PPG HI-TEMP™ 1000

DESCRIPTION

One component, heat-resistant, universal silicone topcoat for use in elevated temperature systems. Replaces HI-TEMP 1000 V / VS / VHA

PRINCIPAL CHARACTERISTICS

- Heat-resistant topcoat with highly engineered silicone resin; able to withstand severe thermal cycling to 540°C (1000°F)
- Superior color stability to 540°C (1000°F)
- Air dries rapidly
- Can be applied at a variety of temperatures – from 10 to 260°C (50 to 500°F)
- Excellent spray application properties
- User-friendly system with excellent brush and roller application characteristics
- Excellent weathering and corrosion resistance when applied over properly primed surfaces
- No softening in thermal cyclic service

COLOR AND GLOSS LEVEL

- Standard and custom colors, including aluminum
- Flat

Note:

- Some custom colors may discolor below 540°C (1000°F)

BASIC DATA AT 20°C (68°F)

Data for product	
Number of components	One
Mass density	1.4 kg/l (11.9 lb/US gal)
Volume solids	40 ± 2%
VOC (Supplied)	EPA Method 24: 302.0 g/ltr (2.5 lb/USgal)
Temperature resistance (Continuous)	To 540°C (1000°F)
Temperature resistance (Intermittent)	To 600°C (1112°F)
Color stability standard and custom colors	To 540°C (1000°F)
Recommended dry film thickness	25 - 50 µm (1.0 - 2.0 mils) per coat
Theoretical spreading rate	16.0 m^2/l for 25 µm (642 ft^2/US gal for 1.0 mils)
Dry to touch	2 hours
Dry to handle	24 hours
Shelf life	At least 24 months when stored cool and dry

Notes:

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- VOC data by EPA Method 24: consider DMC (DiMethyl Carbonate) as exempt
- See ADDITIONAL DATA – Curing time
- See ADDITIONAL DATA – Spreading rate and film thickness

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

New or corroded surfaces

- For corrosion resistant service, use of an approved corrosion resistant primer is necessary. Surfaces to be coated with PPG HI-TEMP 1027 primer or Inorganic Zinc (IOZ) must be prepared and primed in accordance with the appropriate product data sheet. Consult a PPG representative for alternate and approved primers, and if approved, prepare the surface and apply the primer in accordance with the product data sheet for the approved primer. Allow appropriate dry time. Apply one coat of PPG HI-TEMP 1000 topcoat at 25- 50 um (1.0 – 2.0 mils) DFT
- For cosmetic service only, an approved corrosion resistant primer is recommended but not necessary. Abrasive blast clean to SSPC-SP 6 “Commercial Blast” (ISO-Sa2) with profile 25 to 38 um (1.0 to 1.5 mils) or pressure wash to an equivalent of SSPC-SP6 condition. Surfaces to be coated must be dry and free of salts, weld splatter, oil, dirt, grease, and all other contaminants. Round off all rough welds and sharp edges. Apply two coats of PPG HI-TEMP 1000 topcoat at 38 to 50 um (1.5 to 2.0 mils) DFT per coat for a total of 75 to 100 um (3-4 mils) DFT

Previously painted surfaces in good condition

- If old coating is intact and there is no evidence of cracking, fracturing, and/or delamination, pressure wash surface to remove all salts, oil, grease, and contaminants and apply one coat of PPG HI-TEMP 1000 at 25- 50 um (1.0 – 2.0 mils) DFT

Previously painted surfaces in poor condition with some localized corrosion

- If the old coating shows evidence of cracking, fracturing, delamination, and/or corrosion, follow surface preparation guidelines for new steel. If there is no evidence of cracking, fracturing, or delamination, just small areas of corrosion (less than 10% of the area to be coated), power wash the entire structure, removing all salts, oil, grease, and other contaminants. Once dry, perform surface preparation and apply PPG HI-TEMP 1027 in accordance with the product data sheet on all areas where the existing paint has been removed. Once these areas are primed and dry, apply one coat of PPG HI-TEMP 1000 at 25- 50 um (1.0 – 2.0 mils) DFT over the entire surface

Note:

- Prior to application of the PPG HI-TEMP 1000 topcoat over other coatings, prepare a small test patch area and test for adhesion

Substrate temperature

- Substrate temperature during application should be between 10°C (50°F) and 93°C (200°F)
- Substrate temperature during application should be at least 3°C (5°F) above dew point
- Application to hot substrate: should be above 93°C (199°F) and below 260°C (500°F)

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Initial High Temperature Exposure

- Note: for initial high temperature exposure, substrate temperature should be increased slowly at a rate of 1 - 2°C per minute to 177°C - 204°C (350°F - 400°F) and held for 2 hours. After this procedure has been completed, full film properties and thermal cycling resistance will be achieved.

SYSTEM SPECIFICATION

Uninsulated steel - Option 1

- PPG HI-TEMP 1027: 125 to 150 µm (5.0 to 6.0 mils) DFT
- PPG HI-TEMP 1000: 25 to 50 µm (1.0 to 2.0 mils) DFT

Uninsulated steel - Option 2

- Inorganic Zinc (IOZ) or other approved primer (refer to the respective PRODUCT DATA SHEET for DFT)
- PPG HI-TEMP 1000: 25 to 50 µm (1.0 to 2.0 mils) DFT

INSTRUCTIONS FOR USE

- Use mechanical agitation for mixing. Mix materials until uniform in consistency.
- Thinning is normally not required, except for hot application. If a condition warrants thinning, only PPG thinners should be used and in accordance with applicable regulations

Instructions for application to hot steel

- Use the following procedure when applying to surfaces ranging from 93°C (200°F) to 260°C (500°F)
- Thin PPG HI-TEMP 1000 5% by volume with recommended thinner and apply in thin passes. This helps solvent escape the coating without leaving pinholes behind. This application is similar to mist coating
- Do not apply a heavy coat to a hot surface or blistering will occur. If this happens, immediately take a brush (use wood handled brushes with China bristles only – do not use a brush with synthetic bristles) and brush out the blister before it sets.
- Application to hot surfaces can result in dry spray. To avoid dry spray, control spray distance

Note:

- Do not thin with any solvent other than those recommended above. A fire hazard could occur if using a different solvent. Dry spray and poor film characteristics may also occur.

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Air spray

Volume of thinner

0 - 5%, depending on required thickness and application conditions

Nozzle orifice

1.8 – 2.2 mm (approx. 0.070 – 0.087 in)

Nozzle pressure

0.4 - 0.6 MPa (approx. 4 - 6 bar; 58 - 87 p.s.i.)

Airless spray

Volume of thinner

0 - 5%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.43 – 0.53 mm (0.017 – 0.021 in)

Nozzle pressure

20.7 MPa (approx. 207 bar; 3003 p.s.i.)

Brush/roller

Volume of thinner

Up to 5% THINNER can be added if desired

Note:

- Spray application is recommended but when spray painting is not possible, brush or roller is an appropriate method. The coating should be applied with a suitable brush or short nap roller.

Cleaning solvent

- THINNER 21-25 (AMERCOAT 101)
- THINNER 21-06 (AMERCOAT 65)
- THINNER 97-739 for VOC compliant only

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ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
25 µm (1.0 mils)	16.0 m^2/l (642 ft^2/US gal)
50 µm (2.0 mils)	8.0 m^2/l (321 ft^2/US gal)

Curing time for DFT up to 50 µm (2.0 mils)			
Substrate temperature	**Dry to touch**	**Dry to overcoat**	**Dry to handle**
10°C (50°F)	4 hours	10 hours	3 days
20°C (68°F)	3 hours	8 hours	24 hours
32°C (90°F)	1.5 hours	6 hours	16 hours
66°C (151°F)	30 minutes	4 hours	12 hours
149°C (300°F)	N/A	30 minutes	N/A
177°C (350°F)	N/A	20 minutes	N/A
232°C (450°F)	N/A	15 minutes	N/A

Note:

- When shipping and handling equipment coated with PPG HI-TEMP 1000, follow industry standard procedures for thin film coatings. Avoid mechanical damage and abrasion

SAFETY PRECAUTIONS

- The product is for use only by professional applicators in accordance with information in this product data sheet and the applicable material safety data sheet (MSDS). Refer to the appropriate MSDS before using this material. All use and application of this product should be performed in compliance with all relative federal, state and local, health, safety and environmental regulations or in compliance with all pertinent local, regional and national regulations as well as good safety practices for painting, and in conformance with recommendations in SSPC PA 1, “Shop, Field and Maintenance Painting of Steel.”

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective & Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

REFERENCES

- Information sheet | Explanation of product data sheets

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WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

LIMITATIONS OF LIABILITY

IN NO EVENT WILL PPG BE LIABLE UNDER ANY THEORY OF RECOVERY (WHETHER BASED ON NEGLIGENCE OF ANY KIND, STRICT LIABILITY OR TORT) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO, ARISING FROM, OR RESULTING FROM ANY USE MADE OF THE PRODUCT. The information in this sheet is intended for guidance only and is based upon laboratory tests that PPG believes to be reliable. PPG may modify the information contained herein at any time as a result of practical experience and continuous product development. All recommendations or suggestions relating to the use of the PPG product, whether in technical documentation, or in response to a specific inquiry, or otherwise, are based on data, which to the best of PPG's knowledge, is reliable. The product and related information is designed for users having the requisite knowledge and industrial skills in the industry and it is the end-user's responsibility to determine the suitability of the product for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. PPG has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, PPG does not accept any liability arising from any loss, injury or damage resulting from such use or the contents of this information (unless there are written agreements stating otherwise). Variations in the application environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. This sheet supersedes all previous versions and it is the Buyer's responsibility to ensure that this information is current prior to using the product. Current sheets for all PPG Protective & Marine Coatings Products are maintained at www.ppgpmc.com. The English text of this sheet shall prevail over any translation thereof.