

Anti-Rust + Corrosion

Technical Data Sheet

1 Description

Nanoman Anti-Rust + Corrosion, is a clear, ready-to-use coating that protects non-absorbent surfaces against rust, dirt, weathering and corrosion. Based on a patented polysilazane technology, Nanoman Anti-Rust + Corrosion forms a long-lasting barrier layer that bonds chemically with the substrate and cures at room temperature with atmospheric humidity.

The surface protected with Nanoman Anti-Rust + Corrosion can be cleaned repeatedly without reapplying the product. Applied correctly and in accordance with this TDS, Nanoman Anti-Rust + Corrosion will remain effective for approximately 5 years. For maximum protection we recommend re-application every 4-5 years.

2 Features and Benefits

- Long-lasting clear coating.
- Excellent protection against graffiti.
- Exceptional corrosion protection.
- Produces "Easy-to-Clean" surfaces.
- Excellent adhesion to most substrates.
- High UV and chemical resistance.
- Economical.
- Easy to apply.
- Cures at room temperature.
- Fluorine-free.
- Temperature resistant from -50°C to over 950°C.

3 Applications

Nanoman Anti-Rust + Corrosion is particularly suitable for smooth, non-absorbent metal surfaces, like aluminium, zinc, stainless steel, copper and several alloys (e.g. brass and bronze). It can also be applied to one or two component paints (polyurethane or epoxy systems), polyester paints and GRP surfaces.

Typical applications for Nanoman Anti-Rust + Corrosion:

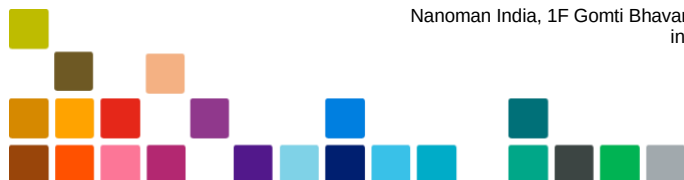
- All metals and alloys including Aluminium, Stainless Steel, Copper, Brass and Tin.
- Tank equipment and industrial plants (inside and outside).
- Traffic signs.
- Ventilating systems.
- Shipping Containers.
- Mining Equipment.
- Firearm barrels.
- Metal bollards, cabinets and outdoor furniture.
- Oil & Gas piping and equipment.

4 Surface Preparation

The substrate to be coated must be clean, grease-free and absolutely dry. Areas which are difficult to reach, such as cavities or drainage channels etc. must be dried additionally with absorbent cloths or blown dry with compressed air. On contact with a damp substrate surface, Nanoman Anti-Rust + Corrosion reacts prematurely and cannot form a permanent seal.

The substrate temperature must be between + 5°C and + 30 °C, the relative humidity at 30 %-80 %.

Nanoman Anti-Rust + Corrosion will not adhere to a surface with oil, grease, silicone, wax or fluorination present. It is important to remove surface contaminants using a sodium hydroxide based cleaner. Solvents like acetone and paint thinner are also effective at removing surface contaminants. If using these solvents please ensure that they are kept away from heat, open flame and do not apply to hot metals.



5 Directions for Use

Specific Instructions

New metal	Degrease with a suitable solvent e.g. lacquer thinners, prior to painting.
Rusted metal	Use a wire brush or chip with a chipping hammer to remove all loose, flaking surface rust, scale and flaking paint.
Previously Painted Surfaces	If there is any uncertainty as to whether there may be rust spots developing under the existing painted surface, we recommended that the old paint is completely removed before coating.

Application Instructions

Nanoman Anti-Rust + Corrosion is supplied ready-to-use. Open containers slowly (in case gases are present) and wear full PPE, including gloves, goggles and respirator mask. Depending on the substrate Nanoman Anti-Rust + Corrosion can be applied with microfiber applicators, paint brush (microfiber-flocking) or by spraying.

Guide	Spray Nozzle	Spray Pressure
Suction Feed 	HVLP 0.8 – 1.3mm	50 – 60 PSI
Gravity Feed 	HVLP 0.8 – 1.5mm	50 – 60 PSI

Nanoman Anti-Rust + Corrosion must be applied at an ambient temperature of at least + 5 °C and a relative humidity of 30 %-80%. Avoid direct sunlight. Apply the coating in dry conditions and never in rain. The coating is applied with an applicator (eg sprayer, cloth, pad or brush). Any mistakes can be rectified within approx. 10 min of application. After this the repellent effect of Nanoman Anti-Rust + Corrosion makes it impossible to apply another coat. During application, only small quantities should be decanted into a application container. Residues of unused Nanoman Anti-Rust + Corrosion should not be returned from the application container to the original bottle. Traces of water in the applicator should also be avoided. Applicators dampened with water **MUST NOT** be used. If dirt appears on the applicators during coating, they should be replaced with clean applicators to avoid dirt entering the coating.

The applicators cannot be reused once the coating has been applied.

If the solution in the application container solidifies or a deposit forms, it can no longer be used. Solutions that are no longer useable must be disposed of properly. Nanoman Anti-Rust + Corrosion is dry to touch after about one hour.

If possible we recommend applying under clean room conditions, although application in situ is just as effective.

Apply Nanoman Anti-Rust + Corrosion using:

- HVLP, Conventional or Airless spray equipment.
- A "wipe-on" technique using Brush, Roller or Deck Painter Pad. (Streaking or high spots may occur using a "wipe-on" technique. Avoid high spots by smoothing surface while wet).

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

The spray gun and nozzle can be cleaned with n-butyl acetate.



6 Coverage

The average usage rate using the recommended HVLP spray gun is 15ml per square metre. If applying by paint brush, usage rates will be higher. Usage rates are less using a cloth or pad application. Nanoman Anti-Rust + Corrosion is a single coat application. Avoid applying excessive amounts of the coating and do not apply multiple coats. If there is an excess of coating on the surface material, spread it out evenly using a clean sponge or soft cloth whilst it is still wet. Nanoman Anti-Rust + Corrosion will be touch dry after about one hour.

7 Cure Time

The recommended curing conditions (until water resistant) are:

- 80 °C: two hours
- 130 °C – 180 °C: one hour
- Room temperature: 8–12 hours cure time @ 22°C, 50% R.H.
- The coating is fully effective after 5–7 days curing at room temperature.

Nanoman Anti-Rust + Corrosion 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 levelling of the coating.

8 Physical Characteristics

Article Number: 5860

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|-----------------|----------------------------------|
| • Appearance: | Colourless to pale yellow liquid |
| • Density: | ca. 0.92 g/cm ³ |
| • Binder base: | Organic polysilazane |
| • Solvent base: | n-butyl acetate |
| • Flash point: | < 21 °C |

9 Packaging

Nanoman Anti-Rust + Corrosion is available in the following sizes:

- 125ml
- 250ml
- 1 Litre

10 Shelf Life and Storage

Nanoman Anti-Rust + Corrosion is sensitive to moisture contamination. It is very important to quickly close the 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.
- months from delivery date, at 20 °C.
- Storage temperatures must be dry and between 40°F (4°C) and 72°F (22°C). Higher temperatures will decrease shelf-life.
- 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 it gels.



11 Safety Instructions

The instructions on the Nanoman Anti-Rust + Corrosion Safety Data Sheet must always be followed.

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Take care when opening container as vapours may be present.
- Avoid breathing dust/fume/gas/mist/ vapours/spray.
- Provide adequate ventilation. If using indoors keep windows and doors open during use.
- Use in well ventilated area and use appropriate respiratory PPE for condition. Select and use respirators in accordance with AS 1716 – Respiratory Protective Devices and be selected in accordance with AS 1715 – Selection, Use and Maintenance of Respiratory Protective Devices.
- In the event of dizziness cease using the product immediately and seek fresh air.
- The wearing of protective gloves/protective clothing/eye protection/face protection is recommended when using this product. Final choice of personal protective equipment will depend upon individual circumstances and/or according to risk assessments undertaken.

Consult SDS for proper handling, clean-up, 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.

It is important to spray Nanoman Anti-Rust + Corrosion in a dust-free environment to avoid surface contamination. Appropriate ventilation, approved respirator, protective clothing and rubber gloves are required to apply the coating and for handling application equipment.

12 Surface Maintenance / Cleaning

Surfaces coated with Nanoman Anti-Rust + Corrosion do not need any special cleaning regime. After coating, the surface should be self-cleaning with rain or mechanical water spray.

If cleaning is necessary, we recommend using a low pH soap and water for clean-up.

If the surface is attacked with graffiti, chewing gum, or poster, we recommend the use of Nanoman Graffiti Remover.

13 Disclaimer

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Users should satisfy themselves that it is suitable for their needs. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. As we cannot control or anticipate the conditions under which this product may be used, each user should review the information in specific context of the planned use. To the maximum extent permitted by law, Nilima Nanotechnologies will not be responsible for damages of any nature resulting from the use or reliance upon the information contained in this data sheet. No express or implied warranties are given other than those implies mandatory by law.

Users should always refer to the most recent issue of the Technical Data Sheet available from www.nanoman.co.in

