# PPG HI-TEMP™ 1027 HD APPLICATION GUIDE

## INTRODUCTION

*PPG HI-TEMP 1027 HD* is a two-component, ambient cured, multi-polymeric matrix/inorganic heat resistant coating system. The coating is designed to prevent corrosion under insulation (CUI) of carbon steel and stainless steel and corrosion on non-insulated surfaces in operating windows ranging from cryogenic -196°C (-312°F) to 650°C (1200°F).

Compared to similar products *PPG HI-TEMP 1027 HD* has enhanced wear resistance for ease of transport. The product is designed for single coat application, but may be used in two coats if so specified or when more convenient on complex structures.

This document provides details for the application of the *PPG HI-TEMP 1027 HD* and is a supplement to the Product Data Sheet and the Safety Data Sheet.

## GENERAL DESCIRPTION

*PPG HI-TEMP 1027 HD* will form a film with pencil hardness greater than 2B in a few days curing to a final hardness without heat exposure of F-H depending on thickness and curing conditions. Under normal in-shop or on-site air-dry conditions, the coated items can be transported and/or erected after 24 hours without a heat cure.

## SURFACE PREPARATION

Substrate conditions of carbon steel for insulated and non-insulated service

- Must be free of oil, dirt, grease and all other contaminants, especially salts
- Round off all rough welds and sharp edges. Remove weld spatter
- Recommended: dry abrasive blast cleaning to SSPC-SP 6, “Commercial Blast” (ISO-Sa 2) with a 25 to 50 µm (1.0 to 2.0mils) profile

Substrate conditions of stainless steel for insulated and non-insulated service

- Must be free of oil, dirt, grease and all other contaminants, especially salts
- Round off all rough welds and sharp edges. Remove weld spatter
- Small surfaces may be cleaned with a chlorinated-free solvent. Large surfaces may be cleaned utilizing a high- or low pressure wash or steam cleaning with an alkaline detergent (such as Prep 88), followed by a fresh-water rinse. Water used should be potable grade or better and should be checked to assure minimal salt content. Do not use any chemical additives in the rinse water
- Recommended: dry abrasive blast cleaning with a non-metallic abrasive to an even matt surface with 25 to 50µm (1.0 to 2.0mils) profile

Note: Do not use chlorinated solvents on stainless steel surfaces

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## ENVIRONMENTAL CONDITIONS FOR APPLICATION

- Substrate temperature during application should be between 10°C (50°F) and 66°C (151°F)
- Substrate temperature during application should be at least 3°C (5°F) above dew point
- Relative humidity during curing should be above 20% and below 90%

During curing, the temperature may drop to 0°C (32°F). However, the dry to handle/transport time will be roughly double if exposure is continuous.

## THINNING

*PPG HI-TEMP 1027 HD* does not require thinning before application.

## MIXING

*PPG HI-TEMP 1027 HD* is a heavy bodied two-component product that tends to settle to some degree during storage and transport. When opening the can, the liquid phase will be at the top. Pre-mix each component with a power mixer at moderate speeds to homogenize the material in the individual containers.

Add component B to component A and agitate with a power mixer for 1–2 minutes until completely dispersed and homogenized.

## APPLICATION

Keep the material mixed or regularly agitated during application.

Whenever possible, spray application should be used as conventional, HVLP or airless spray application will provide a smoother finish rather than roll and brush application.

### Airless spray application

It is recommended to use surge filters (30 mesh minimum) in pump and in line in gun housing.

Limit the pump pressure to the minimum required for aa stable and even spray fan. Increased pressure will mainly create more over-spray and dry-spay and has a limited effect on through-put.

The specified thickness should be applied as a single coat in multiple thin passes to control thickness and allow solvent to evaporate evenly. The *PPG HI-TEMP 1027 HD* Product Data Sheet provides guidance on equipment, pressure and tip-sizes. The minimum re-coating/top-coat time mentioned there refer to compatible topcoats. *PPG HI-TEMP 1027 HD* can be applied in a single coat of multiple thin passes and re-coated with itself without considering a minimum over coating time.

Avoid arcing and overreaching and too much distance between the nozzle and substrate as this may result in dry-spray. For difficult to reach areas, a natural hair brush may be considered.

The dried coating surface may be similar to fine sand paper.

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## Roller and brush application

Use a short nap 6mm (¼") or less, non-shedding, solvent resistant roller or natural hair brush.

Saturate the roller or brush. Apply coating in 1 direction only to lay the coating onto the substrate in a uniform film.

Care must be taken to ensure the minimum specified film thickness requirements are achieved when rolling or brushing due to the rough texture of the dried coating.

The coating should be allowed to flash off and be visually dry before next coat is applied.

## RESULTING FILM

Insufficient film thickness may result in premature rusting and reduced service life.

Excessive film thickness will result in extended drying and curing times and in extreme cases cracking when exposed to the intended service temperatures.

Dry spray on bare steel before application may result in reduced performance.

## REPAIR

Either the single component *PPG HI-TEMP 1027™* or *PPG HI-TEMP 1027 HD* can be used for repair of *PPG HI-TEMP 1027 HD*.

For areas larger than 0.1$m^2$ (1 $ft^2$) touch up or repair in line with the original specification is advised.

For smaller areas, surface preparation using power tools such as a bristle blaster is acceptable to remove existing coating and rust and ensure a light profile (prevent polishing the surface when using grinding equipment). The cleanliness requirements are the same as the original specification.

Overspray should be removed by a light sanding and fresh water wash. In case bare metal shines thought or the remaining Dry Film Thickness (DFT) is below the minimum specified, refer to above for building up a closed film of the specified thickness.

## PACKAGING FOR TRANSPORT

*PPG HI-TEMP 1027 HD* has excellent resistance to the elements during transport. However, if the decision is made to package coated items, shrink wrapping, taping and direct encapsulation is not recommended. Some incorporated solvents will continue to evaporate for a period of time depending on environmental conditions.

Packaging for shipping should include offset blocking with an air gap to allow for continuous airflow to aid evaporation and prevent encapsulating (salt) water on the surface.

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## APPLICATION INSPECTION TEST CHECKLIST GUIDE

1. Surface preparation
   a) Ensure surface is prepared in accordance with the specification and in accordance with Product Data Sheet
2. Coating materials
   a) Ensure that the material has not passed its shelf life and has been stored in line with the product documentation
   b) Ensure that all materials are mixed properly and no solids remain settled at the bottom of the can. Mechanical mixing is required
   c) Thinning is typically not required and should only be done as directed on the Product Data Sheet or by a PPG representative
3. Application to ambient substrates
   a) Spray application is preferred
   b) Apply in multiple passes to achieve the specified film thickness
4. Post-dry inspection
   a) Use the product datasheet to provide direction as to recoat times and drying/curing times
   b) The coating adhesion can be verified according to ASTM D3359 after 1-2 days. Results will typically be in the 4-5 range.
   c) If so specified, adhesion can be verified by ASFT D4541 (dolly pull-off adhesion) with a typical result of over 2MPa (300 psi) cohesive failure
   d) Pencil hardness of the coating can be checked after 24h at ambient 20°C (68°F) with a typical result of 4B or higher
   e) Areas damaged as a result of destructive testing should be repaired as soon as possible. *PPG HI-TEMP 1027* is compatible with and can be used for touch-up of *PPG HI-TEMP 1027 HD*.