



## Adhesion Promoter

# Product Description

Following in its 15+ year tradition of developing innovative “first-to-market” nano-structured and enhanced coating technologies, **Nanovere Technologies** is pleased to present **Nano-Clear® VV-200 (NC® VV-200)**. **Nano-Clear® VV-200**, a Functional Surface Treatment (FST) & Adhesion Promoter (AP) is a one component (1K) transparent multipurpose nano-structured product. Its primary purpose is a highly efficient *Functional Surface Treatment* and in secondary purposes will also perform the strategic duties of a state-of-the-art *Adhesion Promoter*.

In its primary role **Nano-Clear® VV-200 FST** can be applied directly to *prepared* ferrous and non-ferrous metals, glass, TPO (thermoplastic olefin) and ABS (Acrylonitrile Butadiene Styrene) surfaces. In this capacity **NC® VV-200** will function as a highly efficient protective barrier against scratch, abrasion, UV, weathering, corrosion and water damage for up to 36 months (3 years) from the time of application.

**Nano-Clear® VV-200** in its role as an **Adhesion Promoter\*** is designed to provide a thin anchoring layer using molecular bonding (covalent bond) to the surfaces of *prepared* ferrous and non-ferrous metals prior to the application of an industrial coating system i.e. primer + 2K basecoat and a clear top coat such as **Nano-Clear® Industrial (NCI)**: a proprietary nano-structured, transparent, polyurethane / polyurea hybrid, industrial grade, high gloss clear topcoat.

With **NCI** as the clear top coat this coating system’s service life will have a minimum range of 10 years (120 months) from time of application.

**Nano-Clear® VV-200** can also perform as an adhesion promoter to provide a thin anchoring layer for **Nano-Clear® Industrial (NCI)** as it takes on the full duties of a clear protective surface coating where a primer and base coat (color) are not required. This combination of **NC® VV-200** and **NCI** molecular bonding leads to an enhancement in **NCI’s** cross-linking, scratch, corrosion, abrasion, chip, UV, weathering and water resistance properties.

With the inclusion of **NCI** as part of the listed **Adhesion Promoter** applications this also provides an opportunity for further enhancement with the addition of **Nanovere’s** proprietary additives. Please consult with **Nanovere** or your **Nano-Clear®** representative for more details.

*\*Adhesion promoters, or coupling agents, are chemicals that act as the interface between an organic polymer and an inorganic surface to greatly enhance adhesion between the two materials.*

## 1. FUNCTIONAL SURFACE TREATMENT - ADHESION PROMOTER

### A. TECHNICAL DATA

<b>Solid Content by Wt.:</b>	20%
<b>Color:</b>	Clear
<b>Theoretical Coverage:</b>	640 ft <sup>2</sup> / 59.5m <sup>2</sup>
<b>Recommended Application Thickness (WFT):</b>	2 mil / 50 μm
<b>Recommended Dry Film Thickness (DFT):</b>	0.4 – 0.6 mil / 10 – 15 μm SSPC PA2**
<b>Specific Gravity:</b>	1.16
<b>Mix Ratio:</b>	Product to be applied as supplied. <b>DO NOT DILUTE</b>
<b>VOC Content:</b>	0.0 (lbs/gal – g/L)
<b>Viscosity (23°C / 73.4°F):</b>	<100 cP
<b>Service Life:</b>	Up to 36 months (3 years)

\*\* No single spot measure can be less than 80% of the specified minimum DFT.  
No single measurement can be more than 120% of the specified maximum DFT.



## B. SURFACE PREPARATION

### i. Ferrous and Non-Ferrous

#### Metal Substrates – Cleanliness:



Surfaces to be treated must be completely dry and free of grease, oil, soil, biological contaminants, dust, abrasive materials or other forms of contaminants prior to the application of **NC® VV-200**. Remove grease and oil with a suitable cleaning agent. Remove salts and other contaminants by medium to low pressure clean fresh tap water. Warm to hot water can greatly aide in the contaminant removal process.

#### Standards:

**SSPC – SP 1:** Chemical Cleaning. For loose scale, rust and deteriorated coatings employ **SSPC – SP 2:** Hand Tool Cleaning or **SSPC - SP3:** Power Tool Cleaning. Repeat SP1 post employing SP2 or SP3.

### ii. Glass and Plastics –

#### Cleanliness:



Ferrous and non-ferrous metals such as stainless steel and aluminum will require etching as a pretreatment prior to the application of **NC® VV-200**. This can be accomplished with the use of 85% phosphoric acid as an etchant agent.

Surfaces to be treated must be completely dry and free of grease, oil, soil, biological contaminants, dust, abrasive materials or other forms of contaminants prior to the application of **NC® VV-200**. Remove grease and oil with a suitable cleaning agent. Rinse and remove salts and other contaminants with plenty of clean fresh tap water. Warm to hot water can greatly aide in the removal process.

## C. COATING APPLICATION

### Application Equipment – Air Spray:



HVLP paint spray gun with a 1.4 mm tip; inlet compressed air pressure 29 psi / 0.013 Bar with Full-Fan pattern to ensure maximum atomization. Graco paint sprayer 519 or 619, pump 30:1 or 40:1, with pump pressure at 800 psi / 55.1 Bar.

### Airless Spray:

### Applied as a Functional Surface Treatment:

Spray 1 coat of **NC® VV-200** to achieve a wet film thickness (WFT) of 2 mil / 50 µm. Allow a cure time of **30 to 40 minutes**. **Stage 1** (See Fig.1).



### Applied as an Adhesion Promoter:

Spray 1 coat of **NC® VV-200** to achieve a wet film thickness (WFT) of 2 mil / 50 µm.

Allow a cure time of **30 to 40 minutes** followed by the application of an industrial coating system (primer + basecoat + clear topcoat (NCI), or just **NCI**. **Stage 1 + Stage 2** (See Fig.1).

### Roller / Hand Brush, Dip, Spin Coating, and wipe-on:

Please contact **Nanovere** or your **Nano-Clear®** Representative to discuss these and other known application methods.

### Equipment Cleaning Post Application:

Clean all equipment employed immediately after application with Acetone or MEK. **DO NOT CLEAN EQUIPMENT WITH WATER OR ALCOHOL.**



## D. STORAGE AND SHELF LIFE

### Shelf Life -

#### Unopened:

Six (6) months, tightly capped and in original container.

#### Opened:

Two (2) months, tightly capped and in original container. Always recap immediately to reduce solvent evaporation.

### Storage -

#### Temperatures:

Store **Unopened** (tamperproof ring still intact) and **Opened** (tightly recap) **NC® VV-200** in a dry, low to dark area within the temperature ranges of 4°C to 22°C / 40°F to 72°F. Temperatures outside of these parameters will compromise the stability of the **NC® VV-200**. **KEEP CONTAINER LIDS TIGHTLY SEALED WHEN NOT IN USE AND RECAP IMMEDIATELY AFTER DISPENSING.**



## E. HEALTH AND SAFETY

### Safety -

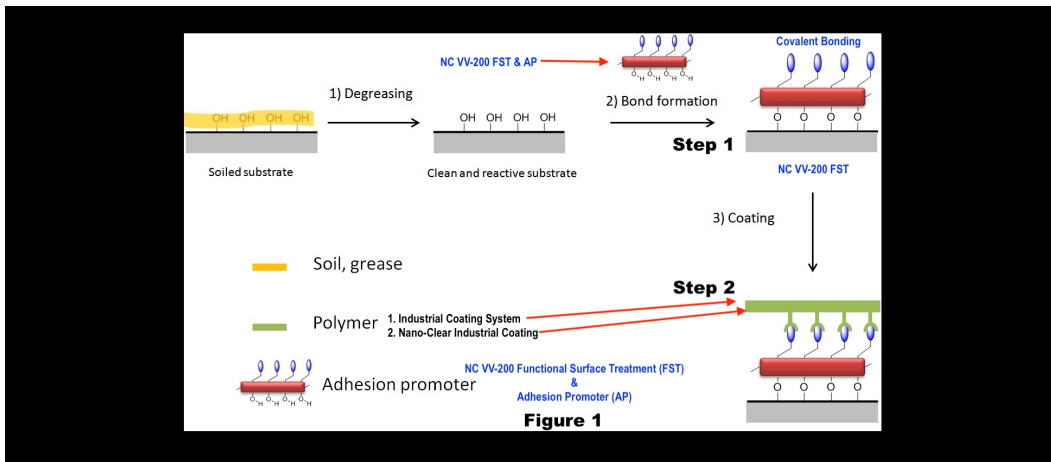


**NC® VV-200** and **NCI** were developed for COMMERCIAL and INDUSTRIAL use only and are not to be employed for purposes other than specified. The information within this TDS is based on past, present, and ongoing scientific and technical knowledge. **Nanovere Technologies, LLC** products are sold with the understanding that the purchaser or user is solely responsible for determining their suitability for any purpose and that the purchaser or user assumes all risks and liability associated with the use of the product(s).

### Health and Safety -



Always refer to the **Nano-Clear® VV-200** and **NCI's** Safety Data Sheet's (SDS) prior to use. Carefully read and follow all safety instructions on product labels and packaging. Handle and store these materials with care in accordance to their Safety Data Sheet's (SDS). Follow and observe any applicable local or national laws and regulations.



## 3. SUGGESTED APPLICATIONS

- Ferrous and Non-Ferrous Metal Parts Fabrication
- Architectural Glass Fabrication
- Architectural Glass Restoration
- Automotive OEM Exterior and Interior Parts
- Marine Fabrication, Repair and Restoration
- Industrial Equipment
- Aerospace Fabrication
- Post Fabrication Shipping and Storage
- 3D Printed Functional Parts
- And more.

Please contact **Nanovere Technologies** or your authorized **Nano-Clear®** representative to discuss your application for **Nano-Clear® VV-200**.

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