



vitapanel

Vitalize Your Solar Panels



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Distributed by:



Our story

Innovation based on >50 years of experience

Put nature into practice

We team up with nature by developing coatings and cleaners that respond to practical needs at specific locations anywhere in the world.

Whether it is about stimulating plant growth by filtering specific light in greenhouses, cool-down buildings by reflecting heat or improve light transmission for solar panels; It's amazing what nature can do with the right coating.



Vitapanel is part of Lumiforte,
a **smart coating solutions** provider.



Based upon 50 years of experience in coatings and cleaners Vitapanel was formed to **support the solar industry in keeping their assets vitalized**. By ensuring solar panels can be easily kept clean, can stay clean longer, and if needed restore their protective coatings, the energy output can be optimized. After all; **it is all about performance!**

Why clean your solar panels?

Cleaning helps to vitalize your solar panels and improve the efficiency of the panels by removing dirt, dust, and other contamination that can block sunlight. This will **increase the energy production** of the system.

Also, the **lifetime** of the system could be positively affected when well maintained.



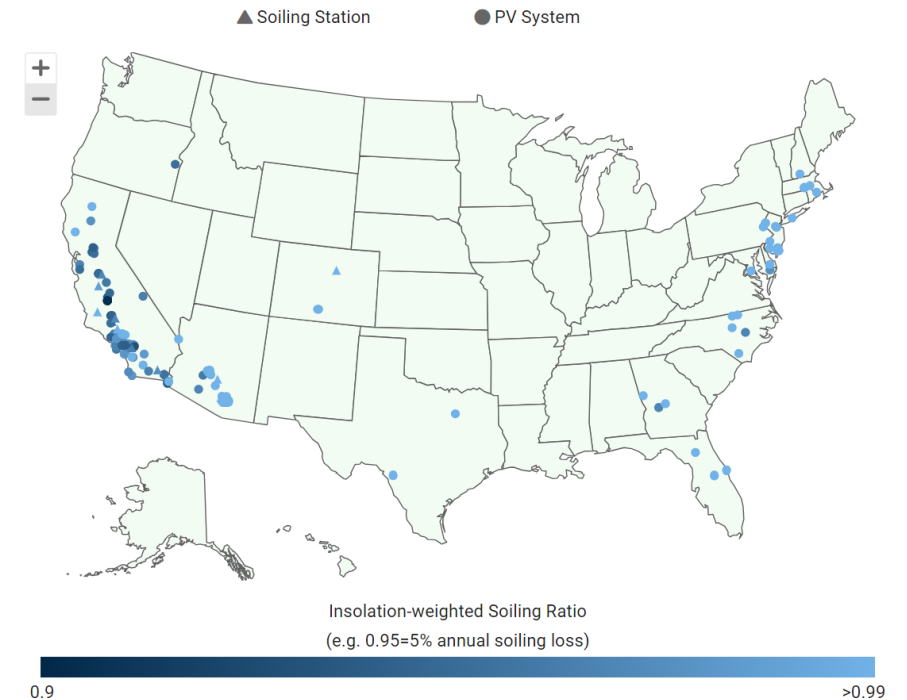
It's all about performance

Positive effect of cleaning

The amount of soiling on panels (and therefore the benefit of cleaning) depends on many factors, like amount of rainfall, dust, proximity near farms, roads & industry, availability of pollen, angle of the panels etc. etc.

Several scientific publications quantify the benefits of cleaning and that **ranges from up to 5% percent more power output in rainy areas up to 20-30% in dusty dessert areas** in middle-east.

In certain areas of the U.S., the energy lost from soiling each year is **as high as 7%**, according to the National Renewable Energy Laboratory (NREL).



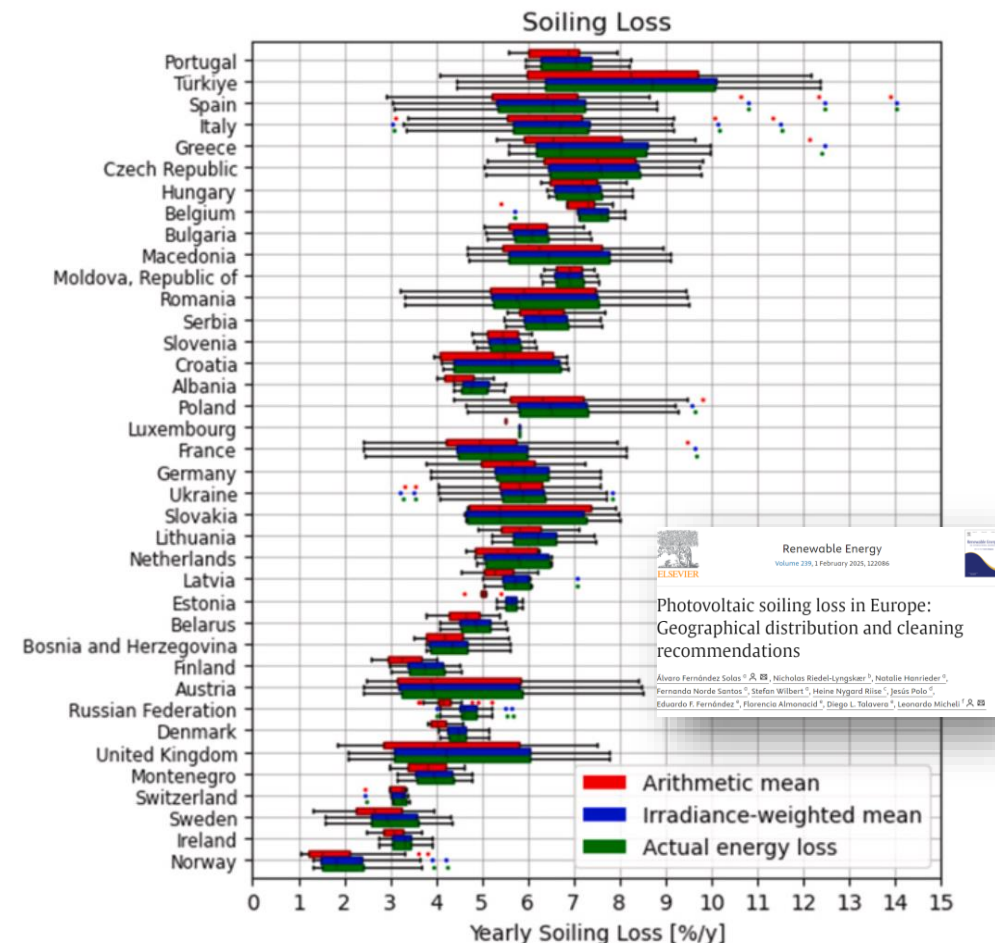
The Soiling Ratio (SR) is an indicator that defines the PV system losses due to just small particles of dust and debris deposited on the surface of the solar panel. In the context of PV cleaning system, SR refers to the ratio of the power output of a dirty solar panel to the power output of a clean solar panel under identical conditions. It's a measure of how much the efficiency of solar PV decreases due to the accumulation of dust or other soiling agents.

Impact of soiling in Europe

A European-wide study to measure the energy loss due to soiling, while taking into account the impact of rain has been performed by several universities and institutes.

The cost-effectiveness and the profitability of cleaning therefore change depending on a number of conditions: **magnitude of the losses, electricity price and cleaning costs.**

In the scenario where rain cleans only **10%** of the soiling, average losses are **5.3%** in Europe, peaking at **14%** in Spain and dropping to around **2%** in Norway.



•The distributions are created from the average soiling loss estimated for each location modeled in each country. Red bars: These show the average soiling losses (dirt or dust on solar panels that reduce their efficiency) calculated by simply averaging the daily values. Blue bars: These show the average soiling losses, but this time, the calculation gives more importance to days with higher sunlight (irradiance). The green bars indicate the energy loss due to soiling (SL_E⁻).

Vitapanel portfolio vision

We are developing a range of cleaning and coating solutions, which will be introduced over time. From an efficient general cleaner to dirt specific specialty cleaners or coatings to enhance the performance of your panels; Vitapanel is dedicated to serve your needs and keep your solar panels vitalized!

We are always open for partnerships to co-develop, test or enhance relevant products.

Simply contact us to discuss!



Cleaning solutions



Coating solutions

Introducing Vitapanel Clean ECO

Vitapanel Clean ECO helps to revitalize your solar panels and increase their energy output in an easy and sustainable way. It's concentrated, certified by ECOCERT, formula is effective against most common types of soiling like bird dropping, dust and pollen.



Sustainable

- Biobased and biodegradable
- Certified by ECOCERT
- Safe for panels and environment



Effective

- Great cleaning results
- More green energy output
- Faster cleaning and less water needed



Easy-to-use

- 1 cleaner for most common dirt types
- Suitable for manual, machine and drone application
- Concentrated formula

Vitapanel Clean ECO a versatile solution



Manual Cleaning

Vitapanel Clean ECO can be used during manual cleaning with a brush or water fed pole. Solution can be sprayed with backpack sprayer on panels or mixed directly with a dosing pump. Rinse with (de-ionized) water.



Tractor mounted brush

For use with a tractor mounted brush, you can first spray, then brush to soak and as a last step rinse. Alternatively, Vitapanel Clean ECO can be directly mixed in the cleaning water while brushing.



Robot cleaning

For use with a robot, first spray, after that brush and rinse. Alternatively, Clean ECO can be directly mixed in the cleaning water while brushing.



Drone cleaning

Vitapanel Clean ECO can be used during drone operations. Just spray the formula on the panels when rain is expected within 1-3 days. Panels will get cleaner and deliver more energy. It is a trade-off between effort, cleaning results and additional energy output.





Connect to
share our
experience
with drone
cleaning

Solar panel cleaning with drones

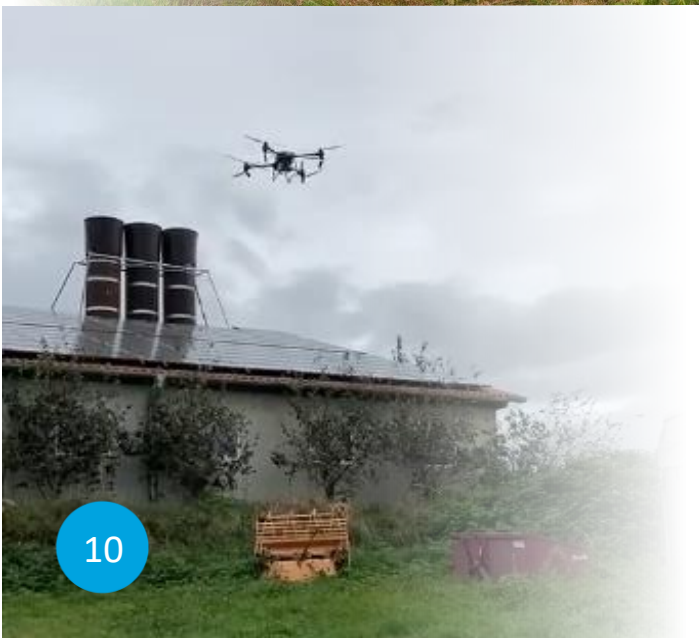
Solar panel cleaning with drones – reduce your cost



Drones can be a **very efficient and fast way of cleaning** your solar panels, it also allows for cleaning of hard-to-reach panels. With our vast experience and network of using drones in horticultural coating and cleaning we performed several successful trials showing the benefits of this approach.

It is a **trade-off between effort, cost, cleaning results and additional energy output**. Panels might not be 100% clean, but for sure will get cleaner and therefore deliver more energy. The additional output outweighs the cost of cleaning.

We see a role for **drone cleaning as part of the maintenance schedule**. Initial cleaning can be done with brushing, intermediate fast and efficient drone cleaning can keep panels clean for longer period.



The cost-effectiveness and the profitability of cleaning change depending on a number of conditions: **magnitude of the losses, electricity price and cleaning costs.**



Thank you for your interest

It's all about the performance!

