

# INSTRUCTIONS/USE

# METAL COATING

## Description

NanoTech Metal Coating is a peel and flake resistant quartz coating for all metal surfaces. It is designed to protect metal surfaces from normal destructive forces, and provides a long lasting barrier of superior resistance to rust, moisture, corrosion, salt spray, acid rain, UV damage, oxidation, galvanic corrosion, animal & bird waste damage, and reduces ice adhesion.

## Surface

NanoTech Metal Coating is ideal for iron, steel, stainless steel, aluminum, galvanized steel, copper and bronze, powder coated metals, and painted and primed metals.

## Solution

NanoTech Metal Coating protects surfaces against:

- Moisture, Corrosion, & Rust
- Oxidation
- Galvanic Corrosion
- Wind Drag
- Dirt
- Ice Buildup
- Animal Waste

## Characteristics

Appearance:	Clear or available with 20 translucent color stains
Finish:	Gloss or Satin
Vehicle Type:	Solvent Base
Flash Point:	(C Penske-Martens close cup) -9c/15F
VOC:	Less than 100 g/L
Weight per Gallon:	7.36 lb/gallon
Non-Breathable	

## Testing

ASTM D-3359-09 Adhesion Standard test, 300 Hours 4B  
 ASTM D-3363 Film Hardness Taper, 39.11 average.  
 ASTM D-2047 Static Coefficient passes ADA requirements\*  
 ASTM D-2803-03 Procedure B (ISO 4623) Corrosion and Filiform. No Filiform or Corrosion 1,000 hours.  
 E96-10 Water Vapor Transmission, average WVT 0.3473 gr/ft<sup>2</sup>/hr, average perms 0.8376 gr/ft<sup>2</sup>/hr.  
 G155 Xenon Arc, wavelength 340nm irradiance 1.0 w/m<sup>2</sup> 500 hours, slight change.  
 ISO 4623 International Standard Corrosion, No Corrosion.

ISO 4628-10, International Standard, Degradation of Coating, No Degradation coated over primer.

\*Always obtain independent retest of the static coefficient after applying any coating on walking surface to verify new application meets OSHA requirements.

## Spread Rate

Recommended Spread Rate per coat:

Wet mils: 2.0-2.5

Dry mils: 0.7-1.75

## Coverage

Coverage: 640-800 sq ft. /gal (approximate) Coverage will vary depending on the porosity and texture of the surface.

## Surface Preparation

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, and other foreign material using NanoTech Coatings Surface Prep. To remove scale use NanoTech Coatings Scale Remover and for light to medium rust use NanoTech Coatings Rust Remover. Heavy rust must be sandblasted or ground off.

### New Iron & Steel

Make certain the entire surface has been cleaned of any rust, scale, oil, grease. To ensure the surface is free of oil and grease use a white rag with a solvent and wipe the surface. If the rag remains white your surface is clean; if the rag turns dark, continue cleaning until it remains white. (Important on hot rolled steel: make certain to sandblast or grind off 100% of the slag from that process as the surface tension of the coating can pull the slag off causing de-lamination of the coating).

Prime the bare metal with a quality rust and corrosion primer per the manufacturer's instructions. After primer has dried per the manufacturer's instructions, apply 2 coats of NanoTech Metal Coating per application Instructions. Important, make sure when applying over primers that the re-application time set by the primers manufacture is followed as the NanoTech Metal Coating needs to bond. If re-application window has passed you must mechanically abrade the surface by sanding with a minimum of 220 grit sandpaper to achieve an bond system for the NanoTech Metal Coating.

**IMPORTANT:** When applying over steel or iron that has no primer you must apply two coats of NanoTech Metal Coating wet over tack no more than 15 minutes apart. This will fill micro holes that can rust if not coated properly.



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### Old Iron & Steel with Existing Paint or Primer

Inspect the condition of the primer and paint to ensure it is sound and free of peeling or chips and that there is good adhesion. Sand blast Commercial Blast Clean SSPC-SP-6 method or abrade off any existing, peeling paints until you reach a solid base or bare steel (or repair by sanding with 220 grit sandpaper or lower then re-paint as needed). Once re-painted areas are dry and cured wipe surface with NanoTech Coatings Safe Clean then wipe down with a damp rag and fresh water to prevent removal of the existing paint. Once surface is clean and dry, NanoTech Metal Coating can be applied. Only apply one coat.

### Aluminum, Copper, Brass, Bronze, & Stainless Steel

Clean the entire surface of any oil and grease using NanoTech Coatings Surface Prep. Rinse with fresh water and dry to ensure the surface is free of any oil or grease which allows a good bond. To ensure the surface is free of oil and grease use a white rag with a solvent and wipe the surface. If the rag remains white the surface is clean; if the rag turns dark, continue cleaning until it remains white. Once clean, NanoTech Metal Coating can be applied per application instructions. Only apply one coat.

### Galvanized Steel

New Galvanized Steel will produce off-gassing for the first several months after plating. Allow 6 months for complete off gassing before applying Metal Coat. If the age of the galvanized surface is unknown, test a small area, looking for air bubbles or blistering on the surface which will appear in approximately 7 days. If none occur, then the galvanized steel is cured. Once it is determined to be fully cured, clean off all oil, grease, and dirt with NanoTech Coatings Surface Prep. Rinse with fresh water and dry. To ensure the surface is free of oil and grease use a white rag with a solvent and wipe the surface. If the rag remains white the surface is clean; if the rag turns dark, continue cleaning until it remains white. Once clean, Metal Coat can be applied per application instructions. Only apply one coat.

### Powder Coated Metals

Inspect the surface to ensure there are no breaches in the powder coating. If any appear, make certain to have them re-coated or primed with a matching paint to touch up. Clean the entire surface of any dirt, oil or grease using NanoTech Coatings Surface Prep. Rinse with fresh water and dry. Do not use solvent as it will damage the powder coating. Once the surface is clean and dry NanoTech Metal Coating can be applied per application instructions. Only apply one coat.

## Application Instructions

### Test Area

Due to the wide variety metals and the various methods of application and environments, always test NanoTech Metal Coating in an inconspicuous location to ensure adhesion and determine that the desired look is achieved. There will be a slight enhancement in appearance from the original surface which will vary based on gloss, satin, or mat finishes available.

**Important:** NanoTech Metal Coating is clear, but on some white paints or white powder coats color may be altered to appear off-white or slightly yellow once the coating applied. Always do a small test on white surfaces in an inconspicuous spot to make certain that if there is a color change, it is acceptable.

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NanoTech Metal Coating, as with most final finishes, is best sprayed on to achieve optimum finish and appearance. With all methods of application, always cover any adjacent surfaces to keep them free of drips or accidental coating. NanoTech Metal Coating should be sprayed. However if the project configuration and location don't allow for spraying, there are three alternate methods; using a fine bristle brush, a high density ultra smooth foam roller, or simply dip. This type of alternate application will not yield the same spread coverage and will not typically give you the optimum smooth finish as spraying would. If applying outdoors, make certain the ambient temperature is between 45° F and 105° F, and RH is under 90%. Make certain that there is no chance of rain for a minimum of 5 hours after the estimated time of completion of the coating process. Make necessary accommodations for natural elements.

### Spraying

Shake the contents thoroughly to re-suspend the nanoparticles that have settled to the bottom. (If stirring, you should feel a thick layer of sediment with your stir-stick in the bottom of the container. Make certain to re-shake every 15-20 minutes to re-suspend the settling nanoparticles during the application process to ensure proper performance of the coating. 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 - 1.3 size tip and the pressure set at approximately 25 - 30 psi. On a separate piece of cardboard first spray a test pattern to achieve a 6" to 8" elongated pattern approximately 1 1/2" wide in the middle and fluid enough to cover but not puddle. Once the spray pattern is achieved on the test cardboard, spray one coat in a cross-pattern; "left to right" then "up and down". This will provide sufficient coverage and will help prevent holes in coverage.

If there is high wind, this will affect the quality of the finish as blowing wind can disrupt the spray pattern from your HVLP. It can also contribute to contamination of the finish with blowing dirt. Take necessary precautions against natural elements. (Exception for one coat is on unpainted steel or iron, which requires two coats). coating process. Take necessary precautions against natural elements. To Spray small pieces or tight locations, use a "preval" sprayer. This is a disposable, 6 oz sprayer that is ideal for touch ups as well. Available in the paint department of major home improvement stores.

### Desired Wet Film Thickness (WFT)

WFT is approximately 2.0 to 2.5 mils

**CAUTION:** If using spray application method in an enclosed space, make certain to tent off the area being sprayed with plastic tarps to avoid spray dust from traveling and contaminating other surfaces with overspray dust. Always ensure excessive ventilation when working in an enclosed area. Never spray near any open flame or possible source of ignition such as a pilot light, or anything that may spark, as this may cause ignition and explosion of the fumes and vapors.



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### Rolling

Make certain the surface is clean per preparation instructions. Shake the contents thoroughly to re-suspend the nanoparticles that have settled to the bottom. Make certain to re-shake every 15-20 minutes during the application process to re-suspend the settling nanoparticles. Pour NanoTech Metal Coating into a roller pan and completely saturate a white, ultra smooth, high-density foam roller (Available at most major home improvement stores). Apply in a cross-pattern; “left to right” then “up and down” as quickly as possible as the coating dries very quickly. Avoid down pressure on the roller to provide a better looking finish. Always ensure excessive ventilation when working in an enclosed area.

### Brushing

Make certain the surface is clean per preparation instructions. Shake the contents thoroughly to re-suspend the nanoparticles that have settled to the bottom. Make certain to re-shake every 15-20 minutes during the application process to re-suspend the settling nanoparticles. Select the appropriate size brush width based on the surface area being coated. Using a good quality bristle brush, apply NanoTech Metal Coating in a cross-pattern; “left to right” then “up and down”. To obtain best results, do not over work the coating, seeing as it dries very quickly. Do not bear down with the brush. Use light strokes using the tip of the brush to smooth out the coating. Desired WFT is approximately 2.0-2.5 mils. Always ensure excessive ventilation when working in an enclosed area.

### Dipping

Make certain the surface is clean per preparation instructions. Stir the contents regularly to re-suspend the nanoparticles that have settled to the bottom. Make sure to apply a blanket of nitrogen gas over the coating in the tank to prevent flashing of the solvents and evaporation of the product. Dip the pieces and agitate “back and forth” and “up and down”, and move to dry rack. Make certain to re-stir every 15-20 minutes during the application process to re-suspend the settling nanoparticles. Always ensure excessive ventilation when working in an enclosed area.

### Staining Metal Finish

NanoTech Metal Coating can easily become a stain by adding 8 oz of stain (20 colors available) to 1 gallon of NanoTech Metal Coating and mix together well. Spraying is the best method of application (see description under “Spraying” section). You need to spray very thin, wet coats on until desired look is achieved. This may require 3-5 coats, 5 minutes apart to get the desired look and coverage. Do not apply only one thick coat as it will not flow out and most likely will puddle up. After the look is achieved and the coating has tacked up, apply one thin clear coat with the NanoTech Metal Coating in the desired gloss. If the stained coats have dried before you coat with the clear, wait 24 hours, lightly abrade with 220 grit sandpaper, tack cloth any dust off, and then apply the clear and final coat.

The stained color chart is a representation only and is over brushed aluminum. It only represents the general look over that substrate. This is a stain and not a solid pigment like paint. Every substrate will reveal a different final color, which will vary from the color stain chart. Methods and applicators will also vary the color. Always do a test on the actual substrate before doing an entire application to make certain the color is acceptable.

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### Dry Time

Drying Time (@ 77 F, 50% RH): Drying time is Temperature, humidity and film thickness dependent. (The higher the humidity the faster the dry time)

Touch: 1 hour Through: 2-4 hours Full Cure: 7 Days

### Interruption of Work

Upon drying, treated surfaces may appear similar to untreated surfaces. It is possible areas could remain untreated if process is interrupted. It is advisable to stop application on a corner joint or any other obvious marker so the applicator can begin where the application had previously ceased. When re-starting if the last edge you stopped is dry it must be sanded to 220 grit to allow the beginning of the lap joint of the coating to bond.

### Clean Up

Clean tools and equipment with acetone and flush thoroughly immediately after application is completed and before product dries. (Important, once coating is dry, the tools will not come clean with acetone or any other solvent).

### Caution

Always wear OSHA approved 1910.134 and ANSI Z88 2 Respiratory protection. Fresh air and exhaust are required in the work area. If inhaled, move to fresh air and call physician immediately if physical difficulties occur. Wear butyl-rubber gloves and other skin protection to avoid contact. In the event of contact with skin, wash skin thoroughly with soap and water. Chemical safety goggles or splash shields are required. Do not wear contacts without eye protection. Immediately flush eyes with water for 15 minutes after contact and get medical attention. If accidentally swallowed, rinse mouth thoroughly and obtain immediate medical attention. Always ensure excessive ventilation when working in an enclosed area.

### Care & Maintenance

To remove graffiti use NanoTech Coatings Safe Clean. For normal cleaning, simply clean by washing the surface with a hose or wiping down with a damp rag- this should remove most dirt and spills on the surface. Although NanoTech Metal Coating is scratch resistant, it is not scratch-proof. Do not use abrasive cleansers or abrasive scouring pads. If an area gets damaged or is mechanically abraded, simply lightly sand the area with 220 grit sandpaper and reapply Metal Coat. If the substrate is damaged at the same time, make the necessary repairs first, and then re-apply NanoTech Metal Coating.

