



Nano-Clear NCF for Fleet Vehicles - TDS



High Gloss - Polyurethane Hybrid Clear

Nano-Clear® NCF for Fleet Vehicles is the only coating in the global marketplace to enhance, restore and extend the service life of freshly painted or highly oxidized painted surfaces by 10 years. Nano-Clear provides extreme corrosion resistance, scratch, abrasion, chemical & UV resistance and reduced surface maintenance. Nano-Clear penetrates deep into the pores of freshly painted or highly oxidized paints and enhances color, improves gloss, increases surface hardness and extends UV resistance. Nano-Clear is a 1K humidity cured / highly cross-linked polyurethane hybrid nanocoating.

Nano-Clear® 1K physical properties are far superior to leading 2K & 3K industrial coatings like Imron®.

APPLICATION USES

Provides an extreme hardness and high gloss clear coating over freshly painted or highly oxidized paint surfaces including 2K epoxies (2K = two-component), 2K polyurethanes, 2K topcoatings, powder coatings, anodized aluminum and sanded fiberglass.

APPLICATION POTENTIAL Construction Equipment (John Deere, CAT, CASE), Semi Trucks, Cranes, Salt Trucks, Fleet Vehicles.

- One-component formulation - saving on labor and preparation time.
- High surface area coverage (1,000 sq. ft. / gal. or 93 m² / 3.8L).
- Extends in-service life of newly painted or highly oxidized painted surfaces.
- Restores original color, gloss, surface hardness and extreme UV resistance.
- High scratch resistance (4H pencil hardness).
- Extreme chemical resistance (>1500 MEK rubs).
- Extreme weathering resistance (98-100% gloss retention).

PAINT / MATERIAL COMPATIBILITY

- Can be applied over "freshly" painted 2K epoxies, 2K polyurethanes, powder coatings and anodized aluminum.
- Can be applied over "oxidized" painted 2K epoxies, 2K polyurethanes, powder coatings and anodized aluminum.

APPLICATION CONDITIONS

Temperature: 40°F (4°C) to 90°F (32°C)

Relative Humidity: 20% to 80%

PHYSICAL PROPERTIES

Polymer Chemistry: Nanostructured Polyurethane Hybrid

Mixing Ratio: No mixing required

Recommended Dry Film Thickness: 1.00 - 2.00 mil (25 - 50 µm)

Pencil Hardness - ASTM D3363: 4H

Pendulum Hardness (Persoz) - ASTM D4366: 220

Abrasion Resistance - ASTM D4060: 8.4 mg loss

Impact Strength - ASTM D2794: > 140

Water Immersion Test - ISO 2812-2: Pass

QUV Resistance - ASTM D4587: 99%

Xenon WOM - ASTM G155: 99%

MEK Resistance - ASTM D4752: >1500

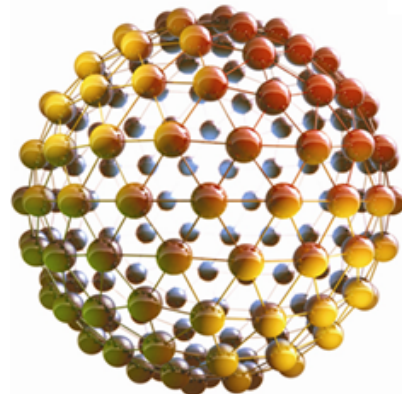
Salt Fog - ASTM B-117: No rust, no blisters

DMA - Crosslink Density - (X103 mol/m³): 2.17

VOC (less exempts): 1.25 lbs. / gal or 156 g / L

Viscosity: 200 cps

NANO-CLEAR 3D POLYMER





APPLICATION INFORMATION

Consult SDS for proper handling, cleanup, disposal, and use of personal protective equipment. Circulate sufficient air to maintain working environment below the PEL and LEL. Apply according to local, state, and federal (OSHA) regulations.

- Ambient temperature: 40°F (4°C) to 90°F (32°C)
- Relative Humidity: 20% to 80%
- Metal temperature: 40°F (4°C) to 90°F (32°C)
- Metal temperature: At least 5°F (-5°C) above the dew point
- Material temperature: 40°F (4°C) to 90°F (32°C)



SURFACE PREPARATION

Freshly Painted Surfaces:

- Apply directly over two-component epoxies, two-component polyurethanes, two-component topcoatings & powder coatings.

High Gloss Surfaces:

- Sand using 400 grit orbital sander, then solvent clean using paint thinner to remove excess debris.

Oxidized Painted Surfaces:

- Repair any structural damage (rust or chipping) using two-component epoxy primer (Macropoxy 646).
- Oxidized **"Non-Waxed"** Paint **"MUST"** be thoroughly cleaned using **SuperClean Degreaser**; water rinse & dry.
- Oxidized **"Waxed"** Paint **"MUST"** be sanded using 400 grit paper with orbital sander; solvent clean & dry.



RECOMMENDED FILM BUILD

- Number of spray coats: Minimum of 2 - 3 wet coats with 5 - 10 min. between wet coats to allow for solvent evaporation.
- Avoid recoating additional coats after 20 min. as flow and leveling will be negatively effected.
- Recommended (Wet Film Thickness WFT): 2 mil per wet coat.
- Recommended (Dry Film Thickness DFT): 1.00 – 2.00 mil (25 - 50 µm) depending on surface properties desired.

Nano-Clear NCF Over Oxidized Paint:

- One wet coat of Nano-Clear will **"Restore"** and enhance the underlying paint color.
- Two to Three wet coats of Nano-Clear NCF will **"Fill & Fortify"** the oxidized paint layer and provide long-term surface protection.
- **The number of wet coats required should be determined by the overall gloss level 5 min. after application:**
 - * High gloss = Good film build
 - * Low Gloss = Low film build (recommend applying another wet coat to increase gloss and improve properties).

Nano-Clear NCF Over Fresh Paint:

- One wet coat of Nano-Clear NCF will **"Fill"** the underlying paint pore layer.
- Two to Three wet coats of Nano-Clear NCF will **"Fortify"** the underlying paint layer and provide long-term surface protection.
- **The number of wet coats required should be determined by the overall gloss level 5 min. after application:**
 - * High gloss = Good film build
 - * Low Gloss = Low film build (recommend applying another wet coat to increase gloss and improve properties).



Solvent Flash: Allow 5 to 10 min. between wet coats at 72°F (22°C) to allow for solvent evaporation.

THINNING

- No thinner is required as Nano-Clear has very low viscosity.

EQUIPMENT CLEAN-UP

- Clean equipment immediately after using Acetone or MEK. Never clean spray equipment with water or alcohol.



CURE TIME @ 72°F (22°C), 50% R.H.

Dust free: ~ 20-30 minutes
 Tack free: ~ 30-40 minutes
 Handle: ~ 4 hours
 Dry Hard: 24 hours @ 72°F (22°C)

- * Lower temperatures and lower humidity conditions will slow-down the curing rate.
- * Higher temperatures and higher humidity conditions will speed-up the curing rate.

SURFACE COVERAGE PER GALLON

1,122 ft² / gal @ .50 mil DFT or 93 m² / 3.8L @ .50 mil DFT

WEIGHT PER GALLON:

8.0 lbs (3.63 kg)

PACKAGING

1 gal (3.8L), 5 gal (19L), 55 gal (208L)

SHIPPING WEIGHT

1 gal container - 8 lbs (3.63 kg)

5 gal container - 40 lbs (18.14 kg)

55 gal container - 440 lbs (200 kg)

SHELF LIFE & STORAGE

- Storage temperatures must be dry and between 40°F (4°C) and 72°F (22°C). Higher temps will decrease shelf-life.
- Shelf life - 6 months un-opened when stored at temperatures between 40°F (4°C) and 72°F (22°C).
- Shelf life opened: 2 weeks.
- Container must be closed immediately after use to avoid moisture contamination.
- Do not leave container open for extended periods to avoid moisture contamination. Discard contents if liquid turns white.

SAFETY INSTRUCTIONS

Consult the Material Safety Data Sheet for this product prior to use.

APPLICATION EQUIPMENT

- Apply using HVLP, Conventional or Airless spray equipment.
- Nano-Clear may be applied using a "wipe-on" technique using 9 in. "Shur-Line Deck Painter Pad" (HomeDepot).
- Streaking or high spots may occur using a "wipe-on" technique. Avoid high spots by smoothing surface while wet.



AIR SPRAY EQUIPMENT

Spray Gun: HVLP or LVLP (SATA, Devilbiss or Iwata)

Fluid Tip: 1.3, 1.4 or 1.5 mm

Fan Pattern: Full

Fluid Control: 2 1/2 turns out

Spray Pattern: 50% overlap

Pressure at Gun: 29 - 30 PSI

AIRLESS SPRAY EQUIPMENT

Tip Size: Graco 519 or 619 orifice

Pump: 30:1 or 40:1

Pump Pressure: 800 psi

BUFFING & POLISHING (if needed)

- **Equipment:** Orbital sander and orbital polishing equipment.
- **Sand Paper:** 1000 grit paper, then 1500, then 2000 to 2500 grit paper.
- **Compound:** Heavy cut compound with wool pad @ 1,200 to 1,400 RPM.
- **Polishing:** 3M SRC (scratch resistant clears) polishing paste with wool @ 1,200 to 1,400 RPM.
- **Final Polish:** Use light to medium cut polishing past with wool pad @ 1,200 to 1,400 RPM.

SURFACE MAINTENANCE / CLEANING

- Use low pH soap and water for clean-up.
- Use lint-free microfiber cloths to clean and dry surfaces.
- Use paint thinner to remove graffiti.

IMPORTANT COMMENTS

1. Use dedicated spray lines and equipment for the best results. Clean equipment immediately after use using paint thinner or acetone. Avoid contact with skin and hair as Nano-Clear will adhere like super-glue.
2. Avoid recoating after 20 minutes as flow and leveling will be effected.
3. Nano-Clear is a moisture sensitive system. It is important to close containers immediately after use to avoid moisture contamination.

Nano-Clear Application Recommendations:

Nano-Clear is a unique one-component clear coating with remarkable physical properties. The application of Nano-Clear is very important to achieve these desired outlined physical properties. The substrate type (material composition) and surface preparation is critically important prior to considering the application of Nano-Clear Coatings. The application parameters of Nano-Clear are just as or even more important than achieving the desired physical properties.

Important: *Nano-Clear + Poor Adhesion = Failure. Nano-Clear + Excellent Adhesion = 10 Year Warranty.*

Application Environment:

Nano-Clear was developed to cure or crosslink in the presence of humidity. As a general rule, higher humidity results in a faster cure cycle. Lower humidity results in a slower cure cycle. Higher humidity may reduce flow and leveling of Nano-Clear. One way to improve flow and leveling is to reduce the wet-on-wet recoat time to 2-3 minutes (vs. 5-10). Conversely, lower humidity positively affects the flow and leveling of Nano-Clear.

It is important to spray Nano-Clear in a dust-free environment as to avoid surface contamination. Appropriate ventilation, approved respirator, protective clothing and rubber gloves are required to apply Nano-Clear.

Package Stability:

Nano-Clear is sensitive to moisture contamination. It is very important to quickly close the gallon, pail or drum container immediately after opening. Do not leave the container cap open for extended periods, which will allow solvents to evaporate and crosslinking to begin. **Moisture contamination or storage at high temps will cause gelation within the container.**

It is "not" recommended to repackage Nano-Clear in smaller containers without first consulting Nanovere for application instructions including package material type (*un-lined aluminum bottle or Baritainer® only*) and nitrogen gas blanketing.

Substrate Consideration:

Nano-Clear is designed to adhere directly to cleaned - highly oxidized or newly painted steel surfaces including epoxy, polyester, polyurethane, latex and powder coatings. Nano-Clear will also adhere directly to sanded fiberglass, sanded gelcoat, un-coated stone pavers and epoxy coated cement.

Nano-Clear will "not" adhere directly to bare aluminum, steel, rust, stainless steel or chrome unless surface treated or primed. Nano-Clear has been shown to adhere directly to these substrates with a phosphoric acid surface treatment. Testing will be required to ensure proper adhesion with any surface treatment.

Surface Preparation:

Nano-Clear is designed to be a permanent coating with proper surface preparation. Nano-Clear will "not" adhere to a surface with oil, grease, silicone, wax or fluorination present. It is important to remove surface contaminants using an effective degreaser like "SuperClean" (sodium hydroxide based cleaner) + Water + Dry. Solvents like acetone, MEK and paint thinner are also effective at removing surface contaminants.

Oxidized Paint Surfaces: See above surface preparation / cleaning process. One to Two wet-coats are recommended depending on desired gloss level and surface hardness. One wet-coat will enhance color and slightly improve gloss. Two-wet coats with 3-5 min. between wet coats will enhance color, gloss, surface hardness and UV resistance.

Glossy Surfaces: Nano-Clear will adhere to highly glossy painted surfaces when first treated with 1000 grit sand paper, then solvent cleaned to remove surface contaminants. One to Two wet-coats are recommended.

Fresh / New Paint: Nano-Clear will adhere directly to fresh primer, basecoat or topcoats systems using a wet-on-wet application process. It is important to first allow all of the solvents to escape these systems prior to the application of Nano-Clear Coatings. Nano-Clear can be applied to primer, basecoat or topcoat systems using two to three wet coats with 3-5 minutes between Nano-Clear wet coats to allow for solvent evaporation.

