SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

SOLAR SHIELD

Technical Data Sheet (10/2/19)

DESCRIPTION

SOLAR SHIELD is a water-borne combination of high-performance elastomeric acrylics, and resin additives which produces a tough, yet flexible coating film. Designed for performance and durability, SOLAR SHIELD contains 3 unique ceramics to block up to 89% of Solar Heat entering a structure due to Visual Light, Ultra Violet (UV), and Infrared (IR). SOLAR SHIELD is a flexible membrane with low permeability that can greatly reduce expansion and contraction of a roof. It also prevents corrosion and surface deterioration.

TYPICAL USES

- As a one-coat insulation system on exteriors to block the initial loading of Solar Heat gain. (roofs and side walls)
- As an insulation system for interior applications.
- As insulation for transportation vehicles, refrigerated containers, reefer trucks, and railroad cars when applied to the exterior.
- Exterior application to reduce or eliminate condensation on HVAC systems, tanks, spheres, storage systems, and concrete walls.
- As a system over metal, concrete, masonry, and wood to stop moisture penetration and corrosion.
- Ability to resist dirt, mold, mildew, and pollution to increase longevity, and reduce surface maintenance.
- As a topcoat over metal roofs.
- Applied over tent fabrics to provide insulation & remain flexible.

APPLICATION METHODS

SOLAR SHIELD can be applied to metal, concrete, masonry and wood. The application can be spray, brush or roller. For specific instructions on surface preparation, mixing and application, please refer to the SPI's application instructions for SOLAR SHIELD. This coating should never be applied at less than 18 mils wet (450 microns), 9.0 mils dry (225 microns), each coat.

TESTS AND CERTIFICATIONS (partial list)

Designed with same ceramic compounds as in SUPER THERM, which has the following list of ceramic insulation results:

1. Exterior insulation against Solar Radiation
2. (Guarded hot box; ASTM C236)
3. Blocks 99.5% of infrared / up to 68% sound blockage
4. UL (Underwriters Laboratory) approved
5. Flame Spread Test (ASTM E84; 0 smoke, 0 flame)
6. Class "A" Flame Spread
7. Marine Approvals: - American Bureau of Shipping; USCG
8. USDA Approved

PHYSICAL DATA

- Solids: By weight 54.48% / By Volume: 49.72% (+/- 2%)
- 30-60 minutes to tack free at 70°F (21°C)
- Overcoat: 2 hours when 70°F (21°C) at 40% Relative Humidity
- Full Cure: 21 days
- Lead-, chromate-, and asbestos-free
- Cures by evaporation
- Weight: 10.25 lbs. per gallon
- Vehicle Type: Acrylic blend
- Shelf Life: Up to 5 years if unopened under appropriate storage conditions (See MSDS).
- VOC Level: 67.2 grams/liter, 0.561 gal/lbs.
- Viscosity: 105 – 110 KU;
- pH: 8.5 – 9.0
- 88 sq.ft./gallon (8sqm): 18 mils (450 microns) wet / 9.0 mils (225 microns) dry
- Maximum Surface Temperature when applying: 150°F (65°C)
- Minimum Surface Temperature when applying: 40°F (5°C)
- Maximum Surface Temperature after curing: 300°F (149°C)
- Do not apply over 18 mils wet per application. Allow to dry down before adding additional thickness.

SAFETY PRECAUTIONS

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: proper ventilation, use of proper lamps, wearing of protective clothing and masks, tenting, and proper separation of application areas. For more specific safety procedures, please refer to the SOLAR SHIELD Material Safety Data Sheet. **KEEP OUT OF REACH OF CHILDREN.**

Superior Products International II, Inc. • 10835 W. 78th Street • Shawnee, KS 66214
Website: www.spicoatings.com • Email: sales@spicoatings.com

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Application Instructions (7/10/19)

SOLAR SHIELD is a water-borne combination of high-performance elastomeric acrylics, and resin additives which produces a tough, yet flexible coating film. Designed for performance and durability, SOLAR SHIELD contains 3 unique ceramics to block up to 89% of Solar Heat entering a structure due to Visual Light, Ultra Violet (UV), and Infrared (IR). SOLAR SHIELD is a flexible membrane with low permeability that can greatly reduce expansion and contraction of a roof. It also prevents corrosion and surface deterioration.

SURFACE PREPARATION

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

1) Use general degreaser if needed.
2) Clean surface using TSP (tri-sodium-phosphate) or a citrus cleaner to release dirt and degreaser residue.
3) Pressure-wash if possible @ 3500 psi.
4) Salt contamination on a surface can come as a result of salt water, 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

Surface must be completely dry before applying.

1) SOLAR SHIELD must be applied during proper temperatures (below) and the prescribed overcoat window of the coating over which it will be applied.
2) Maximum Surface Temperature when applying: 150°F (65°C)
3) Minimum Surface Temperature when applying: 40°F (5°C)
4) Maximum Surface Temperature after curing: 300°F (149°C)

NOTE: Use Rust Grip® as a primer when needed. Refer to Rust Grip® technical data sheet for overcoat window.

NOTE: If pack rust or mill scale exist, it must be removed by grit blast, power tool or needle gun. Once removed, begin with Step 1 (power wash).

NOTE: Harsh environments where color is desired, or where pooling may occur: SUPER THERM® should be over coated with ENAMO GRIP (solvent based) over metal or concrete, and SP SEAL COAT or SP LIQUID MEMBRANE over flexible surfaces (foam, tar, rubber and wood).

NOTE: Modified bitumen, asphalt roofing and single-ply membranes must be primed with the appropriate primer (i.e. Super Base/HS or SP Single-Ply Primer)

MIXING

SOLAR SHIELD should be mechanically mixed or mixed by hand (boxing) for three minutes, then applied.

APPLICATION

SOLAR SHIELD can be applied by brush, roller or spray; however, the preferred method is by air or airless sprayer. It should never be applied directly over rust, nor should it ever be diluted or thinned.

1) If application is by brush, use a soft bristle brush.
2) If application is by roller, use a 3/4 inch nap roller.
3) If application is by spray, use a standard airless sprayer (2 gallons/minute at 3,300 psi.) with a .029-.033 tip according to fan width spread of application, and pump pressure. To achieve proper thickness, temperature and humisity must be considered by applicator.
    - ***NOTE*:** The number of applications and the thickness of each should be in accordance with the job specifications.
    - ***NOTE:*** All filters should be removed from both the gun handle and spray machine prior to application, as they will trap the ceramics.
    - ***NOTE:*** Temperatures must always be a minimum of 5 degrees above the dew point during application.
    - ***NOTE:*** If SOLAR SHIELD is applied during a period of extremely high humidity or if there is rain soon after the application, bubbles may appear on the surface. Do not puncture these bubbles. This is normal and the coating will continue to cure with no effect on the performance or appearance of the coating. Bubbles will dry down tight and disappear without a trace or imprint.
    - ***NOTE***: 2" corrugation - roof size x 135%; 2.5" corrugation = roof size x 145%; 3" corrugation = roof size x 160%

MINIMUM SPREAD RATES (mil thickness)

SOLAR SHIELD will be applied at no less than a total of 18 mils wet (450 microns)/9.0mils dry (225 microns) for each application. Spread Rate is 88 sq ft per gallon. (8.1 sq meter per gallon)

CURE TIME

1) 30-60 minutes to tack free at 70°F (21°C)
2) Overcoat: 2 hours when 70°F (21°C) at 40% Relative Humidity
3) Full Cure: 21 days

TEMPERATURE

1) Apply between 40°F. and 150°F.
2) Store between 40°F. and 100°F.

CLEAN-UP EQUIPMENT

1) After completion, spray system should be cleaned with soap and water; cleaned brushes and rollers can be reused.

SAFETY DATA SHEET (ST/11/00)

SECTION I - IDENTIFICATION OF THE PRODUCT AND THE COMPANY:

PRODUCT NAME: Solar Shield (UPC#851207002003, SKU#768399, Part#0322)
GHS PRODUCT IDENTIFIED: Global Harmonized System #3209.10.000
CHEMICAL TYPE: Waterbased coating
MANUFACTURER: Superior Products International II, Inc.
ADDRESS: 10835 W. 78th St., Shawnee, KS 66214 USA
PRODUCT USE: Insulation coating to create thermal barrier on substrates
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 nor toxic off-gassing are present.

SECTION III - HAZARD INGREDIENTS:

Hazardous Ingredients (species)	%	CAS/PIN	LD-50 (species/route)	LC50
texanol	0.5	25265-77-4	3200 mg/kg (oral, rat)	NAV
mica/additives	14.0	12001-26-2	NAV	NAV
waterborne polyurethane	10.0	58043-05-3	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 - FIRE FIGHTING 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: NAV
FLASH POINT & METHOD: NAP 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 ventilation to control aerosol or mist if product is sprayed.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL STATE: Liquid SOLUBILITY IN WATER: soluble/miscible

APPEARANCE AND ODOR: white color, mild acrylic odor

FREEZING POINT: 30F. degrees BOILING POINT: 192C degrees pH: 8

SPECIFIC GRAVITY: 1.4 ODOR THRESHOLD: 0.08-25ppm

COEFF. WATER/OIL: NAV VAPOUR PRESSURE: 17 mmHg @ 20C degrees

VAPOUR DENSITY (Air = 1): 2.1

EVAPORATION RATE: slow% VOLATILES:less than 5

SECTION X - STABILITY AND REACTIVITY DATA:

CONDITIONS OF REACTIVITY: stable CONDITIONS OF INSTABILITY: stable

CHEMICAL INCOMPATIBILITY: strong acids or bases CORROSIVE BEHAVIOR? no

HAZARDOUS DECOMPOSITION PRODUCTS: none known, no hazardous polymerization

SECTION XI - TOXICOLOGICAL PROPERTIES:

ROUTES OF ENTRY:SKIN CONTACT ____ SKIN ABSORPTION ____ EYE CONTACT __X__

INHALATION ____ INGESTION __X__ SYNERGISTIC PRODUCTS None Known

EXPOSURE LIMITS: mica 3 mg/m3 (ACGIH)

EFFECTS OF ACUTE EXPOSURE: liquid splash could result in eye or nose irritations and/or headache

EFFECTS OF CHRONIC EXPOSURE: excessive exposure to liquid product may result in minor irritations

MUTAGENICITY: NAP TERATOGENICITY: NAP

REPRODUCTIVE TOXICITY: NAP CARCINOGENICITY: ingredients not listed

SENSITIZATION: not expected

IRRITANCY: possible skin or eye irritation if not washed off

SECTION XII - ENVIRONMENTAL 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: 10-20-16