

NANOMYTE® TC-4001-UVP

NANOMYTE® TC-4001-UVP is a single component formulation designed to protect metals and other surfaces from degrading, preserving their structural integrity and appearance. The hard, dense, and smooth coating is a nanostructured composite consisting of organic and inorganic phases. It resists scratching and chipping and adheres strongly to bare, pretreated, or painted metal surfaces, thus providing a durable barrier to liquids and gases. A variety of other surfaces may be coated as well, such as plastics and composites. The coating is easily applied by immersion, spraying or brushing, in thicknesses ranging from microns to mils, and is available in glossy or matte finishes.

Surfaces

Iron, steel, stainless steel, aluminum, copper, bronze, plastics, composites, and powder-coated, painted, or primed metals

Typical Properties

Color:	Clear liquid (colorless to yellow)
Curing Temperature:	20°C – 150°C
VOCs:	Less than 100 g/L
Carrier type:	Solventborne
Coverage:	800 – 1200 ft ² / gallon
Solids Content:	18 – 20 %
Recommended Thickness (per coat):	Wet mils: 1.5 – 2.0 Dry mils: 0.5 – 1.2 (coating can be made thinner by diluting with recommended solvents)
Weatherability:	1,000 hours (minimum); DFT = 0.5 mils (10 – 15 µm) by ASTM D4587 (G154, Cycle 1)

Surface Preparation

Ensure bare metal surfaces to be coated are clean and dry. Remove all oil, grease, dust, dirt and other foreign material before using appropriate metal cleaner and/or applying TC-4001-UVP. To ensure that the surface is free of oil and grease, use a lint-free white cloth with a solvent, such as alcohol or acetone, and clean until the cloth remains white after wiping. TC-4001 can then be applied per application instructions below. Remove scale and light to medium rust using appropriate rust stabilizer and/or scale remover. Heavy rust must be sandblasted or ground off. If desired, metal may be primed or painted before using TC-4001-UVP as the final topcoat.

Application

Spraying:

When surface preparation is complete and surface is dry and free of dust, begin application using a high volume, low pressure (HVLP) spray gun with a 1.0 mm tip and a pressure of approximately 25 to 30 psi. On a piece of cardboard, first test spray to achieve a 6" to 8" elongated pattern approximately 1" wide in the middle and fluid enough to cover but not puddle. Once the desired spray pattern is achieved, spray one coat in a cross-pattern; left to right, then up and down. To spray small pieces or tight locations you can use a "Preval" sprayer - a small, disposable sprayer that can spray any liquid and holds approximately 6oz, ideal for touch ups as well.

Rolling:

Using an ultra-smooth, high-density foam roller, pour TC-4001-UVP into a roller pan and completely saturate the roller. Apply in a cross-pattern; left to right, then up and down as quickly as possible as the coating dries fast. Avoid excessive pressure on the roller to achieve a better looking finish.

Brushing:

Select the appropriate size brush width based on the surface being coated. Apply TC-4001-UVP in a cross-pattern, up and down, then left and right. To obtain the best results, do not overwork the coating as it dries fairly quickly. Do not bear down on the brush.

Curing

Room Temperature Curing (25 °C):

Under ambient conditions, a single coat will be dry to the touch in 1-2 hours and cured in 24 hours.

Accelerated Curing (105 °C – 150 °C):

Alternatively, the coating can be applied to the surface, dried in ambient air for 10 minutes, and then heated to at least 105 °C for 1 hour. An oven, blow dryer or heat gun may be used (maximum temperature is 150 °C). After heating, coated parts should be allowed to cool before handling. TC-4001-UVP will completely wet bare metal surfaces if properly prepared

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or if primed / painted. Only one coat is required to cover substrates, but multiple coats are allowable. Under ambient conditions, a single coat is 5 - 15 µm (0.2 – 0.6 mil) thick and will be dry to the touch in 1-2 hours and cured in 24 hours. Multiple coats can be applied in 10 minute intervals while the previous coat is still tacky. Two to three coats should result in a final coating that is 25 - 40 µm (1-1.5 mil) thick.

Application Notes

Test Area:

Given the wide variety of metals and the various methods and environments of application, it is advisable to first use TC-4001 on a test piece or in an inconspicuous area to evaluate the resulting adhesion and appearance. There will often be some enhancement in luster (gloss) from the original surface. TC-4001-UVP is a clear coating, however on some white paints or powder coats, the color may be altered to appear off-white or slightly yellow, particularly if a thick coat is applied.

Clean Up:

Clean tools and flush equipment thoroughly with acetone immediately after application is completed and before product dries. Once the coating is dry, solvent cleaning is no longer effective.

Care & Maintenance:

For normal cleaning, wash the coated surface with a hose or wipe down with a damp cloth to remove dirt and spills on the surface. Although TC-4001-UVP is scratch resistant, it is not scratch proof. Do not use abrasive cleaners or scouring pads. If an area becomes damaged or is mechanically abraded, lightly sand the area with 220 grit sandpaper and reapply the coating. If the substrate itself is damaged, make the necessary repairs first, then re-apply TC-4001-UVP.

Weatherability and UV Protection:

For best performance, when applying to UV-sensitive surfaces (e.g., plastics, composites), apply as thick a coating as possible, and/or ensure a minimum DFT of 0.5 mils (10-15 microns). Select the appropriate surface preparation protocol (cleaning and/or surface treatment, priming) and test to ensure coating adhesion has been maximized. Some surfaces (e.g., certain paints, plastics and composites) may require a primer, such as **NANOMYTE® SR-Primer**. Samples intended for weatherability testing should be conditioned for a minimum of 1 week at 25°C with at least 50% relative humidity.

Storage & Handling

Precautions for Safe Handling:

Appropriate personal protective equipment should be used at all times. Provide good ventilation or extraction. Avoid prolonged or repeated breathing of vapor. Avoid contact with eyes, skin and clothing. Wash hands thoroughly after handling. Keep away from heat, sparks, flames and other sources of ignition. Take measures to prevent the buildup of electrostatic charge.

Conditions for Safe Storage:

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Residual vapors might explode on ignition. Do not apply heat, cut, drill, grind or weld on or near this container.

Refer to SDS for complete information on the safe handling of this product.

Additional Information

WARNING: This product should not be used, stored, or transported until all handling precautions and recommendations stated in the Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for this coating are understood. Exposure should be minimized and direct contact should be avoided through the observance of proper precautions, use of appropriate engineering controls, and proper personal protective clothing and equipment.

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