PPG PITT-THERM® 909

DESCRIPTION

Two-component, monolithic, high-build, spray-applied, inorganic coating that provides thermal insulation and personnel protection up to 260˚C (500˚F)

PRINCIPAL CHARACTERISTICS

- Offers an economical alternative to conventional insulation and jacketing
- Lowers energy consumption
- Provides personnel protection, reducing burn injuries
- Prevents or reduces condensation
- 100% adherent, hydrophobic, and with low permeability
- Can be applied over primer or directly to metal to prevent corrosion under insulation (CUI)
- Suitable for high build applications up to 6.35 mm (250 mils) dry film thickness (DFT) per coat
- Can be applied on hot substrates up to 149°C (300°F)
- Able to withstand cyclic temperatures up to 260˚C (500˚F)
- Easy visual inspection to facilitate future maintenance planning
- Can be repaired easily in the case of mechanical damage
- Dry fall properties on ambient substrates
- Allows control and stabilizes process temperatures for stage tanks, pipelines, and vessels
- Suitable for complex equipment and varying shapes such as spheres, valves, etc
- If primer and topcoat are required, they must be suitable for use with this coating. Refer to system specification section or application guidelines for approved product systems
- ASTM E84 Class A fire rating

COLOR AND GLOSS LEVEL

- Beige
- Provides a textured-to-semi-smooth finish
- Can be topcoated to achieve desired color

BASIC DATA AT 20°C (68°F)

Data for product	
Number of components	2
Mass density	0.6 kg/l (4.6 lb/US gal)
Volume solids	63 ± 2%
VOC (supplied)	EPA Method 24: <250 g/l (2.09 lb/US gal)
Temperature resistance	Up to 260°C (500°F)

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Data for mixed product	
Recommended DFT	2.54 - 6.35 mm (100 - 250 mils) per coat; up to 12.7 mm (500 mils) total
Theoretical spreading rate	0.10 m^2/l for 6.35mm (4.04 ft^2/US gal for 250 mils)
Dry to overcoat	16 hours (50% RH)
Shelf life	At least 12 months when stored cool and dry

Notes
1. See ADDITIONAL DATA – spreading rate and film thickness.
2. See ADDITIONAL DATA – curing time.
3. For additional information, refer to PPG PITT-THERM 909 application guidelines.

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

- Can be applied direct-to-metal or over recommended primers
- Steel surfaces should be abrasive blasted to Sa 2.5 standard grade with 50-150 microns (2-6 mil) profile
- If using a primer, all surfaces should be prepared according to the primer's Product Data Sheet
- Properly primed surfaces must be free from grease, oil, dirt, salts, and other contaminants prior to application of PPG PITT-THERM® 909

Substrate temperature and application conditions

- Substrate temperature during application and curing should be above 5˚C (41˚F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point
- Surface must be free of visible moisture

Hot application

- PPG PITT-THERM® 909 may be applied to surfaces at temperatures up to 149°C (300°F)
- See PPG PITT-THERM® 909 application guide for further details

SYSTEM SPECIFICATION

- Approved (optional) primers include PPG HI-TEMP 900, SIGMATHERM 230, AMERLOCK 2GF / SIGMASHIELD 2, AMERLOCK 400 GF / SIGMASHIELD 400
- Approved (optional) topcoats include PPG HI-TEMP 1000, PITT-TECH PLUS EP DTM

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THICKNESS RECOMMENDATIONS

- For a safe-to-touch temperature for PPG PITT-THERM 909 of 154°C (310°F): minimum DFT of 2.54 mm (100 mils) for operating temperatures up to 260°C (500°F) under laboratory conditions
- Consult PPG technical services to confirm DFT recommendations for safe-to-touch in particular environmental conditions, for use as an insulator for thermal efficiency, or for reduction of condensation formation

*Safe-to-touch temperature is measured and defined by ASTM C177 and ASTM C1055 respectively. The safe-to-touch temperature may be as low as 138°C (280°F) depending on what primer and topcoat, if any, are used. An additional 1.27 - 2.54 mm (50-100 mils) thickness may be required in more extreme environmental conditions. Consult your PPG representative for more information.

INSTRUCTIONS FOR USE

- Store PPG PITT-THERM® 909 in a dry place as close to room temperature as possible. Storage temperature should be between 4°C and 38°C (40°F and 100°F). DO NOT ALLOW TO FREEZE

Mixing ratio by volume: base to hardener 16:1

- Mix parts A* and B separately. Use a Jiffy mixer or paddle type blade at slow speed and mix until fully homogenized. For further mixing instructions, refer to PPG PITT-THERM® 909 application guide
- When properly mixed, the consistency of PPG PITT-THERM® 909 should be highly viscous but free flowing, and without lumps
- Once part B is fully mixed, add the following quantity of distilled water to part B and mix thoroughly before adding to part A:
  0.81 oz (24ml) 4 gal kit (15.1L kit)
  9 oz (266ml) per 44 gal kit (166.6L kit)
- PPG PITT-THERM® 909 should be fully mixed without additional thinning. Any decision to thin the material should be made only after fully mixing and observing the condition of the mixed material. If thinner is needed, only add what is recommended in spray application section

*Part A consistency may contain a solid mass layer at the top of the can when first opened. This is normal and should be thoroughly mixed in as described in this section

Induction time

None

Pot life

8 hours at 20°C (68°F) when material is in a closed container

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Spray

- During fluid transfer or application, pressure must be kept below 3.44 MPa (500 p.s.i.)

Recommended Thinner
- Thinner 21-06 (AMERCOAT 65)

Volume of Thinner
- Thinner is not recommended
- If needed, add no more than 1%

PPG PITT-THERM® 909 is suitable for multiple application methods provided that pressure during fluid transfer does not exceed 3.44 MPa (500 PSI). Below is a list of equipment that has been validated with Pitt-Therm 909. See PPG PITT-THERM® 909 Spray-On Insulation Coating application guide for specific equipment details and additional application methods.

- Epoxy Mortar Piston Pump (Graco ToughTek M680a piston pump) with Graco STX air spray trigger gun and TORTIS STX gun control box, hose bundle, and gun extension – PPG preferred and suggested for most general pipe and large surface applications
- Pneumatic Piston Pump (Graco President 10:1) – recommended for smaller application areas, not recommended for pipes
- HVLP with Pressure Pot – Recommended for small or complicated application areas, pipe of diameter <6 inches, or repairs

* See PPG PITT-THERM® 909 Spray-On Insulation Coating application guide for more details and additional application methods.

Trowel

- For repairs of approximately 15 cm (6 in) or smaller, PPG PITT-THERM® 909 can be applied by trowel
- Apply evenly using a clean trowel
- Follow DFT recommendations as per spray application

Cleaning solvent

- Thinner 21-06 (AMERCOAT 65)

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
2.54 mm (100 mils)	0.25 m^2/l (10.11 ft^2/US gal)
6.35 mm (250 mils)	0.10 m^2/l (4.04 ft^2/US gal)
12.7 mm (500 mils)	0.05 m^2/l (2.02 ft^2/US gal)

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Curing time for DFT up to 6.35 mm (250 mils) at 50% RH		
Substrate temperature	**Dry to touch**	**Dry to handle**
5°C (41°F)	2 hours	2 days
25°C (77°F)	1.25 hours	26 hours
40°C (104°F)	1 hour	23 hours
93°C (200°F)	10 minutes	15 hours
149°C (300°F)	10 minutes	14 hours

Notes:
- Dry times can vary based on environmental and substrate conditions. Relative humidity between 20-90% has minimal effect on cure time.
- Excessive wet film thickness of each layer will significantly impact dry time.

Overcoating Intervals up to 6.35 mm (250 mils) at 50% RH				
Overcoating with	**Interval**	**5°C (41°F)**	**25°C (77°F)**	**40°C (104°F) and above**
Itself	Minimum Maximum	24 hours 30 days	16 hours 30 days	10 hours 30 days
Topcoat	Minimum Maximum	24 hours 14 days	20 hours 14 days	16 hours 14 days

Notes:
- The maximum recoat window for topcoat application can be extended if the previous coat of PPG PITT-THERM® 909 is exposed to high temperatures.
- Please contact your PPG representative for more information.

SAFETY PRECAUTIONS

This product is designed for professional use in accordance with information provided in this product data sheet and the applicable material safety data sheet (MSDS). Please refer to the appropriate MSDS before using this material.

Usage and application of this product should comply with federal, state, and local regulations relating to health, safety, and environment. In addition, usage should be compliant with relevant regional and national regulations, good safety practices for painting, and with recommendations given 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