PPG HI-TEMP 1027™

DESCRIPTION
One-component, high-build heat-resistant inert multipolymeric matrix / inorganic ceramic coating

PRINCIPAL CHARACTERISTICS
- Designed to prevent corrosion under insulation (CUI) of carbon steel and stainless steel
- Prevent external stress corrosion cracking (ESCC) of austenitic and duplex stainless steel
- Resistant to thermal shock / cycling and intermittent immersion and boiling water
- Continuous temperature resistance to 650°C (1200°F) and intermittent temperature resistance to 760°C (1400°F)
- Cyclic temperature resistance from -196°C (-320°F) to 540°C (1000°F)
- Surface tolerant and stable against UV
- May be used as primer for PPG HI-TEMP heat-resistant color topcoats
- Complies with NACE SP0198 for austenitic stainless steels and carbon steels under thermal insulation

COLOR AND GLOSS LEVEL
- Black, gray and light gray
- Flat

Notes:
- Minor color differences may occur due to batch variation and from exposed service, but corrosion protection will not be compromised
- For best results, use black or gray color as first coat

BASIC DATA AT 20°C (68°F)

<table>
<thead>
<tr>
<th>Data for product</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of components</td>
<td>One</td>
</tr>
<tr>
<td>Mass density</td>
<td>1.9 kg/l (16.0 lb/US gal)</td>
</tr>
<tr>
<td>Volume solids</td>
<td>72 ± 2%</td>
</tr>
<tr>
<td>VOC (Supplied)</td>
<td>Directive 2010/75/EU, SED: max. 210.0 g/kg max. 420.0 g/l (approx. 3.5 lb/US gal) EPA Method 24: 390.0 g/ltr (3.3 lb/USgal) China GB 30981-2020 (tested) 443.0 g/l (approx. 3.7 lb/gal)</td>
</tr>
<tr>
<td>Recommended dry film thickness</td>
<td>125 - 250 μm (5.0 - 10.0 mils) depending on requirements</td>
</tr>
<tr>
<td>Theoretical spreading rate</td>
<td>5.8 m²/l for 125 μm (231 ft²/US gal for 5.0 mils) 2.9 m²/l for 250 μm (115 ft²/US gal for 10.0 mils)</td>
</tr>
<tr>
<td>Dry to overcoat/topcoat</td>
<td>6 hours</td>
</tr>
<tr>
<td>Dry to handle/ship</td>
<td>24 hours</td>
</tr>
</tbody>
</table>
PPG HI-TEMP 1027™

Data for product

| Shelf life | At least 24 months when stored cool and dry |

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

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

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 is dry abrasive blast cleaning to SSPC-SP 6, “Commercial Blast” (ISO-Sa 2) with a 25 to 50 µm (1.0 to 2.0 mils) profile
- Alternative methods to abrasive blast cleaning include : ISO-St2 (SSPC-SP-2), ISO-St3 (SSPC-SP-3), SSPC-SP-15 or SSPC-SP WJ-2 or WJ-3 with dry surface
- For application in cryogenic service and for application over inorganic zinc (IOZ), refer to the PPG HI-TEMP 1027 Application Guide
- For service not exceeding 150°C (300°F) please contact PPG representative

Substrate conditions of stainless steel for insulated and non-insulated service
- Suitable austenitic stainless grades for PPG HI-TEMP 1027 are 304, 316 and 410. For other stainless steel grades, please contact PPG Technical Support
- Must be free of oil, dirt, grease and all other contaminants, especially salts
- Round off all rough welds and sharp edges. Remove weld spatter
- An anchor profile is not mandatory for adhesion of PPG HI-TEMP 1027 on stainless steel surfaces. If required, brush-off blast cleaning to SSPC-SP-2, SSPC-SP-3, or SSPC-SP-16 using a chloride-free abrasive may be used
- Temperature not to exceed 540°C (1000°F) under cyclic conditions

Substrate temperature and application conditions
- 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 application should not exceed 85%, and good ventilation is required
- Application to hot substrate: should be above 66°C (151°F) and below 316°C (600°F)

Notes:
- If the air temperature is expected to fall below 10°C (50°F) during drying, the dry time must be extended
- For application to substrates over 200°C (392°F) to 316°C (600°F) a PPG representative needs to be consulted
PPG HI-TEMP 1027™

SYSTEM SPECIFICATION

**Insulated and non-insulated service: applied direct to ambient or hot carbon steel**
- Option 1 for insulation service
- PPG HI-TEMP 1027: minimum 250 µm (10 mils) DFT continuous application using multiple spray passes. Refer to application guide for additional details
- Option 2 for insulation service (two coat system)
- PPG HI-TEMP 1027: 75 to 100 µm (3.0 to 4.0 mils) DFT
- PPG HI-TEMP 1027: 175 to 200 µm (7.0 to 8.0 mils) DFT
- Option 3 for high corrosive condition (C4-C5) without topcoat and when sea transportation is necessary
- PPG DIMETCOTE 9: 50 to 75 µm (2.0 to 3.0 mils) DFT
- PPG HI-TEMP 1027: 200 to 250 µm (8.0 to 10.0 mils) DFT

Notes:
- Hot application is not applicable to PPG DIMETCOTE 9
- Systems with PPG DIMETCOTE 9 as a primer can withstand service temperatures up to 650°C (1200°F) provided that DFT for PPG DIMETCOTE 9 is comprised between 50 to 63.5 µm (2.0 to 2.5 mils)

**Insulated and non-insulated service: applied direct to ambient or hot stainless steel**
- PPG HI-TEMP 1027: 150 to 250 µm (6.0 to 10.0 mils) DFT continuous application with multiple spray passes

**Primer/topcoat system – non-insulated service: applied direct to ambient or hot carbon and stainless steel**
- PPG HI-TEMP 1027: 175 to 200 µm (7.0 to 8.0 mils) DFT
- Compatible PPG HI-TEMP topcoats to their respective maximum service temperatures: PPG HI-TEMP 500 or PPG HI-TEMP 1000. Consult a PPG representative for application to hot substrates.

INSTRUCTIONS FOR USE

- PPG HI-TEMP 1027 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 thinning is needed, thin only with PPG thinners and in accordance with applicable regulations. Agitate as needed during application.
- For application to hot substrate, apply multiple thin passes of PPG HI-TEMP 1027. This process, similar to mist coating, prevents blistering and also allows solvent to escape. If blisters are observed, immediately brush out the blisters before they set, using a wire brush
- Spray application is recommended, but when it is not possible, may be applied using roller or brush. For more specific instructions regarding roller and brush application, refer to the PPG HI-TEMP 1027 Application Guide

Air spray
- No thinner is recommended

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.)
**PPG HI-TEMP 1027™**

**Airless spray**
- No thinner is recommended

**Nozzle orifice**
Approx. 0.48 mm (0.019 in)

**Nozzle pressure**
12.0 - 16.0 MPa (approx. 120 - 160 bar; 1741 - 2321 p.s.i.)

Note: Use the lowest possible spraying pressure to avoid dry spraying

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**Brush/roller**

**Recommended thinner - application to ambient substrate below 66°C (150°F)**
- THINNER 21-06 (AMERCOAT 65)
- THINNER 91-10 for VOC compliant only

**Recommended thinner - application to hot substrate at 66°C (150°F) up to 260°C (500°F)**
- THINNER 21-25 (AMERCOAT 101)
- Use of other thinners could produce a fire hazard

**Volume of thinner**
Up to 5% THINNER can be added if desired

Note: Due to thixotropic nature of the paint, it is difficult to obtain a smooth film by brush, although this does not affect performance

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**Cleaning solvent**
- THINNER 21-06 (AMERCOAT 65)
- THINNER 21-25 (AMERCOAT 101)
- THINNER 91-10 for VOC compliant only

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**ADDITIONAL DATA**

**Spreading rate and film thickness**

<table>
<thead>
<tr>
<th>DFT</th>
<th>Theoretical spreading rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 µm (5.0 mils)</td>
<td>5.8 m²/l (231 ft²/US gal)</td>
</tr>
<tr>
<td>150 µm (6.0 mils)</td>
<td>4.8 m²/l (192 ft²/US gal)</td>
</tr>
<tr>
<td>200 µm (8.0 mils)</td>
<td>3.6 m²/l (144 ft²/US gal)</td>
</tr>
<tr>
<td>250 µm (10.0 mils)</td>
<td>2.9 m²/l (115 ft²/US gal)</td>
</tr>
<tr>
<td>300 µm (12.0 mils)</td>
<td>2.4 m²/l (96 ft²/US gal)</td>
</tr>
</tbody>
</table>
Overcoating interval for DFT up to 250 µm (10.0 mils)

<table>
<thead>
<tr>
<th>Overcoating with...</th>
<th>Interval</th>
<th>10°C (50°F)</th>
<th>20°C (68°F)</th>
<th>38°C (100°F)</th>
<th>150°C (302°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
<td>24 hours</td>
<td>8 hours</td>
<td>5 hours</td>
<td>15 minutes</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>PPG HI-TEMP 500 or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPG HI-TEMP 1000</td>
<td>Minimum</td>
<td>24 hours</td>
<td>8 hours</td>
<td>5 hours</td>
<td>15 minutes</td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
</tbody>
</table>

Curing time for DFT up to 250 µm (10.0 mils)

<table>
<thead>
<tr>
<th>Substrate temperature</th>
<th>Dry to recoat/topcoat</th>
<th>Dry to handle/ship</th>
<th>Dry to insulate/service</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°C (50°F)</td>
<td>16 hours - 24 hours</td>
<td>36 hours</td>
<td>3 days</td>
</tr>
<tr>
<td>20°C (68°F)</td>
<td>6 hours - 8 hours</td>
<td>24 hours</td>
<td>48 hours</td>
</tr>
<tr>
<td>38°C (100°F)</td>
<td>4 hours - 6 hours</td>
<td>16 hours</td>
<td>36 hours</td>
</tr>
<tr>
<td>150°C (300°F)</td>
<td>15 minutes</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Notes:
- For insulation, the drying times have to be doubled from dry to handle time to ensure sufficient solvent evaporation
- Drying times can vary based on environmental and substrate conditions. Do not exceed maximum dry film thickness recommendations as this can affect dry times
- When operating temperature is less than 150°C (300°F), the coating is tough and durable. PPG HI-TEMP 1027 will increase and maintain a hardness of 2H when it is heated more than 150°C (300°F)

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

- EXPLANATION TO PRODUCT DATA SHEETS
  INFORMATION SHEET 1411
- PPG HI-TEMP 1027 APPLICATION GUIDE
  INFORMATION SHEET P417
PPG HI-TEMP 1027™

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