electricity.

**TITAN®**  
Shield

## Mode of action

An application with **TitanShield®-TA2210** improves the economical efficiency of solar modules in an impressive way. It reduces the reflection of sun beams on the module surface, decreases the cleaning effort appreciably and by the by solar modules treated with **TA2210** clean our ambient air.

That's "Green-Tech" in perfection.



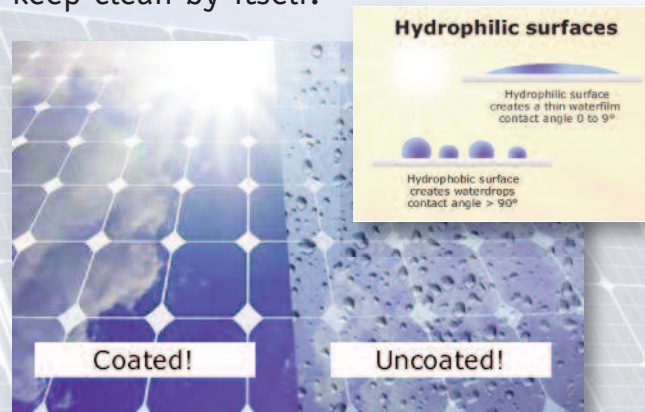
That effect is made possible by a change of the refraction on the glass surface. So the existing solar energy can be used best possible and that will earn you extra money.

In addition there will be savings for the cleaning of the modules. Polluted surfaces can lose 15 % of their efficiency. The loss of power can be avoided by the active self-cleaning.

## Self cleaning

An application with **TA2210** is photocatalytic active. Exposed to light titanium dioxide generates oxygen radicals. The activated oxygen has the ability to decompose all organic dirt particles that get in touch with the surface.

This cleaning effect is supported by the hydrophilic property that owns all surfaces coated with TitanShield®. The rainwater is not anymore able to form drops on the surface but creates a thin water film, runs off and washes away the decomposed dirt particles easily and securely. That way the solar modules keep clean by itself.



There is one more very interesting aspect: the oxygen that has been activated by the **TitanShield® application** also degrades effectively airborne pollutants such as nitrogen oxides (NOx) and fine dust.



## Longevity

An application with **TA2210** supports the scratch resistance and hardness of the module glass. So the module has a higher durability.

With a coating in a medium thickness of ca. 200nm TitanShield® is a solid surface protection. The application creates a hardness of ca 7H and protects the glass surface with a guaranteed durability of 15 years.

The application can happen before, during or after the installation of the modules. **TA2210** is water based and completely harmless to humans and animals.

