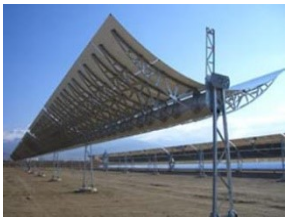
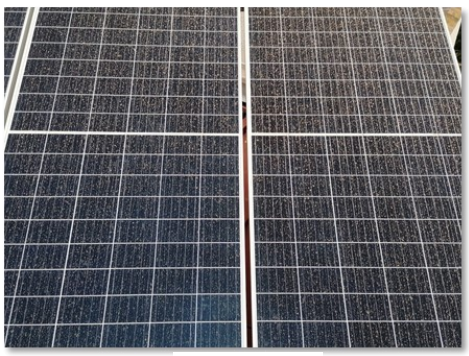
TECNAN TECNOLOGÍA NAVARRA DE NANOPRODUCTOS, S.L.	**DATA SHEET**	**Version: nº5** **Edition: 09/03/2023**

TECNADIS SELFCLEAN PV

Nanotechnology-based treatment to increase the energy efficiency of solar panels

Product description	Nanotechnology-based surface treatment that **increases the energy efficiency of solar panels**. It also protects surfaces from dirt stains, **reducing their accumulation mainly due to its additional anti-dust property** (it reduces the adherence of particles of soil, sand, etc.). In addition, thanks to the action of the treatment that facilitates the formation of a thin layer of water (**hydrophilic and self-cleaning effect**), it keeps glass cleaner for longer, making it more efficient in the use of incident light, achieving economic savings by **reducing maintenance and cleaning costs.**
Uses	▪ Specially designed to be applied on photovoltaic panels (utility-scale/solar farms, industrial, commercial, residential). ▪ Also applicable to solar trackers.   
Features and advantages	▪ **Tecnadis SELFCLEAN PV increases the performance of solar panels by more than 8%** based on: ☑ **Improving transmittance** It reduces the reflectance of visible radiation by 19%, thus increasing transmittance. This effect by itself results in an average yield increase of about **3%** (result and study carried out by **ITE, Instituto Tecnológico de la Energía**). ☑ **Self-cleaning capabilities** (self-cleaning and anti-dust effect) It keeps the solar panel cleaner for longer, favouring a better use of incident light, which translates into higher electricity generation. With this associated improvement, it is possible to **increase the performance** of the panels by more than **8%** (results obtained in real self-consumption installations). Its self-cleaning effect reduces the adhesion of particles of sand, soil, etc. keeping glass surfaces cleaner for longer.   **Untreated** **SELFCLEAN PV** *(Images taken after sandstorm in Valencia - January 2021)*

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(Images taken after sandstorm in a test with 18 treated panels - Turkey, March 2022)

- **Totally transparent** coating, which does not modify the aesthetic of the glass, and even improves the transmittance of the visible light through it.
- **Easy application** by spraying with an airless spray gun or manually (cloth, cleaning cloth, etc.).
- Coating tested under standard **UNE-EN 61215**. Specific standard for the approval of photovoltaic modules for terrestrial use suitable for long-term operation in outdoor environments.
- It maintains functionality after aging tests based on **ultraviolet test** (at 96KWh/m2), and **temperature cycle test** (52 cycles between -40°C and 85°C with an atmosphere of 85% relative humidity).
- **Durability of 10 years** under normal conditions of use.
- **Total UV resistance**.
- It can be **directly re applied** after just a surface cleaning.
- High yield (**25-30 m^2/L**).

Product information. Composition and Physicochemical properties.

- **Colour:** Whitish transparent/translucent**.**
- **Packaging:** 1L, 5L and 25L (larger volumes on request).
- **Storage:** 12 months from date of manufacture in original sealed containers at temperatures between 5°C and 30°C.
- **Active components:** <5% wt
- **Volatile Organic Content (VOC):**>85% wt
- **Boiling point:** 78°C
- **Flash point:** ≤16,6°C
- **Density:** 0,81 g/ml
- **Viscosity:** 1,2 cP
- **Solvent:** Ethanol

Surface preparation

Before application, carefully clean the surfaces and remove all traces of detergents and cleaners. The surface must be completely clean and dry. In the case of surface with hight level of dirt, a cleaning thorough is recommended.

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Application information	**Make sure the surface is clean and dry to ensure correct application.** **APPLICATION BY ATOMISATION** ▪ THE CONTAINER MUST BE SHAKED VIGOROUSLY BEFORE ITS USE. ▪ Apply the product evenly over the surface by means of an airless, airbrush or HVLP type spray gun. ▪ In case of wanting to use equipment other than those recommended, please contact TECNAN to evaluate it and to be able to prescribe a correct application method. **MANUALLY** ▪ THE CONTAINER MUST BE SHAKED VIGOROUSLY BEFORE ITS USE. ▪ Apply the product directly over the surface and spread it over with the help of a window cleaning equipment ("T") covered with microfibre to ensure a homogeneous finish. It is recommended to check the application once the product is dry, using means approved by TECNAN. It is recommended to apply the product during the assembly of the installation, in order to have better access to the photovoltaic modules. **For further details on the specifications of the method of use, please refer to the application method document.**
Yields and storage	▪ Dilution: none ▪ Approximate average yield: 25-30 m2/l. ▪ Drying time: Dry to the touch in 10-30 minutes (depending on the ambient temperature). The treated glass will show a hydrophilic effect immediately after application, achieving an optimum effect after 24 hours. ▪ Optimal application temperature: between 5°C and 30°C. ▪ Storage temperature: between 5°C and 30°C; protect from direct sunlight; store tightly closed in the original container.
Handling precautions	The product safety information necessary for its safe use is not included in this document. Before using this product, read the material safety data sheets and the container labels for safe use and for information on physical and health hazards. The material safety data sheets are available and are supplied by TECNAN. The application of the product must be carried out in a well-ventilated place. It contains volatile solvent (ethanol).
Limited warranty information	**Please read it carefully:** The information and recommendations in this document are given in good faith on the basis of TECNAN's experience and knowledge when stored, handled and applied correctly and under normal conditions within its useful life. However, because the conditions, types of materials to be treated and methods of use of our products are beyond our control, this information must be used correctly, verifying in preliminary tests that the product, the performance to be applied, the aesthetic finish and its purpose are suitable, even if other recommendations or advice have been received. TECNAN reserves the right to modify the properties of the product. TECNAN's only guarantee is that the product will comply with the sales specifications in force at the time of dispatch. Confirmation of payment and/or order implies acceptance of the product properties by the customer. TECNAN only guarantees the replacement of the product in the event of a manufacturing defect, and declines any other type of responsibility for the product, its application, as

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