

ADVANTAGES OF SUPER THERM®



1) REFLECTIVE COATING

- * Only ceramic coating using four different ceramic compounds to block 96% of the three sources (windows) of heat
 - Blocks 100% of Ultra Violet Radiation (UV)
 - Blocks 92% of Visual Light (Short Wave Radiation)
 - Blocks 99.5% of Infra Red (Long Wave Radiation)
- * Only ceramic coating using three different resins (two acrylic and one urethane)
- * Reduced BTU conduction from 367.20 to 3.99 with only one coat over metal, concrete, wood, and other building materials
- * Florida Department of Energy tested and certified as an R-19 equivalent and a 2.2 year return on investment (ROI)

2) THERMAL MOISTURE MEMBRANE

- * Permanently flexible "breathing" membrane that stops water penetration
- * Prevents corrosion and surface deterioration and repels dirt, mold, and mildew
- * Protective system over metal, concrete, masonry, and wood

3) SOUND DEADENING

- * Blocks 68% of all sound waves

4) CLASS "A" FIRE RATING

- * "0" Flame Spread and Smoke

5) ENVIRONMENTAL FRIENDLY - LONG-TERM DURABILITY

- * Water based coating - VOC compliant
- * No loss in performance characteristics or durability over life span
- * Twenty year life span in the harshest environments

6) ONE-PART COATING

- * No pot life constraint; no two-part mixing

7) EXTENSIVELY TESTED AND CERTIFIED

- * UL (Underwriters Laboratory)
- * FM (Factory Mutual)
- * DNV (Det Norske Veritas)
- * ABS (American Bureau of Shipping)
- * IMO (International Marine Organization)
- * USDA (United States Department of Agriculture)

Another Quality Product From SUPERIOR PRODUCTS INTERNATIONAL II, INC.



SUPER THERM[®] TECHNICAL DATA SHEET

THERMO-DYNAMIC TUNING (04/07/06)

DESCRIPTION:

SUPER THERM[®] is a unique one-part combination of high-performance aliphatic urethanes, elastomeric acrylics, and resin additives in a water-borne formula. SUPER THERM[®] has four different ceramics that block 96% of the three sources of heat - visual light, ultra violet rays and infrared rays. SUPER THERM[®] is a permanently flexible "breathing" membrane that stops water penetration, and prevents corrosion and surface deterioration.

TYPICAL USES:

- * As a one-coat insulation system on exterior and interior substrates (roofs, walls, and floors)
- * As an insulator for transportation vehicles, refrigerated containers, and railroad cars
- * As insulation and to stop condensation on HVAC systems, tanks, and storage systems
- * As a one-coat "flexible and breathable" protective system over metal, concrete, masonry, and wood to stop water penetration and corrosion, repel dirt, mold, mildew, and pollution, increase longevity, and reduce surface maintenance

APPLICATION METHODS:

SUPER THERM[®] can be applied to metal, concrete, masonry, and wood. The application can be by spray, brush, or roller. For specific instructions on surface preparation, mixing, and application, please refer to the SPI's application instructions for SUPER THERM[®].

PHYSICAL DATA:

- * Solids: By weight 63.6% / by volume 68%.
- * Film Thickness: On all substrates SUPER THERM[®] should be applied at 16 mils wet / 10 mils dry. Under no circumstances should SUPER THERM[®] be applied at less than 16 mils wet.
- * Dry Time: One hour to touch at 70F. degrees and bright sun / Overcoat window is two hours or longer at 70F. degrees / Fully cures in twenty one days.
- * Lead and chromate free.
- * Cures by evaporation with no co-solvents present.
- * Weight: 11.88 lbs. per gallon.
- * Shelf Life: Two years+.
- * VOC Level: 67 grams/liter.
- * pH: 8.5 - 9.0.
- * Viscosity: 105-110 KU.

TESTS AND CERTIFICATIONS:

- 1) USDA approved
- 2) Marine approvals for salt water/maritime use:
 - *DNV (Det Norske Veritas) *US Coast Guard
 - *ABS (American Bureau of Shipping)
 - *IMO (International Maritime Organization)

- 3) Energy Star Rating - approved and accepted as an energy partner for energy savings
- 4) Factory Mutual approval
- 5) BOCA (Building Officials Code Adm.) approved
- 6) UL (Underwriters Laboratory) approved
- 7) California Cool Roof Program approved and listed
- 8) Flame Spread Test (ASTM E8489/UL 723):
Flame = 0 / Smoke = 0 / Class A Flame Spread
- 9) Flexibility (ASTM E1737): 180F deg. bend-passed
- 10) Adhesion (ASTM B3359): rated a 5B
- 11) Perm Rating (ASTM E96): 8.8 avg
- 12) Tensile Properties (ASTM D412): 444 psi
- 13) Abrasion Resistance (ASTM D4060): 3,000 cycles
- 14) Resistance to Salt Spray: 2000 hrs
- 15) Resistance to Wind Driven Rain (ASTM E514)
- 16) Sound Reduction: STC-Rated 48-51
- 17) RE20: two coats interior (ASTM C236)
- 18) RE19: one coat exterior (ASTM C236)
- 19) Blocks 99.5% of infrared / 68% sound blockage
- 20) 70% of Japanese marketshare
- 21) Resists mold and mildew
- 22) NASA tested and listed
- 23) Blocks moisture in concrete blocks

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.

KEEP OUT OF REACH OF CHILDREN.

For more specific safety procedures, please refer to the SUPER THERM[®] Material Safety Data Sheet.

LIMITATION OF LIABILITY: The information contained in this data sheet is based upon tests that we believe to be accurate and is intended for guidance only. All recommendations or suggestions relating to the use of the products made by SPI, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge is reliable. The products and information are designed for users having the requisite knowledge and industrial skills, and the end-user has the responsibility to determine the suitability of the product for its intended use.

SPI has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, SPI does not accept any liability arising from loss, injury, or damage resulting from such use or the contents of this data sheet (unless there are written agreements stating otherwise).

The information contained in this data sheet is subject to modification as a result of practical experience and continuous product development. This data sheet replaces and annuls all previous issues and the user has the responsibility to ensure that this sheet is current prior to using the product.

SUPER THERM®

SPECIFICATION SHEET (08/05)



TESTING:

- * ASTM B117/D1654, 450-Hour Salt Spray: Passed
- * ASTM C236-89 (93) Thermal Transmittance Conductance (BTU/Sq.Ft./Hour/F):
 - Fiberglass - 0.52 Conductance
 - Super Therm (one coat) - 0.31 Conductance
 - Super Therm (two coats) - 0.21 Conductance
- * ASTM C411 High Temperature Surface Performance: Passed
- * ASTM D522 Mandrel Bend on Metal or Rubber Materials (1" bend): Passed
- * UL 723: Class "A" or "1" Fire Rating
- * ASTM E84-89 Flame Spread/Smoke: Passed ("0" Flame/"0" Smoke)
- * ASTM D3273-82T/D3274 Fungal and Mold Resistance: Passed
- * ASTM E96 Water Vapor Transmission: Passed (Less than .01)
- * ASTM E514 Resistance to Wind Driven Rain: No Apparent Moisture Penetration
- * NASA 8060.1B/C Test 1 Flammability Test: Passed (Class "A" rated)
- * NASA 8060.1C Test 7 Toxic Off-Gassing: Passed ("K" rating for toxicity)
- * Japan JIS A 5759 Reflectivity, Light and Radiation:
 - Long-Wave Radiation 99.5 (Infrared): Passed
 - Light Reflectivity Ratio: 92.2
- * ASTM D6904 (Fed Spec TT-C-555B) Resistance to Wind Driven Rain for Exterior Coatings.
- * ASTM D7088 (Fed Spec TT-C-555B) Resistance to Hydrostatic Pressure for Coatings.

CHARACTERISTICS:

- | | |
|---|--|
| * Made of four ceramic compounds | * White in color |
| -- Two reflective | * Water-based coating |
| -- One non-conductive | * Cures by evaporation |
| -- One infrared blocker | * Dries to touch in one hour |
| * Made with four high-performance resins for durability | * Recoat window is two hours or longer at 70F. degrees |
| * Two acrylics | * Fully cures in twenty-one days |
| -- One is elastomeric in nature for adhesion and to protect against ponding water | * Solids by weight 63.6% / By volume 68% |
| -- One is a proven work-horse acrylic that is tough and durable | |

CERTIFICATIONS:

- | | |
|---|---|
| * DNV (Det Norske Veritas) Approval for Worldwide Salt Water and Maritime Use | |
| * IMO (International Marine Organization) Approval | |
| * ABS (American Bureau of Shipping) | * USCG (United States Coast Guard) Approval |
| * BOCA (Building Officials Code Adm) Approval | * Energy Star Program Approved Partner |
| * UL (Underwriters Laboratory, Inc.) Approval | * FM (Factory Mutual) Approval |
| * ICC (International Code Council) Approval Pending | * Energy Star Product Approval |
| * California Cool Roof Program Rebate Approval | * Florida Energy Rebate Program Approval |
| * USDA (United States Department of Agriculture) Approval | |

SUPERIOR PRODUCTS INTERNATIONAL II, INC.
SUPER THERM®
APPLICATION INSTRUCTIONS (5/25/04)



Super Therm® is a unique one-part combination of high-performance aliphatic urethanes, elastomeric acrylics, standard acrylics and resin additives in a water-borne formula. It can serve as a base coat, intermediate or topcoat, and can be applied to metal, concrete, masonry and wood.

SURFACE PREPARATION

New construction (metal, concrete, masonry, wood):

- 1) Power wash surface (3,500 psi) with a citrus cleaner to remove dirt, oil, tar, grease and film. In coastal areas, Chlor-Rid should replace the citrus cleaner.
- 2) Surface must be completely dry.
- 3) Apply Super Therm® directly to the surface.

Previously coated (metal, concrete, masonry, wood):

- 1) Power wash surface (3,500 psi) with Chlor-Rid to remove loose or flaking paint, rust, and salts, and to clean the surface of dirt, oil, tar, grease and film.
- 2) Wipe down with Acetone to completely dry the surface.
- 3) Apply Rust Grip® according to prescribed application instructions and coating thickness.
- 4) Allow the Rust Grip® to cure for four hours or until dry to the touch.
- 5) Apply Super Therm® over the Rust Grip®.

Harsh environments, where color is desired or where pooling may occur:

- 1) Super Therm® should be overcoated with Enamo Grip over metal and Enamo Grip WB over flexible substrates (foam, tar, rubber and wood).

NOTE: If pack rust, scale or bright glossy surfaces exist, they must be removed by grit blast, power tool or needle gun. Once removed, begin with step 1 (power wash).

MIXING

- 1) Super Therm® should be mixed by hand for two minutes and then applied.

NOTE: Once a container is opened and not fully used, snap the lid back in place and the remainder of the product can be stored for future use (the lid must be firmly in place).

POT LIFE

Four hours at 70F. degrees if container is left open.

APPLICATION

Super Therm® can be applied by brush, roller or spray:

- 1) If application is by brush, use a soft or medium bristle brush. It will take two coats to achieve the desired thickness when using a brush.
- 2) If application is by roller, use a 3/4 inch nap roller. It will take two coats to achieve the desired thicknesses when using a roller.
- 3) If application is by spray, use a standard airless sprayer (3,000 psi or less) with a carbon steel or titanium tip sized between .029 and .032. All filters should be removed from the sprayer prior to application as they will trap the ceramics.
- 4) Normally, Super Therm® will be applied at sixteen mils wet. Before beginning application, check the job specifications for the exact number of coats to be applied and at what thickness per coat.

NOTE 1): If Super Therm® is applied during a period of high humidity or if there is rain after application, bubbles may appear on the surface. Do not puncture the bubbles. This is normal and the coating will continue to cure with no effect on the performance or appearance of the coating. Bubbles will disappear without a trace or imprint.

NOTE 2): Super Therm® is not designed to totally replace fiberglass in cold climates.

NOTE 3): Under no circumstances should Super Therm® ever be applied to a thickness of less than thirteen (13) mils wet.

CURE TIME

- 1) One hour to touch at 70F. degrees and bright sun.
- 2) Overcoating window is two hours at 70F. degrees or longer.
- 3) Fully cures in twenty one days.

TEMPERATURE

- 1) Apply between 50F. and 100F. degrees.
- 2) Store between 40F. and 100F. degrees.

CLEAN-UP OF EQUIPMENT

- 1) After completion, spray systems should be cleaned with soap and water.
- 2) After completion, brushes and rollers can be cleaned with soap and water, stored and reused.



SECTION I - IDENTIFICATION OF THE PRODUCT AND THE COMPANY:

PRODUCT NAME: Super Therm®

RECOMMENDED USE: Insulation coating to create thermal barrier on substrates

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 - COMPOSITION & INFORMATION ON INGREDIENTS:

Fire retardant - 6% Mica/Additives - 14% Acrylic & Urethane Resin - 49%

Insulator - 17% Titanium Dioxide - 6% Water - 8%

SECTION III - HAZARD IDENTIFICATION: This product is water-based and not classified as dangerous for supply or conveyance. The ingredients are water-reduceable and the limit on the ethylene glycol is less than 3% of formula, which falls well within acceptable safety limits. 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 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 CO2

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.

NAP = Not Applicable

NAV = Not Available

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:

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: ethylene glycol C50 ppm (ACGIH); 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: some evidence; glycol
TERATOGENICITY: developmental abnormalities; glycol--no effect in finished product
REPRODUCTIVE TOXICITY: teratogenicity (glycol) -- no effect in finished product
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 biodegradable 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: NAP

