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How to use: Tecnadis METALCOAT BASE

Protective coating for metals, ceramics and other surfaces

PRODUCT DESCRIPTION

Component

Tecnadis METALCOAT BASE

The Tecnadis METALCOAT BASE treatment is usually presented as monocomponent product.

HOW TO USE

STEP 1. SURFACE PREPARATION

The surface must be **clean and dry** before the application. Avoid the presence of dust or any other solid particles on the surface. It is recommended to clean the surface with an alcoholic solvent before applying the base coat in order to remove possible traces of dirt, grease and oils, water and detergents or cleaning products.

STEP 2. PRODUCT APPLICATION

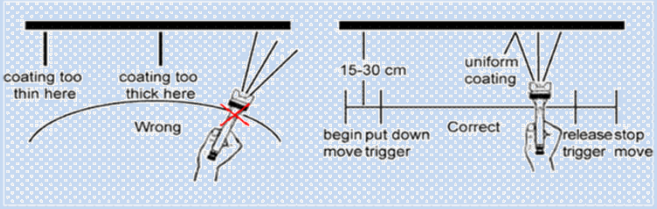
It is recommended to shake the product before use to ensure homogeneity. No shearing force is necessary.

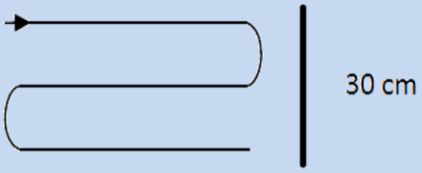
The deposition of the product can be performed by different techniques depending on the **morphology, dimensions and end-use** of the pieces to be treated. For small pieces, the **dip-coating** method is recommended, dipping the piece into the liquid and then draining the material in excess. For larger pieces with good accessibility, application by a **spray-gun** is advisable, as well as for on-site applications on already existing devices and equipment. The typology of this spray gun may vary from a simple air-less electric gun to more sophisticated air-forced guns, since the application of the coating is very indulgent. For applications in industrial series, the most proper technique would be to use **an automated spraying robot**.

1) APPLICATION BY SPRAYING

Spray Tecnadis EMTALCOAT BASE on the surface in a homogeneous way, avoiding as far as possible excess and product's drip. As a **standard application**, spray the product on the surface in a **single layer** (either in one higher quantity stroke or in several lower quantity strokes) and h**omogeneously**. When spraying, consider the following **recommendations**:

- Follow the application pattern, i.e. make strokes in only one direction with the gun perpendicular to the surface and trying to leave the gun in the same position.
- It is better to apply in less quantity than in excess, since the product can bleach, flake and detach from the surface when it dries.
- If the product drains after its application, dry using the air of the spraying gun or a cloth to spread the excess of product out uniformly along the surface before it dries.
- Once sprayed allow one minute to air dry to eliminate part of the solvent.





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Recommended equipment: AIR-FORCED STRAYING GUN

To calibrate the spraying gun, it is essential adjust the size and shape of the **spraying pattern** and the **amount of product per time unit** (ml/min)**.** The application parameters are as follows:

- Compressed air line pressure: minimum 5 bar. Constant flow.
- Feeding filter: 200 microns.
- Hole size: 0,85-1.
- Completely open fan.
- Product flow: 20 ml/minute.
- Air inlet flow to the gun: medium-low (0,5 bar).
- Indication for application: see **figure 1.**

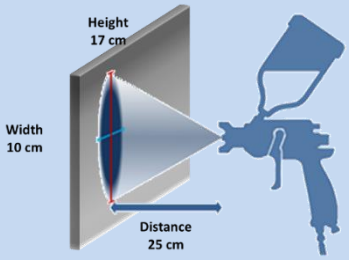


FIGURE 1

Important: Place a desiccant filter in the compressor to avoid water condensates.

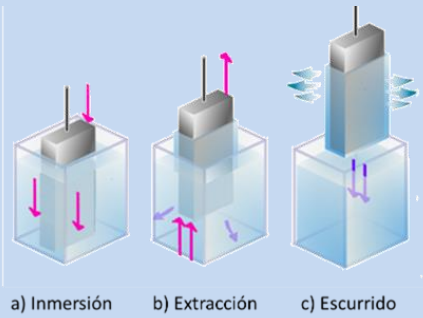
Approximate yield: 60-90 ml/m^2 (depending on the porosity, roughness and nature of the substrate where it is applied).

OTHER APPLICATION EQIPMENT

- **Electric gun or Air-Less**

2) DIP-COATING

To treat a piece by dip-coating, introduce it into the liquid, remove it with a controlled and constant speed and allow the liquid excess to drain completely.



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STEP 3. PRODUCT CURING

The curing process of Tecnadis METALCOAT BASE can be adapted according to the requirements/properties sought and the possibilities of temperature application. This curing process, necessary to achieve the fixation of the product on the substrate, can be carried out from a temperature of 170ºC to 300ºC.

For the application of temperature for curing, various thermal devices can be used depending on the size, shape and accessibility of the piece. **The ovens** are recommended for small parts and industrial series production, while for in-situ applications in existing installations, **portable systems such as guns or thermal cannons** may be considered, among others.

For curing it is recommended to carry out a progressive heating of the material and to keep the heating as long as possible, bearing in mind that the longer the thermal curing time, the better the fixation and the structure/matrix of the coating. The estimated time for thermal curing can vary between **30 and 60 minutes** depending on the dimensions of the piece to cure and the thermal system used.

Important: Direct contact with the heat focus and hot supports must be avoided since a strong thermal shock at this point may cause a too fast drying, ending in a whitish and brittle coating (see image on the right).

STEP 4. EFFECT CHECKING

To check that the coating of Tecnadis METALCOAT BASE has been properly applied and cured, wet a small part of the treated surface with water.

If the water forms small drops that are easily released from the surface, it is indicative that the coating has been cured enough.

If, on the contrary, the water soaks the coating creating white stains or crystalline flakes, it will mean that the coating still needs further curing. In this case, repeat STEP 2 and STEP 3 until the results are satisfactory.

Cured enough

Not enough curing

HANDLING PRECAUTIONS

The security information of the product needed for its use without risks is not included in this document. Before manipulating the product, read carefully the Material Safety Data Sheets and the labels for a safe us and to be aware of physical and health risks. The MSDS are available and are provided by TECNAN S.L. Application of the product should be carried out in a properly ventilated place. It contains volatile solvent (ethanol).

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TECNOLOGÍA NAVARRA DE NANOPRODUCTOS, S.L.

How to use: Tecnadis METALCOAT ENHANCER

Protective coating with hydrophobic and oleophobic properties

PRODUCT DESCRIPTION

Component

Tecnadis METALCOAT ENHANCER

Tecnadis METALCOAT ENHANCER is provided as a mono-component liquid. It is used to improve non-stick performances of the treatmentTecnadis METALCOAT BASE.

HOW TO USE

STEP 1. SURFACE PREPARATION

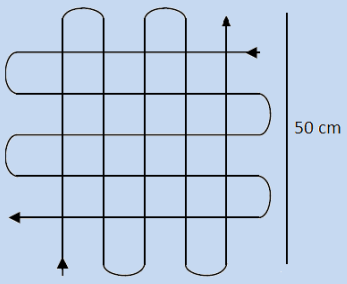
The surface must be **clean and dry** before the application. Avoid the presence of dust or any other solid particles on the surface. It is recommended to clean the surface with a cloth or air before the application of the product.

STEP 2. PRODUCT APPLICATION

It is advisable to apply the product Tecnadis METALCOAT ENHANCER by a spray-gun, which may vary from a simple air-less electric gun to more sophisticated air-forced guns like “Trans-Tech” ones.

Advices to apply Tecnadis METALCOAT ENHANCER:

- **The aspect of the coating should not be altered** by the deposition of this top layer. In this sense, a very fast spraying will be preferred. Although it seems that no product has been applied, the enhancer layer is already deposited.
- Avoid excess of product. If the product drains or forms drops on the surface, use the air of the spray gun or a cloth to spread it uniformly along the surface before it dries.
- Once sprayed, let the solvent dry during 1 minute.
- Follow the application pattern shown below, in this case it is recommended to give **two coats** of product in **two directions**, **one perpendicular to each other**, positioning the spraying gun perpendicularly to the surface and keeping the same distance during the whole application.



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Recommended equipment: AIR-FORCED STRAYING GUN

To calibrate the spraying gun, it is essential adjust the size and shape of the **spraying pattern** and the **amount of product per time unit** (ml/min)**.** The application parameters are as follows:

- Compressed air line pressure: minimum 5 bar. Constant flow.
- Feeding filter: 200 microns.
- Hole size: 0,85-1.
- Completely open fan.
- Product flow: 50 ml/minute.
- Air inlet flow to the gun: Fully open (+/-2,5 bar).
- Indication for application: see **figure 1.**

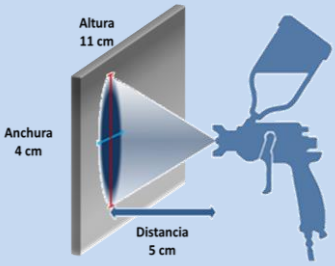

FIGURE 1

Important: Place a desiccant filter in the compressor to avoid water condensates.

Approximate yield: 60-90 ml/m^2. This layer (ENHANCER) is deposited over the first layer (BASE) so the dose/quantity does not depend so much on the type of substrate. The yield will be similar for different substrate types.

OTHER APPLICATION EQUIPMENT

- **Electric gun or Air-Less**

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STEP 3. PRODUCT CURING

The curing process of Tecnadis METALCOAT ENHANCER can be adapted according to the requirements/properties desired and the possibility of applying temperature for drying.

The **curing process with temperature** for fixing the ENHANCER layer over the previous one can be carried out at a temperature of between **170ºC and 200ºC**.

For the application of temperature for curing, various thermal devices can be used depending on the size, shape and accessibility of the piece. **The ovens** are recommended for small parts and industrial series production, while for in-situ applications in existing installations, **portable systems such as guns or thermal cannons** may be considered, among others.

For curing it is recommended to carry out a progressive heating of the material and to keep the heating as long as possible, bearing in mind that the longer the thermal curing time, the better the fixation of the ENHANCER over the BASE. The estimated time for thermal curing can vary between **15 and 30 minutes** depending on the dimensions of the piece to cure and the thermal system used.

Curing at room temperature is also possible. In this case, after the application of Tecnadis METALCOAT ENHANCER, the product presents an appreciable effect of repellence to water and others after 2 hours, achieving its maximum properties after **24-48 hours**. This curing time may vary depending on environmental conditions

PASO 4. EFFECT CHECKING

To check that the coating of Tecnadis METALCOAT ENHANCER has been properly applied and cured, wet a small part of the treated surface.

If the water forms small drops that are easily released from the surface, it is indicative that the coating has been cured enough.

Otherwise, the water will not show this pearlescent effect, which indicates the lack of curing of the product. If this happens, repeat STEP 3 until the results are satisfactory.

Enough curing

Not enough curing

HANDLING PRECAUTIONS

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