

How to use: TECNADIS METALCOAT BASE/PLUS

Protective coating with hydrophobic and oleophobic properties

PRODUCT DESCRIPTION

Tecnadis METALCOAT

BASE
Component



Tecnadis METALCOAT

ACTIVATOR
Component

Tecnadis METALCOAT BASE / PLUS treatments are presented as bi-component products that have to be mixed before their application. The mixing ratio by volume is **4 parts of BASE component : 1 part of ACTIVATOR component**.

The mixture of both components causes the final product to warm, indicating that they are reacting. Keep cooling during 5-10 minutes before depositing the mixture onto any substrate.

HOW TO USE IT

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 degrease the surface with alcohol and to dry it with a cloth or air before the application of the product Tecnadis METALCOAT BASE/PLUS.

STEP 2. MIXTURE PREPARATION

Tecnadis METALCOAT BASE/PLUS is always provided in **4:1 volume proportion**. Therefore, the content of the ACTIVATOR container can be poured out into the BASE container, which is prepared to hold the whole volume of the mixture.

The mixing process consists in stirring slightly, just to ensure product's homogeneity. **Shearing forces are not required to achieve a good mixture**. During the mixing process, an increase in temperature can occur as indicative of the chemical reaction among BASE and ACTIVATOR components. Let it cooling down to room temperature during 5-10 minutes before applying it onto any surface.

Important: While shaking the bottle to perform the mixture, it is advisable to stop and remove the lid occasionally to release the vapours that might have been formed as a consequence of the temperature increase of the mixture.

After product's application, it is recommendable to store the remaining mixed-liquid refrigerated to maintain its stability.



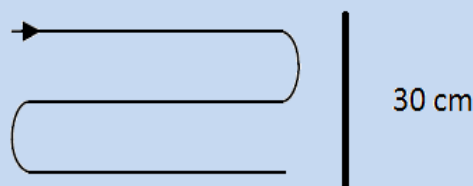
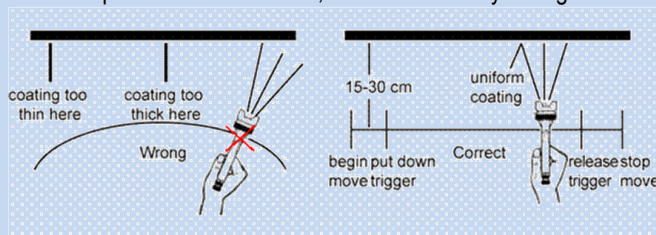
STEP 3. PRODUCT APPLICATION

The deposition of the products TECNADIS METALCOAT BASE and PLUS 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 during 1 minute 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) SPRAYING GUN

Spray the already-mixed-product on the surface depositing it as far as possible as a **single and homogeneous layer**, avoiding possible excess and product's drip. When spraying, consider the following **recommendations**:

- Follow the application pattern shown below. Coat the surface in only one direction, positioning the spraying gun perpendicularly to the surface and keeping the same distance during the whole application.
- It is preferable to apply product in defect than in excess. An excess of product can lead to a cloudy and brittle coating after drying, resulting in poor adherence to the substrate and very low performance.
- If the product drains after its application, use the air of the spraying gun or a cloth to spread the excess of product out uniformly along the surface before it dries.
- Once deposited on the surface, let the solvent dry during 2-5 minutes.

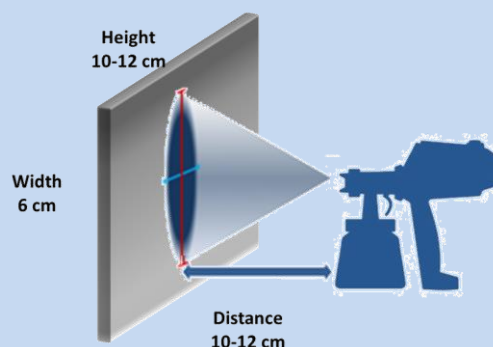


To calibrate the spraying gun, it is essential adjust the size and shape of the **spraying pattern** and the **product consumption** (ml/min) to the values below, depending on the type of gun used:

a. AIR-LESS ELECTRIC SPRAYING GUN



Approximate yield: 45 – 55 ml/m² (depending on the porosity, roughness and nature of the substrate where it is applied).

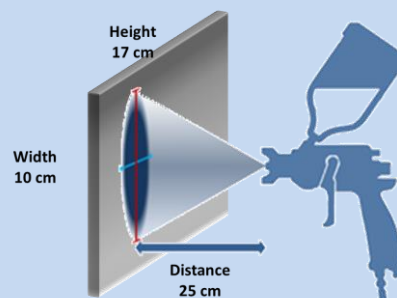


b. AIR-FORCED SPRAYING GUN

Approximate yield:

60 – 70 ml/m²

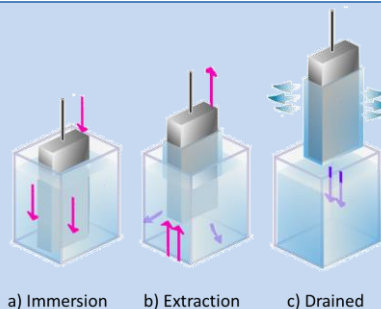
(depending on the porosity, roughness and nature of the substrate where it is applied).



2) DIP-COATING

To treat a piece by dip-coating, introduce it into the liquid during one minute approximately to ensure full soaking of the substrate.

Then remove it with a controlled and constant speed, allowing the liquid excess to drain completely. If required, eliminate remaining drops with a cloth or a piece of paper to avoid excess of product.



STEP 4. PRODUCT CURING

The coatings TECNADIS METALCOAT BASE and PLUS need a thermal drying at 100°C to lose their wet appearance due to solvent evaporation. Several thermal devices can be used to this aim depending on the piece size, shape and accessibility. **Ovens** are advisable for small pieces and industrial serial productions, but **thermal portable devices such as thermal guns or cannons** are preferred for in-situ applications in already-existing lines. The recommended duration for this process is around **15-30 minutes** based on the size of the piece to be treated and the thermal device used.

After that, to fix the coating to the surface, a **thermal sintering at 300°C during 15-30 minutes** is required. Again, the curing time will depend on the size of the piece to be treated and the thermal device used, which can be the same used for the drying step.

As indicative, in the case of curing the treated pieces into an oven, they will need two consecutive thermal processes at 100°C and 300°C of 30 minutes each. In the case of using a thermal gun or cannon, the parameters of the device will have to be adjusted to reach those temperatures on the surface of the piece(s) during the corresponding times. Namely, in the specific case of using a LEISTER, it has been estimated that it will be required a curing process of 10 minutes/m² at power 3 followed by other of approximately 20 min/m² at the maximum power. Then, to ensure a good attachment to the surface, specific thermal input of 3 to 5 seconds per area of 5 x 5 cm approximately can be performed at maximum power.

Important: Direct contact with the heat focus and/or with hot supports must be avoided since a strong thermal shock at this point may cause a too fast drying, resulting in a cloudy and brittle coating with poor performance (see picture on the right).



STEP 5. COATING CHECKING

To check that the coating of Tecnadis METALCOAT BASE/PLUS 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.

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 4 and STEP 5 until the results are satisfactory.



Cured enough



Not enough curing

HANDLING PRECAUTIONS

Application of the product should be carried out in a properly ventilated place. It contains a volatile solvent (ethanol).

Product safety information required for safe use is not included in this document. Before handling, read material safety data sheets and container labels for safe use, and for physical and health hazard information. Material safety data sheet (MSDS) is available from Tecnan S. L.