SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

HPC® COATING

Technical Data Sheet (1/3/23)

DESCRIPTION

HPC® Coating is designed to control heat transfer on surface temperatures up to 450°F degrees (232°C). It is water-borne and extremely lightweight in appearance. HPC® Coating uses a special acrylic resin blend with specific ceramic compounds added to provide a non-conductive block against heat transfer.

HPC® Coating offers a "Green", non-flammable, non-toxic formula for high heat surface applications over standard steam pipe or oven wall construction. HPC® Coating is easily applied using a texture sprayer, and can be applied over metal, concrete, wood, and other substrates.

If HPC® Coating is to be applied over flat steel surfaces, see manufacturer for instructions.

TYPICAL USES

- As an insulation system over hot pipes, tanks, and valves
- To block heat migration into cold tanks, lines, and valves
- As a system to block conductive and convective heat
- Easily applied when a hot system cannot be shut down
- Can be applied over steel, concrete and other building material

APPLICATION METHOD

HPC® can be used for applications 'up to' 450°F (232°C). It must be applied according to Manufacturer's Application Instructions. NOTE: Applications applied over 450°F (232°C) may see the resins turn tan to brown in color next to the hot surface, but the HPC will continue to work as long as the ceramics are still in place.

HPC® Coating can be applied to metal, concrete, masonry and wood.

The application is applied using a texture sprayer. For specific instructions on surface preparation, mixing and application, please refer to the SPI Application Instruction sheet for HPC® Coating.

If HPC® Coating is applied on surfaces outdoors, you **must** overcoat the HPC with SUPER THERM® or SP SEAL COAT HT according to what is needed. It cannot be left uncoated and left exposed to weather conditions. It is lightweight to insulate, which leaves it vulnerable to weather conditions.

NOTE: If the HPC will be applied over metal, concrete or any surface to block heat facing the coating surface, and the surface will face water splash or weathering and withstand up to 450°F (232°C), we would use SP SEAL COAT HT for the topcoat.

HPC® Coating must be completely dry before applying topcoat.

HPC® If needed, Multi-Mesh Membrane System is used on hot pipes when continuous cycles cause out-of-norm vibration or movement, and where continuous impact caused by workers handling the hot pipe is unavoidable. Apply Multi-Mesh Membrane between layers of HPC and SP SEAL COAT HT or ENAMO GRIP for exterior toughness. Multi-Mesh Membrane combined with SP SEAL COAT HT forms a flexible cast for exterior strength and moisture barrier to protect the HPC system.

NOTE: For surfaces over 450°F (232°C), see technical sheet for HPC-HT (high-temp version).

NOTE: If an asset is specified and then a change of assets is made, the new asset to be painted must have a comprehensive engineering review to consider safety concerns before the application is allowed.

TESTS AND CERTIFICATIONS

1. ISO8302/ASTM C 177 – Thermal Conductivity (0.063 W / mK @ 86°F/30°C))
2. ISO 8302 – Thermal Conductivity
3. IMO – MSC.61(67) Smoke and Toxicity Test
4. Marine Approvals – American Bureau of Shipping;
5. USDA Approved
6. Russian field test – w/mK 0.035 avg.

MINIMUM SPREAD RATES (mil thickness)

22.4 sq. ft./gal = 50 mils dry film thickness
11.2 sq. ft./gal = 100 mils dry film thickness
5.61 sq. ft./gal = 200 mils dry film thickness
4.5 sq. ft./gal = 250 mils dry film thickness

PHYSICAL DATA

- Solids: By Weight: 49.0% / By Volume: 72.00%
- Dry Time: If between 200-300°F.; 10-30 minutes per coat, or until steaming action has finished.
- Lead and chromate free
- Water-borne
- Cures by evaporation
- Weight: 5.2 lbs. per gallon
- Vehicle Type: Urethane / Acrylic Blend
- Shelf Life: Up to 1 year if unopened under appropriate storage conditions (See MSDS)
- VOC Level: 25.1 grams/liter, 0.209 lbs./gal.
- pH: 8.5-9.5
- Maximum Surface Temperature when applying: 450°F (232°C)
- Minimum Surface Temperature when applying: 40°F (5°C)
- Maximum Surface Temperature after curing: 450°F (232°C)*
- HPC Coating will not totally burn. Any initial flame will burn off the surface resin before charring and blocking the flame.
- Operating temperatures have been higher in the field. See manufacturer for instructions.

NOTE: Apply only over dry surfaces (inside or out) and when sun is shining (for external application). Do not apply in the rain or if there are or have been heavy cloud conditions or high humidity for a prolonged series of days. Conditions MUST be dry and sunny or partly cloudy with enough sun to dry coating film before nightfall.

IMPORTANT

Do not take internally. Avoid contact with eyes. If solution comes in contact with eyes, flush immediately with water and contact a physician for medical advice. Avoid prolonged contact with skin or breathing of spray mist. **KEEP OUT OF REACH OF CHILDREN.**

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Application Instructions (11/5/19)

HPC® Coating is designed to control heat transfer for temperatures up to 450°F (232°C). It is lightweight and smooth in appearance after mixing. HPC® Coating is a water-borne system using a special acrylic/urethane blend with specific ceramic compounds to provide a non-conductive block against heat transfer. HPC® Coating offers a non-flammable/non-toxic formula for hot surface applications over standard steam pipe or oven wall construction but can be used for insulation of vessels well below freezing, after cured. The coating was designed to create a monolithic insulation system that can be sprayed over most surfaces and higher temperatures. It can be applied over metal, concrete, wood, gypsum, and most other substrates.

SURFACE PREPARATION

Surface must be clean from oil, tar, rust, grease, salts, and films.

1) Clean ambient surfaces using TSP (tri-sodium-phosphate) or a citrus cleaner to release dirt and degreaser residue and pressure-wash, if possible, @ 3500 psi. and allow to dry
2) Salt contamination on a surface can come as a result of saltwater, fertilizers, and car exhaust. Use Chlor*Rid or equivalent to decontaminate surface if salts are present. Acceptable levels: Nitrates: 5-10 mcg/cm², Sulfates: 5-10 mcg/cm², Chlorides: 3-5 mcg/cm²
3) Clean hot surfaces by removing pack rust, loose dirt and rust using a metal brush or mechanical tool. Remove mil-scale by grit blast, power tool or needle gun.
4) Prime the surface with Rust Grip® if specified.

NOTE: The temperature of a pipe, valve, or tank cannot be determined by taking the exterior surface temperature where heat is released into the atmosphere. Surface temperatures will rise to match the temperature of the fluid or gas contained once the surface is coated and the heat is held back.

MIXING

1) Mix with commercial drill and a 6" diameter dispersion blade at low or medium speed for 2 minutes, or until like creamy consistency to loosen product. Coating will initially look dry and have a "cake-like" appearance.
2) Mechanically stir using blade until water and resins are mixed and coating appears as a thick whipped cream with no lumps. Use an up and down pumping motion while stirring. If it still appears to be dry, slowly add water while continuing to mix.

NOTE: For start & stop (lunch), drop gun into pail of water and cover unused pail or hopper with plastic to prevent evaporation of water.

APPLICATION

HPC® Coating must be applied by spray.

1) Use a hopper gun for small applications.
2) Use a Graco GTX 2000 EX or hopper gun using a 6-8 mm nozzle.
3) See the SPI Application Equipment sheet to reference suggested machines. For specialty applications, contact SPI.
4) For operating temperature below 150°C (302°F), use either HSC or HPC applied between 40°F (5°C) and 120°F (49°C) ambient. Applied HPC® Coating should never be put into use or exposure to below 40°F (5°C) until it is totally cured, and moisture has evaporated from coating. Use a moisture meter to determine moisture content. (5% or less).

Hot Surface Applications (above 150°C (302°F): Apply a thin priming coat of HPC® Coating at 50 mils wet (1.25mm) and allow coating to cure down and moisture to steam off. (Approx. 5 minutes) Once steaming has stopped, apply additional coats of HPC® Coating at 100-200 mils wet per coat (depending on surface temp) to build to specified thickness. Allow coating to completely steam off between coats before applying additional product. After proper thickness is achieved, allow to fully dry and cure before top-coating. RUST GRIP® or ENAMO GRIP can be used over HPC® Coating to strengthen surface or add color when specified. SUPER THERM or SEAL COAT HT may also be used as a top coat. The hotter the surface, the faster the dry and reapply time.

NOTE: For application over hot, flat steel surfaces, see manufacturer for instructions.

NOTE: If initial coat or additional coats are applied too thick, bubbles will appear and begin to rise. Bubbles can be punctured to release trapped air and pressed down to allow bubble to adhere.

NOTE: Apply only over dry surfaces (inside or out) and when sun is shining (for external application). Do not apply on a full cloudy day with a chance for rain, or within 5° of dew point.

Hot Pipe Application: HPC Multi-Mesh Membrane System is used on hot pipes when continuous cycles cause movement, and where continuous impact caused by workers handling the hot pipe is unavoidable. Apply Multi-Mesh Membrane between layers of SP SEAL COAT HT for exterior toughness (first coat 8 mils wet/203 microns then top-coat Mesh with 8 mils wet/203 microns or until Mesh is completely covered). Multi-Mesh Membrane combined with SP SEAL COAT HT forms a flexible cast for exterior strength and moisture barrier to protect the HPC system.

Cold Surface Applications. with operating temperature under 150°C: Apply a thin priming coat at 50 mils wet (1.25 mm) and allow to dry down by evaporation. Build desired thickness to the specified amount using several applications giving each coat time to mostly dry. (Approximately 4 hours at 70° (21°C). Curing can be enhanced by introduction of dehumidification and heat into the surrounding environment.

Manufacturing or OEM Applications: Please contact SPI office.

High-Heat System: a) HPC applied over hot surface at thickness according to temperature level, b) SP SEAL COAT HT for water/air seal plus flex for movement. HPC Coating must be completely dry before applying topcoat.

CLEAN-UP EQUIPMENT

During breaks, spray systems should be flushed with water. After completion, spray systems should be flushed and cleaned with soap and water.

Storage of Product: Store HPC® Coating between 40°F (5°C) and 120°F (49°C)

CLEAN-UP EQUIPMENT

During breaks, spray systems should be flushed with water. After completion, spray systems should be flushed and cleaned with soap and water.

Storage of Product: Store HPC® Coating between 40°F (5°C) and 120°F (49°C)

SAFETY DATA SHEET

SECTION 1: Identification of the substance

1.1 PRODUCT IDENTIFIER: HPC (0310C)
GHS PRODUCT INDENTIFIED: Global Harmonized System #3209.10.0000

1.2 PRODUCT USE: Coating for hot surfaces that are less than 700F. degrees

1.3 SUPPLIER: SUPERIOR PRODUCTS INT'L II, INC.
10835 W. 78th St., Shawnee, KS 66214 USA

1.4 EMERGENCY TELEPHONE NUMBER: 800-424-9300; 202/483-7616

SECTION 2: Hazard identification

2.1 Classification of the substance: This products is a water-based coating and is not classified as dangerous for supply or conveyance.

2.2 Label elements: Signal Word: WARNING Hazard Symbol:

Hazard Statement: Irritant, dermal sensitiser, acute toxicity (harmful).
H320 causes eye irritation. H317 may cause an allergic skin reaction.

SECTION 3: Composition/information on ingredients

3.2 Ingredient compositions	%	CAS/PIN	TLV
Acrylic resins	36.0	9003-01-4	NAV
Insulating Materials	32.0	93763-70-3	NAV
Mica/Additives	3.0	12001-26-2	NAV
Water	29.0	N/A	

SECTION 4: First aid measures

4.1 Description of first aid measures
INHALATION: Remove to fresh air.
EYES: Flush w/water for at least 15 minutes; see physician if irritation continues.
SKIN: Wash affected areas w/mild soap & water.
INGESTION: Do not induce vomiting. Give 1-2 glasses milk or water. Seek medical attention according to amount of product ingested.

SECTION 5: Firefighting measures

5.1 Extinguishing media: Water, water fog, dry chemical, foam or C02

5.2 Special hazards arising from the substance or mixture:
Hazardous combusion products: Carbon monoxide, methacrylate and other noxious gases.
Autoignition Temperature: NAP Minimum ignitions energy: NAV
Flash point: NAP Flammable limits: (Lower) NAP / (Upper): NAV%
Sensitivity to static discharge? NO Sensitivity to mechanical impact? NO
Conditions of flammabillity: Not flammable; water-based product

5.3 Advice for firefighters: Firefighters should wear full-body protection & SCBA

SECTION 6: Accidental release measures

6.1 Personal precautions: Use protective clothing; use particulate respirator when spraying.

6.3 Methods of cleanup: Use kitty litter or similar absorbent to contain spill.

SECTION 7: Handling and storage

7.1 Precautions for safe handling: Treat as paint product. Use ventilation and protective equipment to suit conditions of use.

7.2 Conditions for safe storage: Keep from freezing. Store below 50C degrees. Keep container closed tightly to prevent drying out.

SECTION 8: Exposure Controls/personal protection

8.1 Control parameters: Avoid inhalation of liquid when applying. Use particulate respirator.
ENGINEERING CONTROLS: Use mechanical exhaust ventilation to control aerosol or mist if sprayed.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:
PHYSICAL STATE: Liquid SOLUBILITY IN WATER: Soluable pH: 8
APPEARANCE AND ODOR: White, mild acrylic odor FREEZING POINT: 30F degrees
BOILING POINT: >192C. deg. SPECIFIC GRAVITY: 0.72 ODOR THRESHOLD: 0.8-25ppm
COEFF. WATER/OIL: NAV EVAPORATION RATE: slow% VOLATILES: <5
VAPOUR DENSITY (Air=1): 2.1 VAPOUR PRESSURE: 18mmHg@20C. deg. CORROSIVE: NO

SECTION 10: Stability and reactivity

10.1 Conditions of Reactivity: Stable
10.2 Conditions of Instability: Stable under normal conditions
10.3 Possibility of hazardous reactions: None known.
10.4 Conditions to avoid: None known.
10.5 Incompatible materials: Strong acids or bases
10.6 Hazardous decomposition products: None known, no hazardous polymerization

SECTION 11: Toxicology Information

11.1 Information on toxicological effects:
Acute toxicity - oral: Not meant to be ingested; no known significant effects or critical hazards
Acute toxicity - inhalation: Vapors or mist can cause mild irritation.
Acute toxicity - dermal: Liquid splash could result in eye or nose irritations and/or headach
Health effects to chronic exposure: Excessive exposure to liquid product may result in minor irritations

SECTION 12: Ecological Information

12.1 Toxicity
No known toxins as product is water-based and not deemed hazardous.

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Dispose of as paint according to local regulations.

SECTION 14: Transport information

This product is not regulated in any capacity of transport.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance: No listed materials under Superfund Amendments & Reauthorization Act of 1988 (SARA) 302, 304, 311, 312. Meets European codes under Article 59(10) of the Reach regulation.

SECTION 16: Other information

PREPARED BY: J. Pritchett, Superior Products Int'l II, Inc. **DATE**: 6/26/22