

### Product Information

This easy to apply coating was specifically designed to create a super durable, non-stick (hydrophobic and oleophobic) nano scale layer on the external surfaces of PV / Solar panels.

The coating prevents full bonding of contaminants to the surface and as a result water, dust, bird lime and other contaminants from environmental pollution are easily removed from the surface.

The easy clean effect is very pronounced and as a result the surfaces can be cleaned, if necessary, without using aggressive or abrasive agents. In many instances the panels become clean after heavy rain. **The outcome being enhanced performance of the solar panel.**

### Benefits & Key Features

- Strong anti-stick properties
- Excellent easy-clean performance
- Highly durable
- Easy to maintain
- Prevents degradation of the solar panel surface
- Invisible to the human eye (coating thickness: 100-150nm)
- Permanent (UV-stable, enormous abrasion-resistance)
- Resistant to temperature change
- Breathable
- Simple application (do-it-yourself)
- Chemical-resistant (within the range pH value 1 to 13)

### Instructions

Surfaces should be dry and free of any dust, oil, grease and other contamination.

Application should be made in a shaded and well-ventilated area.

### Manual Application

\*It is recommended to try on a small area before covering the entire surface.

- Product is sprayed onto the surface in an essential amount with a trigger bottle.
- The surface should be buffed immediately with a dry, lint-free microfiber cloth in circular motions.

### High Pressure Spraying

\* It is recommended to apply it to the final product after the trials are made and the optimum parameters are found.

- HVLP spray guns with 0.8 mm nozzle diameter should be preferred

- The distance between the surface and nozzle can be chosen between 35-50 cm depending on the other parameters
- Spraying pressure can be chosen between 5-6 bar depending on the other parameters  
The product should be sprayed onto the surface in the essential amount with a fine atomization

### Room Temperature Curing

Dry to touch: 4 h at 23°C - 50% RH

Fully curing: 24 h at 23°C - 50% RH

### Accelerated Curing

Dry to touch: 5 min. at 150°C

Fully curing: 30 min. at 150 °C

\*Curing time and temperature can be varied according to the heat resistance of the surface to be coated.

### Application Tips

Ensure that the temperature and relative humidity (RH) of the application space are as close as possible to the given values to achieve the highest product performance.

If the ambient temperature or relative humidity value is higher than the suggested intervals/values, the product may cure faster than expected.

Avoid direct sunlight during the application and only work on cool surfaces.

If required, clean the application surface thoroughly by applying a clay bar and/or polish using appropriate tools and silica/wax free cutting compounds. Finally, prepare the surface by using NanoEnzo Clean to improve the bonding performance of the nano coating. Ensure that there isn't any residual contamination and dry the surface with a lint-free microfiber cloth.

Shake the product gently before use.

### Manual Application

Do not work on areas larger than 1 m<sup>2</sup> per session. Coincidence of coating areas during the application does not constitute any problem.

Before using the product, wear protective nitrile gloves.

Do not forget to keep the lid closed during the application.

To make the most of microfiber cloths, fold each one four times before application, and do not re-use the side of the cloth you used.

If the coating dries by itself on the surface until you buff or if you don't buff the surface sufficiently and because of that a hazy look occurs, immediately apply a little bit more product onto that spot and buff it again to solve the visual problem.

### Application

Apply the coating on to the surface using either a pre-impregnated wipe or apply the coating liquid to a suitable lint free cloth or microfiber. Working quickly, ensure full coverage of the surface. Wipe with both vertical and horizontal action to ensure full coverage. It is recommended that the outer edge of the panel is wiped as the last action to avoid any possible contamination of the central area of the panel. The pre-impregnated wipe from CCM contains 6ml of coating. This is optimised for coating an area of approximately 1.5m<sup>2</sup>. If you are using your own wipe, we recommend that 10ml is applied to a lint free wipe which is approximately 150 x 150 mm. (This increased amount is suggested as the wipe medium which is being used may not be optimized for the coating and so it is wise to use a little more coating liquid.)

Allow the coating to dry for approximately 5 to 30 minutes. (5 minutes in warm weather e.g., 25°C... 30 minutes in cool weather e.g., 5-10°C).

After application the surface may look slightly “cloudy”. Buff the surface with a clean micro-fibre to remove any residue which contributes to the cloudy appearance. The surface should look polished.

The coating takes 24 hours to fully cure but the coated surface can be exposed to rain one hour after application. Do not apply the coating in damp or very humid conditions.

**Do not apply the coating in hot, direct sunlight.**

When the coated surface is dry to touch, it can be handled/packed. Fully curing process will continue.

Even if you apply a heat treatment to accelerate the curing process, keep the coated surface away from water/contamination for 24 hours and don't perform harsh tests on it.

### Specifications

Packaging	1-5-30 L
Appearance	Colorless Liquid
Chemical Resistance	12>pH>1
Salt Water Resistance	Yes
Moisture Resistance	Yes
Pencil Hardness (ISO-15184:2012)	7H
Dry Film Thickness	200-300 nm
Consumption per Unit Area (Manual Application)	5-8 mL/m <sup>2</sup>
Density @23°C	0.8 g/cm <sup>3</sup>
pH Value	4.7-5.0
Application Temperature	5°C-30°C (≤50% RH)

Temperature Durability	275°C
Water Contact Angle	97° @10 µL
Water Contact Angle After “2000” Wet Scrub (ISO-11998:2006)	92° @10 µL
Water Sliding Angle	16° @60 µL
Oil Contact Angle	76° @10 µL
Gloss Rate @60° (ISO-2813:2014)	93 (Acrylic)
CONSUMPTION Variance is due to the cloth or spray system used. Manual: 5 to 10 ml / m <sup>2</sup> Industrial: 5 to 15 ml / m <sup>2</sup>	
REACH Compliance	YES

### Durability

Normal conditions (-20°C to +30°C / pH<12)
Up to 5 years

### Removal

Once the product is cured, it is very difficult to remove it from the surface. In such a case, product removal can only be achieved by polishing with a special cutting compound. To avoid any harmful consequences generated due to the surface correction process, read the instructions carefully and watch application videos on NanoEnzo web site.

### Storage

To achieve a high quality of coating, keep the containers tightly closed in a dry, well ventilated space away from heat and ignition sources, stored at -3°C to +30°C. The shelf life of product is 12 months from the date of production when stored in the unopened container under suggested storage conditions. After opening the container, it is recommended to use up the product within 1 week.

### Disclaimer

The technical information described in this document is based on tests and other practical experiences that NanoEnzo believes are reliable. NanoEnzo can not guarantee anything but the ready-to-use quality of the product at the time of shipment, and disclaims any liability for product performance and incidental or consequential damages, according to self-implementation within the user's knowledge, beyond the manufacturer's control. Please refer to the Safety Data Sheet (SDS) before the use of the product.

Users should consult NanoEnzo for guidance on the suitability of specific applications. NanoEnzo reserves the right to change the given data without further notice.

## Technical Data Sheet

### Nano-EcoLine Solar panel SOLVENT

Do not apply our SiO<sup>2</sup> based coating on to surfaces which are coated with other agents, such silicones, or similar agents as the SiO<sub>2</sub> coating will not bond effectively to these surfaces.

Do not apply the coating to solar panels if the surface of the panel is greater than 30°C. (in hot regions of the world it is best to apply the coating early in the morning or in the evening, when it is cooler). The ideal temperature for coating is approximately 15 to 20°C.

Do wear gloves as a fingerprint can be 100 times thicker than the coating.

#### Important Notice

Our explanations correspond to our current knowledge and experience. We are passing it on, however, without obligation, also with regard to third party patent rights. In particular, a warranty of assured quality in the legal sense is not associated with it. The right to make alterations within the framework of technical advances and operational development is reserved. The customer is not released from careful quality examination. The mention of other company names is not a recommendation and does not exclude the use of similar products. We guarantee the quality of our products in accordance with our general sales conditions as a matter of course.