

## Product information: TECNADIS HEATSHIELD

### Heat barrier treatment for glass surfaces

#### DESCRIPTION

- **Nanotechnology-based product designed for glass surfaces**, which **blocks out Infrared radiation (IR)**.
- The product avoids excessive increase of temperature inside living spaces directly exposed to sun, blocking the transmission of the heat frequencies from the outside.
- **Proper for all kind of windows, windshields or any glass surface**.

#### BENEFITS

- **Blocking of the 45-50% aprox. of the solar energy** (for a standard protection layer), enabling to modulate the blocking capacity -in terms of amount of radiation filtered- according to the number of layers applied.
- Significant reduction of the energy consumption in cooling processes, **achieving savings of operating costs of air conditioning systems up to 60%**.
- **Easy application** with pressure air gun and compressor. It is also possible to use cleaning tools (articulated sponge, cloth, etc.).
- **Resistant to cleaning processes** with conventional cleaners/chemicals, keeping unaltered the IR blocking properties.
- Keeps **the glass appearance totally transparent**.
- High durability and re-applicable / repairable if necessary. It can be removed without using special techniques, if necessary.
- Its **high performance** (25 m<sup>2</sup>/L approx. for a standard protection layer) and highly competitive price make it one of the most effective solutions currently available in the market.
- **Total resistance to UV radiation. Durability of 10 years** under the appropriate conditions of use and application.

#### COMPOSITION

- The product is based on a dispersion of nanoparticles treated with active agents, plus other additional compounds for the complete formulation, in a base of organic solvent (isopropanol and ethanol).

#### APLICACIONES

- Product for all types of **glass surfaces** that are directly exposed to solar radiation.
- Specially recommended for: **glazed surfaces of buildings**.

#### PHISIC-CHEMICAL PROPERTIES

- |                                  |                         |
|----------------------------------|-------------------------|
| • Colour                         | Bluish                  |
| • Active ingredients             | <45% wt                 |
| • Volatile Organic Content (VOC) | >50% wt                 |
| • Density                        | 0,93 g/ml               |
| • Viscosity:                     | 4,07 cP                 |
| • Boiling point                  | 78°C                    |
| • Flash point                    | 11,85°C                 |
| • Solvent:                       | Isopropanol and ethanol |

## HOW TO USE

1. **SURFACE PREPARATION:** Surface should be **totally clean and dry** before application. For a correct preparation of the glass it is essential to carry out a thorough cleaning using an abrasive-type polisher with micro-particles, extending it on the surface with the aid of a scouring pad that does not scratch the glass or an industrial polisher in the case of large surfaces. Once the polisher is extended, remove it with the aid of a "T" type cleaning tool and spray the surface with water to facilitate the process. Finally, cover the entire surface with ethanol and dry until total transparency.

In place of an abrasive-type polisher it is also possible to use a powerful detergent for surface preparation or other types of thorough cleaning. However, it is always recommended to finish the preparation by covering the surface with alcohol of the type ethanol or isopropanol.

2. **HEATSHIELD PREPARATION. TWO COMPONENTS MIXTURE:** Products may have a small precipitate due to storage. It is recommended to shake them for homogenization before using.

The product is presented in two individual components to be mixed **prior to its use** in proportion 9:1 in volume (**9 parts of Component 1 and 1 part of Component 2**). (Example: mix 900 ml of Component 1 with 100 ml of Component 2). Mix in proportion 9:1 and shake vigorously to ensure a complete mixing of the components. Once the mixture has been created, we must **wait necessarily a minimum of 24 hours before its use**. Once prepared, the final product is stable and applicable during the next 7 days (see surface drying). After this time, prepare a new mixture in order to assure the correct performance. However, it is recommended to use the product within the next 24-48 hours after being mixed due to its favorable drying/curing conditions..

(Note: Usually product presentation is designed in such a way that, in case the user wants to use the whole amount of product, the whole content of Component 2 can be dropped into the container of the Component 1).

3. **PRODUCT APPLICATION:** Spray the prepared mixture of the two components (1 and 2) onto glass surface. Apply one layer of the product homogeneously on the glass avoiding as far as possible excesses or lift product. The use of **paint spray gun, "Trans-Tech" type**, with filter in the feed, is recommended. As standard application, product's one single hand or application is also recommended.

For recommendations of spray gun's application parameters refer to "manual instruction".

4. **SURFACE DRYING:**

If the final product is used within the period of 24-48 hours from its preparation, the drying / curing conditions are as follows:

- **Drying to touch: 3 hours.** Do not touch the surface for at least 3 hours after application. It is convenient a dust-free environment while drying during these 3 hours, in order to prevent the arising of imperfections in the surface
- **Drying: 6 hours.** The product will be dry enough in case of rain weather incidents after 6 hours from application. If rain conditions occur during the drying time, the treated surface must be protected.
- **Full curing:** Do not subject to abrasion or cleaning of any kind during the following 24 hours after its application. From this time, the product is resistant to cleaning processes with conventional detergents / chemicals.

If the final product is used more than 48 hours after its preparation, the drying / curing times increase. In no case the final product will be used after more than 7 days from its preparation. The drying / curing times for a final product applied after 7 days from its preparation are:

- **Drying to touch: 5 hours.** Do not touch the surface for at least 5 hours after application. It is convenient a dust-free environment while drying during these 5 hours, in order to prevent the arising of imperfections in the surface
- **Drying: 3 días.** The product will be dry enough in case of rain weather incidents after 3 days from application. If rain conditions occur during the drying time, the treated surface must be protected.
- **Full curing: 5 days.** Do not subject to abrasion or cleaning of any kind during the following 5 days after its application. From this time, the product is resistant to cleaning processes with conventional detergents / chemicals.

5. Product estimated performance: **25 m<sup>2</sup>/L** for a standard protection layer. Recommended amount of: 40 ml/m<sup>2</sup> (approx.).

## 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 hazards and health. The material safety data sheets are available and are supplied by TECNAN S.L. The application of the product must be carried out in a well-ventilated place. It contains a volatile solvent (Isopropanol and ethanol).

## USAGE LIFE AND STORAGE

Storage temperature: between 5 and 30 °C; avoid direct sunlight; keep well closed in the original container. Keep away from heat and open flames and avoid freezing. The material contained may settle slowly, so it is recommended an adequate agitation before use. Once opened, be sure to keep it in the original container, properly closed in order to guarantee its properties.

## LIMITATIONS

- Apply in temperatures between 5°C and 30°C (recommended).
- This product is not suitable for medical or pharmaceutical uses.

### **Limited warranty information. - Please read carefully**

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should be used properly, in preliminary tests to verify that the product is suitable for its intended use. Suggestions of use shall not be taken as inducements to infringe any particular patent. The only guarantee TECNAN S.L. is that the product will meet the sales specifications in effect at the time of shipment. Your exclusive remedy for breach of this warranty is limited to the purchase price or replacement of any product that is not warranted. TECNAN S.L. specifically disclaims any express or implied warranty of fitness for a particular purpose or marketing. TECNAN S.L. disclaims responsibility for any damage caused accidentally.