

PPG HI-TEMP™ 222 G

(HEATCOAT 884)

DESCRIPTION

One-component, high-build multi-polymeric composite heat resistant coating to prevent corrosion of insulated and non-insulated carbon steel and stainless steel to temperatures up to 204°C (400°F) and for cryogenic service on stainless steel from -185°C to 204°C (-300°F to 400°F). Also to be used as a primer with PPG HI-TEMP topcoats and with the PPG HI-TEMP 707 HB liquid insulation system.

PRINCIPAL CHARACTERISTICS

- Can be used as a primer with PPG HI-TEMP 500 VS as a topcoat
- Can be used as a primer with PPG HI-TEMP 707 HB liquid insulation system
- Meets CS-1, CS-3 and CS-4 in NACE SPO198-10 for corrosion under insulation
- Meets SS-1, SS-2 and SS-3 in NACE SP0198-10 for chloride induced stress corrosion cracking
- Durable, tough coating
- Can be applied to ambient substrates and to hot substrates having a metal temperature up to 204°C (400°F)
- Resistant to thermal shock and thermal cycling in intermittent (wet, dry, wet) service
- Forms a superior corrosion resistant system when applied over properly prepared surfaces

COLOR AND GLOSS LEVEL

- Dark gray
- Flat

BASIC DATA AT 20°C (68°F)

Data for product	
Number of components	One
Mass density	1.8 kg/l (15.1 lb/US gal)
Volume solids	50 ± 2%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 265.0 g/kg max. 372.0 g/l (approx. 3.1 lb/US gal)
Temperature resistance (Continuous)	To 204°C (400°F)
Temperature resistance (Intermittent)	To 232°C (450°F)
Cryogenic service	-185°C (-300°F) to 204°C (400°F)
Recommended dry film thickness	100 - 250 µm (4.0 - 10.0 mils) depending on system
Theoretical spreading rate	5.0 m ² /l for 100 µm (200 ft ² /US gal for 4.0 mils)
Dry to touch	2 hours
Dry to topcoat	18 hours
Dry to handle	24 hours



PPG HI-TEMP™ 222 G

(HEATCOAT 884)

Data for product

Shelf life	At least 12 months when stored cool and dry
------------	---

Notes:

- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Carbon steel

- Surface to be coated should be dry and free of all weld splatter, oil, dirt, grease, and all other contaminants, especially salts. Round off all rough welds and sharp edges. Dry abrasive blast clean to an SSPC-SP 6, “Commercial Blast” (ISO-Sa 2) with a 38 to 63 µm (1.5 to 2.5 mils) profile. Wet abrasive blast or UHP wash with grit injection to achieve an equivalent of a SSPC SP 6 (ISO-Sa 2).

Note: If abrasive blast preparation is not possible, use SSPC-SP11, power tool cleaning to bare steel with a 25 µm (1.0 mil) profile

Stainless steel

- All surfaces to be coated with PPG HI-TEMP 222 G shall be free of all weld splatter, oil, dirt, grease, and all other contaminants, especially salts. Round off all rough welds and sharp edges.

Note: Do not use chlorinated solvents on stainless steel surfaces

Non-insulated and insulated surfaces

- 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, followed by a freshwater 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
- An anchor profile is not mandatory for adhesion of PPG HI-TEMP 222 G on stainless steel surfaces. As an option, following cleaning, a light abrasive sweep blast using an appropriate chloride-free abrasive may be performed. After completion of this mechanical surface preparation, rinse the surface with potable grade water or better. Always allow rinsed surfaces to dry before coating.

Substrate temperature

- Substrate temperature during application should be between 10°C (50°F) and 66°C (150°F)
- Substrate temperature during application should be at least 3°C (5°F) above dew point
- Application to hot substrate: should be above 66°C (150°F) and below 204°C (400°F)

SYSTEM SPECIFICATION

Under insulation ambient or hot application (66°C (150°F) to 204°C (400°F)) – one coat

- PPG HI-TEMP 222 G: 200 to 250 µm (8.0 to 10.0 mils) DFT



PPG HI-TEMP™ 222 G

(HEATCOAT 884)

Under insulation ambient or hot application (66°C (150°F) to 204°C (400°F)) – two coats

- PPG HI-TEMP 222 G: 100 to 125 µm (4.0 to 5.0 mils) DFT
- PPG HI-TEMP 222 G: 100 to 125 µm (4.0 to 5.0 mils) DFT

Notes:

- A minimum of 200 µm (8.0 mils) shall be applied for protection against Corrosion Under Insulation (CUI)
- Maximum temperature resistance for under insulation is 204°C (400°F) with intermittent temperature resistance to 232°C (450°F)

Primer / topcoat system ambient or hot application (66°C (150°F) to 149°C (300°F))

- PPG HI-TEMP 222 G: 125 to 150 µm (5.0 to 6.0 mils)
- PPG HI-TEMP 500 VS: 50 to 63 µm (2.0 to 2.5 mils)

Primer / topcoat system hot application from 149°C (300°F) to 204°C (400°F)

- PPG HI-TEMP 222 G: 125 to 150 µm (5.0 to 6.0 mils)
- PPG HI-TEMP 500 VHA: 50 to 63 µm (2.0 to 2.5 mils)

Primer / Liquid Insulation system

- PPG HI-TEMP 222 G: 125 to 150 µm (5.0 to 6.0 mils)
- PPG HI-TEMP 707 HB: 1000 to 1250 µm (40.0 to 50.0 mils) DFT per layer

INSTRUCTIONS FOR USE

- PPG HI-TEMP 222 G is a heavy bodied material; use mechanical agitation for mixing immediately before application and as needed during application. Be sure any settled solids are incorporated during mixing.
- If a condition warrants thinning, only PPG thinners should be used and in accordance with applicable regulations.
- It is essential to apply multiple thin passes of PPG HI-TEMP 222 G during application to hot steel. This process, similar to mist coating, prevents blistering and also allows solvent to escape without leaving pinholes. Use of a solvent other than THINNER 21-25 or PPG HI-TEMP THINNER 5 could produce a fire hazard, and dry spray and poor film characteristics may also result. If blisters are observed in PPG HI-TEMP 222 G applied to hot surfaces, immediately brush out the blisters before they set, using a wood handled China bristle brush. Note that the higher the substrate temperature, the shorter the recoat time.

PPG HI-TEMP™ 222 G

(HEATCOAT 884)

Air spray

Recommended thinner - application to ambient substrate below 66°C (150°F)

- THINNER 21-06 (PPG HI-TEMP THINNER 11/AMERCOAT 65)
- THINNER 91-10 or PPG HI-TEMP THINNER 10 (VOC compliant)

Recommended thinner - application to hot substrate at 66°C (150°F) up to 204°C (400°F)

- THINNER 21-25 or PPG HI-TEMP THINNER 5

Volume of thinner

Ambient application: 0 - 5%; Hot application: 0 - 10%, 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

Recommended thinner - application to ambient substrate below 66°C (150°F)

- THINNER 21-06 (PPG HI-TEMP THINNER 11/AMERCOAT 65)
- THINNER 91-10 or PPG HI-TEMP THINNER 10 (VOC compliant)

Recommended thinner - application to hot substrate at 66°C (150°F) up to 204°C (400°F)

- THINNER 21-25 or PPG HI-TEMP THINNER 5

Volume of thinner

Ambient application: 0 - 5%; Hot application: 0 - 10%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.48 – 0.53 mm (0.019 – 0.021 in)

Nozzle pressure

5.2 - 8.3 MPa (approx. 52 - 83 bar; 754 - 1204 p.s.i.)

PPG HI-TEMP™ 222 G (HEATCOAT 884)

Brush/roller

Recommended thinner - application to ambient substrate below 66°C (150°F)

- THINNER 21-06 (PPG HI-TEMP THINNER 11/AMERCOAT 65)
- THINNER 91-10 or PPG HI-TEMP THINNER 10 (VOC compliant)

Recommended thinner - application to hot substrate at 66°C (150°F) up to 204°C (400°F)

- THINNER 21-25 or PPG HI-TEMP THINNER 5

Volume of thinner

Ambient application: 0 - 5%; Hot application: 0 - 10% can be added if desired

Note: Spray application is recommended but when spray painting is not possible, brush or roller is an appropriate application method. The coating should be applied with a suitable brush or short nap roller. Brushing and rolling in one direction may aid in building film thickness.

Cleaning solvent

- THINNER 21-06 (PPG HI-TEMP THINNER 11/AMERCOAT 65)
- THINNER 91-10 or PPG HI-TEMP THINNER 10 (VOC compliant)
- THINNER 21-25 or PPG HI-TEMP THINNER 5

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
100 µm (4.0 mils)	5.0 m ² /l (200 ft ² /US gal)
125 µm (5.0 mils)	4.0 m ² /l (160 ft ² /US gal)
200 µm (8.0 mils)	2.5 m ² /l (100 ft ² /US gal)
250 µm (10.0 mils)	2.0 m ² /l (80 ft ² /US gal)

Overcoating interval for DFT up to 150 µm (6.0 mils)				
Overcoating with...	Interval	10°C (50°F)	20°C (68°F)	>150°C (300°F)
PPG HI-TEMP 500 VS	Minimum	18 hours	18 hours	N/A
	Maximum	3 months	3 months	3 months
PPG HI-TEMP 500 VHA	Minimum	N/A	N/A	15 minutes
	Maximum	N/A	N/A	3 months
itself	Minimum	18 hours	6 hours	N/A
	Maximum	3 months	3 months	3 months

Note: Do not exceed recommended dry film thickness when applying to un-insulated steel



PPG HI-TEMP™ 222 G (HEATCOAT 884)

Curing time for DFT up to 150 µm (6.0 mils)

Substrate temperature	Dry to recoat/topcoat	Dry to handle/ship
10°C (50°F)	4 hours	48 hours
20°C (68°F)	2 hours	24 hours
121°C (250°F)	N/A	N/A

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 and 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

- CONVERSION TABLES INFORMATION SHEET 1410
- EXPLANATION TO PRODUCT DATA SHEETS INFORMATION SHEET 1411

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.ppgmc.com. The English text of this sheet shall prevail over any translation thereof.

The PPG Logo, Bringing innovation to the surface., and all other trademarks herein are property of the PPG group of companies.