SPI COATINGS
PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

HPC HT Coating

Technical Data Sheet (07/22/19)

DESCRIPTION

HPC®-HT is a two-part hybrid silicone/solvent resin (Part B is flammable) and (Part A is water-based resins) using specific ceramic compound loads for application directly over surface temps of 232°C (450°F) and up to 600°C (1112°F). It was designed to block and hold the interior temperature on the surface and reduce heat transfer loss to ambient.

After Part A and Part B are blended together, HPC®-HT Coating offers a 'green', nonflammable, non-toxic formula for high-heat surface applications. HPC®-HT is easily applied, and can be sprayed direct to metal, concrete and other high-temperature surfaces up to 600°C.

HT PRIMER is applied first for best adhesion.

NOTE: If the surface temp is below 200°C, the HPC HT resin will not dry, and will remain soft. It will not build up.

TYPICAL USES

- As the high-temp insulation coat for surfaces greater than 250°C, over hot pipes, tanks, and valves
- To hold heat on the surface of the pipe, valve, etc.
- As a system to block conductive and convective heat transfer
- Applied when a hot system cannot be shut down.

NOTE: A respirator should be worn while mixing and applying the HPC®-HT Coating.

APPLICATION METHOD

CAUTION: Do not expose Part B to open flame as solvent used to allow silicones to blend faster. After Parts A and B are blended, product is non-flammable for use in spraying direct to hot surfaces reaching 650°C.

For specific instructions on surface preparation, mixing and application, please refer to the HPC®-HT Coating Application Instruction Sheet.

If HPC®-HT is applied over hot exterior surfaces, and can be over-coated, SUPER THERM®, or SP SEAL COAT HT.

NOTE: If there is thermal movement on pipes or unit, then a flexible topcoat must be used as SP SEAL COAT HT.

HPC®-HT must be completely dry before applying top coat.

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HPC® Multi-Mesh Membrane System or high-temp mesh can be used on hot pipes when continuous cycles cause movement, and where continuous impact caused by workers handling the hot pipe is unavoidable. PRIME FIRST: Use HT Primer over the hot surface after cleaning off hot pipe surface from debris. Spray on a thin coat (3mm/120mils) to seal the surface and give an adhesive layer for the insulation coating (HPC-HT). See HT Primer tech sheet.

MINIMUM SPREAD RATES (mil thickness)

2.7 sq.ft./gal. = 500 mils dry (0.23 sq.mtr. = 12.5mm)
1.3 sq.ft./gal. = 1000 mils (0.12 q.mtr. = 25mm)
0.9 sq.ft./gallon = 1500 mils dry (0.09sq.m. = 37mm)

NOTES:

1. Overspray with a hopper gun can be 15-20% loss and must be factored in. Using a TexSpray 2000, overspray will be less, 10-15%.
2. Example: 600°C pipe surface needs between 37-60mm of HT. Submit details to SPI for calculations of thickness and reduced heat loss.
3. HPC®-HT calculated thickness must be applied in multi-coats and all applied until thickness is achieved. Start and finish a selected area is best practice.
4. Initial primer coat and first coat of HPC-HT will have a lot of steam coming off. After initial coat, remaining coats will have very little-to-no steam.
5. Make sure that all valves, parts and release valves are rated for the actual interior temperature that will increase once it is coated.
6. 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.

PHYSICAL DATA

- Solids: By Weight: 61.1% / By Volume: 84%
- Dry Time: If between 400-650°F (204C-345C).; 20 minutes per coat, or until steaming action has finished; over 750°F (5 minutes between coats).
- Lead and chromate free
- Water-borne
- Cures by evaporation on hot surfaces
- Weight: 6.86 lbs. per gallon (3.1 kilos)
- Vehicle Type: Silicone hybrid blend
- Shelf Life: Up to 2 years if unopened under appropriate storage conditions (See SDS)
- Pot Life: 6 hours, or the formula will thicken too much to spray
- VOC Level: 200 grams/liter, 1.67 lbs./gal.
- pH: 9.0-11.0
- Maximum Surface Temperature when applying: 1115°F (600°C)
- Minimum Surface Temperature when applying: 390°F (250°C); less than 250°C, use regular HPC®
- Maximum Surface Temperature "after curing": 1115°F (600°C)

IMPORTANT

Do not take internally. Avoid contact with eyes. If solution does come 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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HPC® HT Coating

Application Instructions (07/22/19)

APPLICATION SPECIFICATIONS

The calculated thickness of HPC®-HT should be applied in multi-coats. Several 3mm coats may be required to reach the total thickness. These coats are applied very quickly, back to back, as the applicator moves along the substrate being coated. Stop-and-start action is not required between coats, unless application area is very small.

1) HPC®-HT Coating must be applied by spray. Use a hopper gun for small applications.
2) Use a Texspray 2000 with the flex head gun or hopper gun using a 6-8 mm nozzle. For specialty applications, contact SPI.
3) For operating temperature below 232°C (450°F), use standard HPC®; if above 232°C (450°F) use HT PRIMER first.
4) If operating temperature is less than 300°C, the dry time between coats could extend to 20-40 minutes because of the silicone resins.
5) Applied HPC®-HT Coating should never be over coated with any coating until moisture content is 5% or less.
6) **Hot Surface Applications**. First, apply HT PRIMER. Then, apply a thin priming coat of HPC®-HT Coating at 30 mils wet (0.75mm). Coating will appear to 'bounce off' but this can be counteracted by increasing distance from surface and using high air pressure and quick movement until coating 'bites' onto the surface. Allow coating to cure down and moisture to steam off (approx. 5 minutes). Once steaming has stopped, apply second coat of HPC®-HT Coating at 3mm wet per coat. Subsequent coats can be built with normal procedures as the 'bounce off' action will not occur. Allow coating to completely steam off between coats before applying additional product. With each coat of HPC®-HT the thickness of each coat can increase until proper thickness is achieved. Allow HPC®-HT to fully dry and cure before top coating. If bubbles appear, you are applying too thick.
7) Pot Life: After A&B are mixed together, you have 6 hours to use before it thickens too much to spray.

NOTE: Bubbles can be punctured to release trapped air and pressed down to allow bubble to adhere after initial coats; avoid causing bubbles. If bubbles appear after one pass, wait until the surface dries to touch and pat the bubbles down flat before next pass.

NOTE: Check pail every 10-15 minutes to see if white film forms on top; if so, stir for one minute.

SURFACE PREPARATION

Surface must be clean from all residues and degreasers.

1) If heavy rust needs to be removed prior to application, unit should be shut off and power washed at ambient temperature. Clean by removing pack rust, loose dirt and rust using a wire brush or mechanical tool. Remove mil-scale by grit blast, power tool or hammer gun.

***NOTE*: The internal temperature of a pipe, valve, or tank cannot be determined using an IR-gun 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. Make sure that all valves, parts and release valves are rated for the actual interior temperature that will increase once it is coated.

MIXING

NOTE: While mixing and applying HPC®-HT, a paint respirator should be worn at all times.

1) HPC®-HT is made up of two parts: Part A is a white water-based resin blend; Part B is a dense, brownish solvent blended system to keep components loose. When opening Part A you will see a collection of solid material—do not worry. Using a 6" diameter dispersion blade, push your blade through the top crust of ceramics and blend well at a low-medium speed (it takes about 30 seconds). Be sure to blend A and B together away from open flame due to the flammability of Part B. Once combined, there is no hazard.

2) When adding Part B into Part A, it is heavy and will fall to the bottom of the pail of Part A. While stirring, lift and drop the blade in the solution with a swift up-and-down until you feel the mixture loosen and blend together the white mixture with the brown. Blend for 3-5 minutes until you achieve a smooth texture, and the color becomes a uniform shade of tan with fibers. Then move blade in a circle from bottom to top to finish.

For best adhesion between PRIMER and first coat of HPC-HT, apply the PRIMER first (use a small airless but remove gun filters or hopper with small tip), while it is steaming (5-10 minutes), apply the first coat of HPC-HT. If there is a long delay, after the first coat of HPC-HT is applied, additional coats can be sprayed any time--even the next day.

SPRAYING BLENDED PRODUCT: ***NOTE*: Apply ONLY while in operation so that surface is hot.** Use drop cloths under the pipe and to block other areas from overspray as the resin system mist can put a thin layer of slick residue on floor and on other equipment next to spray area. A tremendous amount of steam will come off because this is water-based.

ADDING HPC-HT TO TEXPRAY 2000: Begin pouring HPC-HT into Texspray hopper. Remove spray gun from product hose line. Turn product flow up until product starts to flow. Discard any excess water into waste bucket until only HPC-HT is flowing out of the line. Turn pump pressure off. Place spray gun on product hose line. NOTE: While Texspray is running, always have the air on the gun slightly open to prevent product from clogging the air line. Turn on pump presser, then pull trigger to spray HPC into Texspray hopper until there is a solid stream of product. Allow all air to exit out of hose. First coat will seem liquid and can only be applied very thinly and may have some drips. After it dries, the second and following coats are easier and able to be applied heavier or thicker without sag or drips. As you apply remaining coats, do not apply more than 5mm (200 mils) and make sure that the coat is dry before applying the next coat. If you see the coat or layer move, then stop applying and allow it to dry.

NOTE: For start & stop (lunch), clean equipment with soap and water/Heptane mixture 50/50 anytime a delay of 1 hour or more. Place gun and tip in water/Heptane solution to keep tip from clogging if laying it down for one hour or more.

SAFETY NOTES:

1) A full-face (PPE) Respirator with carbon filter must be used when spraying by anyone in the area.
2) The steam release from the water-blended resins has a slight odor and is initially irritating to the eyes and respiratory. The steam vapor must be properly ventilated, using fans to exit it out of the building or structure while HPC-HT is being applied.

CAUTION: Do not expose Part B to open flame as solvent is used to allow silicones to blend faster. After Parts A & B are blended together, product is non-flammable for use in spraying direct hot surfaces reaching 600°C.

CLEAN-UP EQUIPMENT

During breaks, spray systems should be flushed with heptane/water followed with soap and water, and waste product disposed of properly.

Storage of Product: Store separate components of HPC®-HT Coating between 40°F (5°C) and 120°F (49°C) according to the related safety hazardous indicated on the SDS for each part (A&B).

SAFETY DATA SHEET (SUN/11/00)

SECTION I - IDENTIFICATION OF THE PRODUCT AND THE COMPANY:

PRODUCT NAME: HPC HT (0320-B), Part A
GHS PRODUCT IDENTIFIER: Global Harmonized System #3209.10.000
RECOMMENDED USE: The coating to be applied to hot surfaces (to be combined with Part B)
MANUFACTURER: Superior Products International II, Inc.
ADDRESS: 10835 W. 78th St., Shawnee, KS 66214 USA
EMERGENCY TELEPHONE NUMBER: **800/424-9300; 202/483-7616**

SECTION II - HAZARD IDENTIFICATION:

This product is water-based and not classified as dangerous for supply or conveyance. The ingredients are water-reduceable. This product has been analyzed for use in and around food manufacturing and found to be safe for use on non-contact surfaces. No toxics or toxic off-gassing is present.

SECTION III - COMPOSITION & INFORMATION ON INGREDIENTS:

Hazardous Ingredients	%	CAS/PIN	LD-50 (species/route)	LC 50 (species)
Mica/Additives	10.0	58043-05-3	NAV	NAV
Borosilicate	20.0	65997-17-3	NAV	NAV
Silicone Resin	70.0	897393-56-5	NAV	NAV

SECTION IV - FIRST AID MEASURES:

EYES: Flush with water for at least 15 minutes; consult physician if irritation continues.
INGESTION: Do not induce vomiting. Drink 1-2 glasses milk/water. Seek medical attention according to amount of product ingested.
SKIN: Wash with mild soap and water.
INHALATION: Remove to fresh air.

SECTION V - FIREFIGHTING MEASURES:

CONDITIONS OF FLAMMABILITY: Not flammable, water-based product
HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, methacrylate and other noxious gases
AUTOIGNITION TEMP.: NAP MINIMUM IGNITION ENERGY: NAV
FLAMMABLE LIMITS: (Lower) NAP% (Upper) NAP% FIRE POINT: NAP
FLASH POINT: 101.1C SENSITIVITY TO MECHANICAL IMPACT? No
SENSITIVITY TO STATIC DISCHARGE? No
SPECIAL PROCEDURES: Firefighters should wear full-body protection & SCBA
MEANS OF EXTINCTION: Water, water fog, dry chemical, foam or C02

SECTION VI - ACCIDENTAL RELEASE MEASURES:

Use kitty litter, sand or other to control spread and absorb liquid.

SECTION VII - HANDLING AND STORAGE:

STORAGE REQUIREMENTS: Keep from freezing. Store below 50C. degrees. Keep container closed tightly to prevent drying out.
HANDLING PROCEDURES/EQUIPMENT: Treat as paint product. Use ventilation and protective equipment to suit conditions of use. Use soap and water for clean-up.

SECTION VIII - EXPOSURE CONTROLS AND PERSONAL PROTECTION:

PERSONAL PROTECTIVE EQUIPMENT: Avoid inhalation of liquid when applying. Use particulate respirator.
ENGINEERING CONTROLS: Use mechanical ventilationto control aerosol or mist if prouct is sprayed.

NAP = Not Applicable NAV = Not Available

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL STATE: Liquid SOLUBILITY IN WATER: soluble/miscible
APPEARANCE AND ODOR: Brown, mild solvent odor
FREEZING POINT: 32F. degrees BOILING POINT: 65C degrees pH: 11
SPECIFIC GRAVITY: 1.02 ODOR THRESHOLD: 0.08-25ppm
COEFF. WATER/OIL: NAV EVAPORATION RATE: slow%
VAPOUR DENSITY (Air = 1): NAV VOLATILES: less than 5
VAPOUR PRESSURE: 17mmHg @ 20C degrees

SECTION X - STABILITY AND REACTIVITY:

CONDITIONS OF REACTIVITY: stable CONDITIONS OF INSTABILITY: stable
CHEMICAL INCOMPATIBILITY: strong acids or bases
HAZARDOUS DECOMPOSITION PRODUCTS: none known, no hazardous polymerization
CORROSIVE BEHAVIOR? no

SECTION XI - TOXICOLOGICAL INFORMATION:

ROUTES OF ENTRY: SKIN CONTACT ____ SKIN ABSORPTION ____ EYE CONTACT __X__
INHALATION ____ INGESTION __X__ SYNERGISTIC PRODUCTS none known
EXPOSURE LIMITS: mica 3mg/m (ACGIH)
EFFECTS OF ACUTE EXPOSURE: liquid splash could result in eye or nose irritation and/or headache
EFFECTS OF CHRONIC EXPOSURE: excessive exposure to liquid product may result in minor irritations
MUTAGENICITY: NAP TERATOGENICITY: NAP
REPRODUCTIVE TOXICITY: NAP SENSITIZATION: not expected
CARCINOGENICITY: ingredients not listed
IRRITANCY: possible skin or eye irritation if not washed off

SECTION XII - ECOLOGICAL INFORMATION:

Air -this product is environmentally-friendly and poses no threat to the air.
Water -the resins will be diluted and dissipate when flushed with water.
Soil -the resin contents are biogradeable in ground acids over a period of time. No ecological hazards are known to exist.

SECTION XIII - WASTE DISPOSAL:

Product spill should be contained by previously described absorption methods, and dried product disposed of as normal industrial waste according to all federal, state or governmental regulations.

SECTION XIV - TRANSPORT INFORMATION:

The only restriction to carriage is for protection against freezing. Contents are water-based.

SECTION XV - REGULATORY INFORMATION:

Regulatory agency controls and restrictions are minimal regarding conveyance or use of water-based products other than what has been specifically addressed.

SECTION XVI - OTHER INFORMATION:

PREPARED BY: J. Pritchett, Superior Products Int'l II, Inc. DATE: 1-23-19

SAFETY DATA SHEET (E/WB/10/02)

SECTION I - IDENTIFICATION OF THE PRODUCT:

PRODUCT NAME: HPC-HT, Part B
GHS PRODUCT IDENTIFIER: Global Harmonized System #3208.90.000
RECOMMENDED USE: Blended with Part A to create high-temperature spray-on insulation
MANUFACTURER: Superior Products International II, Inc.
ADDRESS: 10835 W. 78th St., Shawnee, KS 66214 USA
EMERGENCY TELEPHONE NUMBER: **800/424-9300; 202/483-7616**

SECTION II - HAZARD IDENTIFICATION:

This product is 100% solid and not classified as dangerous for supply or conveyance. The ingredients are water-reduceable and fall well within the acceptable safety limits. No toxics or toxic off-gassing is present, but steaming during application presents co-solvents that can cause eye irritation.

SECTION III - COMPOSITION & INFORMATION ON INGREDIENTS:

Haz. ingredients	*%*	*CAS/PIN*	*LD-50 (species/route)*	*LC50 (species)*
Soda	80.0	1310-73-2	NAV	NAV
Mica/additives	11.0	58043-05-3	NAV	NAV
Heptane	9.0	142-82-5	103000mg/m 4 hrs. (rat)	

SECTION IV - FIRST AID MEASURES:

EYES: Flush with water for at least 15 minutes; consult physician if irritation continues.
INGESTION: Do not induce vomiting. Drink 1-2 glasses milk/water. Seek medical attention according to amount of product ingested.
SKIN: Wash with mild soap and water.
INHALATION: Remove to fresh air.

SECTION V - FIREFIGHTING MEASURES:

CONDITIONS OF FLAMMABILITY: Flammable, until mixed with Part B
HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, methacrylate and other noxious gases
AUTOIGNITION TEMP.: NAV **MINIMUM IGNITION ENERGY**: NAV
FLAMMABLE LIMITS: (Lower) NAV% (Upper) NAP% **FIRE POINT**: NAV
FLASH POINT & METHOD: 44C **SENSITIVITY TO MECHANICAL IMPACT**? No
SENSITIVITY TO STATIC DISCHARGE? No
SPECIAL PROCEDURES: Firefighters should wear full-body protection & SCBA
MEANS OF EXTINCTION: Water, water fog, dry chemical, foam or C02

SECTION VI - ACCIDENTAL RELEASE MEASURES:

Use kitty litter or similar absorbent to contain spill. Neutralize w/solution of 80% water/20% Tergitol TMN-10. Use protective clothing; use non-sparking tools.

SECTION VII - HANDLING AND STORAGE:

Storage Requirements: Maintain temperature between 32-122F. degrees; average shelf life is 3 years @ 77F. degrees.
Handling Procedures/Equipment: Ground all containers; use non-sparking

SECTION VIII - EXPOSURE CONTROLS AND PERSONAL PROTECTION:

PERSONAL PROTECTIVE EQUIPMENT: Avoid inhalation of liquid when applying. Use particulate respirator.

ENGINEERING CONTROLS: Use mechanical ventilation to control aerosol or mist if product is sprayed.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL STATE: Liquid **SOLUBILITY IN WATER**: Soluble

APPEARANCE AND ODOR: White, slightly alcoholic

FREEZING POINT: 32F **BOILING POINT**: 35C pH: NAV

SPECIFIC GRAVITY: 1.0 **ODOR THRESHOLD**: NAV

COEFF. WATER/OIL: NAV **EVAPORATION RATE**: 1.0

VAPOUR DENSITY (Air = 1): 1.11 **VAPOUR PRESSURE**: NAV

SECTION X - STABILITY AND REACTIVITY:

CONDITIONS OF REACTIVITY: stable **CONDITIONS OF INSTABILITY**: stable

CHEMICAL INCOMPATIBILITY: None known

HAZARDOUS DECOMPOSITION PRODUCTS: None known, no hazardous polymerization CORROSIVE BEHAVIOR? No

SECTION XI - TOXICOLOGICAL INFORMATION:

ROUTES OF ENTRY:EYE CONTACT __X___ INGESTION __X__

EXPOSURE LIMITS: mica-3mg/m3 (ACGIH)

EFFECTS OF ACUTE EXPOSURE: eye or nose irritation and/or headache.

EFFECTS OF CHRONIC EXPOSURE: Excessive exposure to powders may result in minor irritations.

MUTAGENICITY: NAV **TERATOGENICITY**: NAV

REPRODUCTIVE TOXICITY: NAV **SENSITIZATION**: Not expected

CARCINOGENICITY: Ingredients not listed

IRRITANCY: Possible eye irritation if not washed off.

SECTION XII - ECOLOGICAL INFORMATION:

Air -this product is environmentally-friendly and poses no threat to the air.

Water -no threat.

Soil -the resin contents are biodegradeable in ground soils over a period of time.

No ecological hazards are known to exist.

SECTION XIII - WASTE DISPOSAL:

Product spill should be contained by previously described absorption methods, and dried product disposed of as normal industrial waste according to all federal, state or governmental regulations.

SECTION XIV - TRANSPORT INFORMATION:

The only restriction to carriage is for protection against freezing as contents are 100% solid. Tariff code: 3208.90.000

SECTION XV - REGULATORY INFORMATION:

Regulatory agencies and restrictions are minimal regarding conveyance or use of water-based products other than what has been specifically addressed.

SECTION XVI - OTHER INFORMATION:

PREPARED BY: J. Pritchett, Superior Products Int'l II, Inc. **DATE**: 1/23/19