FUEL 20-30% SAVINGS INDUSTRY TESTED

KAPOW HEAT!™

SUPER THERM®

Insulation Coating

Cool Truck & Transport Energy Savings Kit™

ECO SAFE AND FRIENDLY · BLOCK 95% HEAT BE COOL SUPER THERM · NO FIRE SPREAD · CO_2 Emission Reduction · NASA Tested Flammability & Toxicity neotech

Part 1: **ROI Global Projects**

Part 2: **Testing & Certification**

SUPER THERM®
Insulation Coating

neotech COATINGS AUSTRALIA
WE SHIELD - PROTECT - INSULATE

In the Trucking Industry

Reduces Temperatures by up to 20 degrees!

Benefit: Reduction in heat damaged goods claims

Additional Benefit: Increased worker productivity and reduction of heat stress related Workman Compensation Claims.

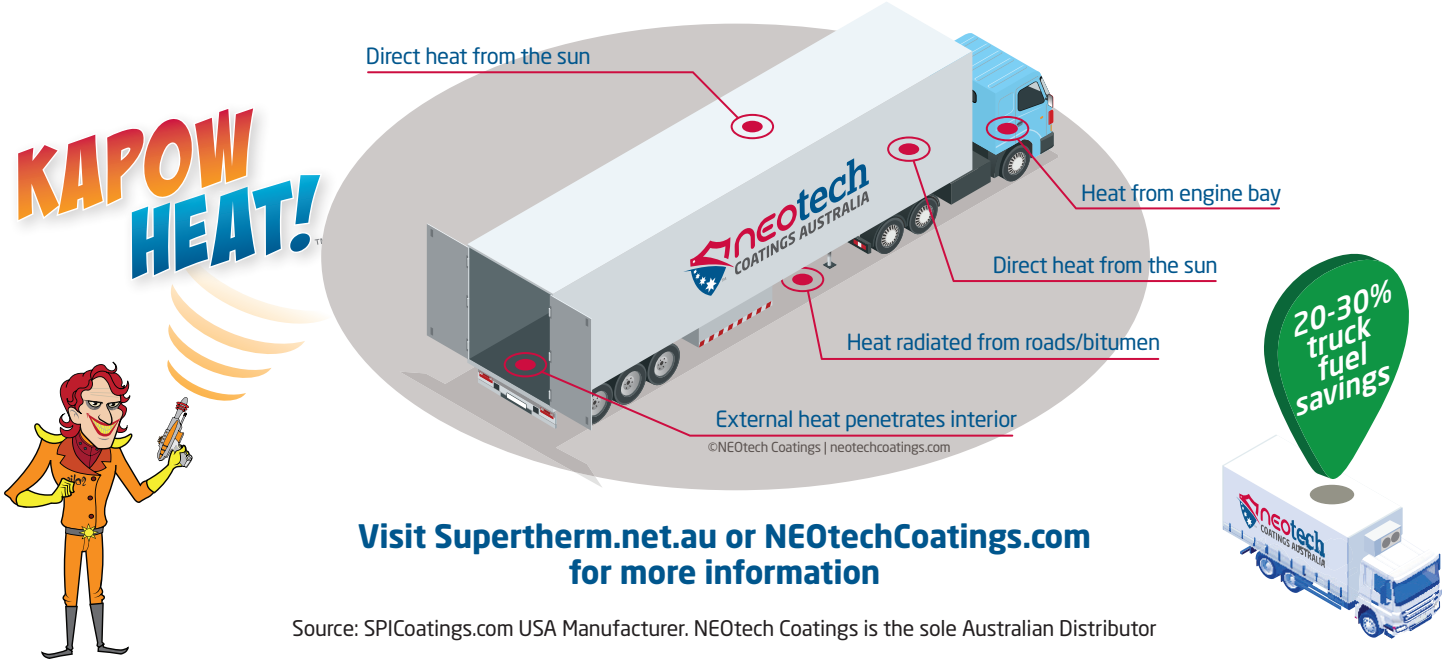
In the trucking/package delivery industry, heat related claims are a major cost due to damaged goods and heat stress related employee claims. Worker productivity is reduced due to discomfort both for the drivers and the employees that load and unload the trailers.

Super Therm® is an industrial coating that insulates the trailers and delivery vans. It is both a reflector of radiant heat and a non-conductor providing insulation equivalent to 6 to 8 inches of fiber glass insulation with just a 10 mil coating that can be brushed, rolled, or sprayed. The reflectivity does not rely on the coating being clean, as is the case with other reflective coatings. **Super Therm**® is a non-conductor of heat, it works effectively when applied to the inside walls, as well as the exterior roofs of the trailers.

Once the heat penetrates into the trailer or van, the packages absorb the heat, and it is impossible to reduce heat with ventilation. The key is to stop the heat from being absorbed by the packages by reducing the transmission of heat in the beginning.

Actual Temperature Test Results

- Ambient temperature was 24°C degrees with hazy sunshine. **Super Therm**® was applied to the exterior of the roof. Infrared temperature testing of the **inside roof temperatures dropped from 53°C uncoated to 31°C on coated roofs.**
- Ambient temperature was 24°C with hazy sunshine. **Super Therm**® was applied to the interior of the walls. **Interior wall temperatures dropped from 56°C degrees to 40.5°C degrees on uncoated versus coated walls.**



Visit Supertherm.net.au or NEOtechCoatings.com for more information

Source: SPICoatings.com USA Manufacturer. NEOtech Coatings is the sole Australian Distributor

SUPER THERM®
Insulation Coating

Super Therm® is guaranteed to make your life and the envrionment better with it's top 5 benefits!

1. Saves you thousands in energy costs with clients showing ROI within 3 years^ and industry tested to show 20-50% energy use reduction
2. World's only insulation coating tested and reflects 95% of solar heat
3. Proven to last over 30 years with a 20 year Manufacturer's Guarantee*
4. Prevents thermal shock protecting your assets, reduces fuel consumption and motor running costs
5. Environmentally friendly, safe and easy water based application and USDA Approved

Key Features and Benefits of Super Therm include:

PASSED

- Blocks 95% of Heat Load (blocks the absorption and transfer of heat) • Total Solar Reflectance 96.1
  - 99% of Ultra Violet Radiation (UV)
  - 92% of Visual Light (Short Wave Radiation)
  - 99.7% of Infra Red (Long Wave Radiation)
- Blocks Flame Spread and Smoke – Class "A" Fire Rating; "0" Flame Spread and Smoke (tested by NASA and Australian laboratories).
- Blocks Water and Moisture Penetration – certified and tested water barrier
- Resists chemicals and provides both insulation and corrosion protection
- No off-gassing – no smells or odours are produced while under application or on the structure
- Safe and non-toxic low VOC • Prevents Mould and Mildew
- Water can still be potable from the roof
- Environmentally Friendly water based, non-toxic, energy efficient results as Energy Star rated
- Works when dirty • UV and weather resistant
- Tested to blocks 68% of Sound Waves – sound deadening
- High technology insulation – when applied is only a 0.254mm thick (same as a business card)
- Easy to apply and clean with airless (1 coat), roller or brush (2 coats)
- No maintenance costs – apply and walk away – reapply 10+ years later to keep coating efficient
- Adaptable – can be applied to virtually any surface
- Simple single use coating ready-to-use formula
- Reduced electricity costs – save money as the air conditioner don't work as hard
- Improves efficiency of solar investments
- Improved personal/animal comfort – significant benefits in ambient temperature
- Reduces surface temperatures for safety
- Use on interior and exterior
- Offers carbon offset with improved contributions to urban heat island effect reduction

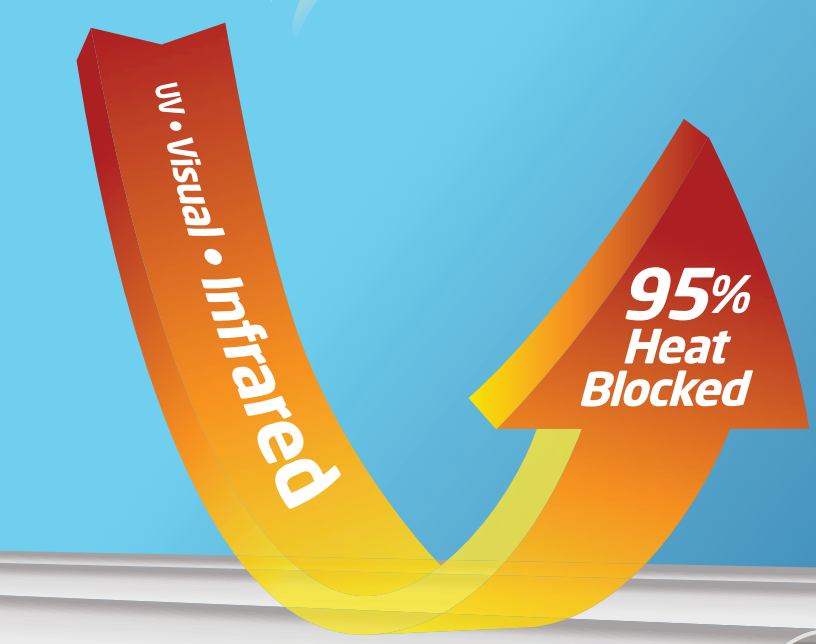
KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

Super Therm: Leading global insulation coating that blocks Australian heat!

World's Leading HEAT REFLECTIVE Insulation Coating



NASA Tested Flammability & Toxicity

High Performance >>>

SUPER THERM® Insulation Coating

• ECO FRIENDLY • BLOCKS HEAT • FIREPROOF • WATER BASED • EASY APPLICATION

For over 30 years Super Therm® has blocked 95% of solar heat and saved 20-50% in energy use!*

*Industry & Department of Energy USA Tested • Results at neotechcoatings.com

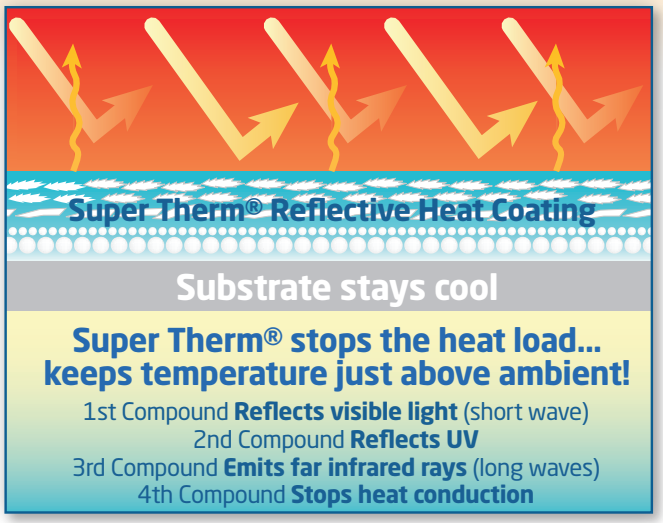
neotech COATINGS AUSTRALIA
HEROS THAT PROTECT / SHIELD / INSULATE

SUPER Proven the Hero for over 30 Years Globally

High Performance >>>
SUPER THERM® Insulation Coating

How Super Therm® Works

Formulated 4 ceramic insulation coating that have been tested globally to block 95% of Infrared, UV and Visible heat energy and stop heat load!



STOPS 99.5% Infrared Heat ASTM E1461-92

Total Solar Reflectance 96.1 SRI 102

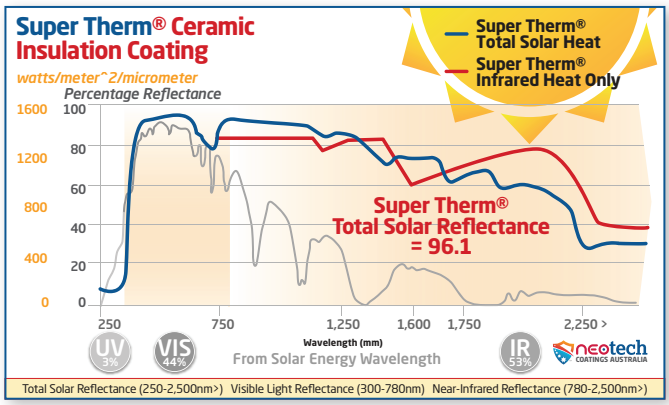
Super Therm®'s insulation leading technology

Super Therm® contains four natural ceramic compounds from over 7,000+ available. Three match each of the solar radiation waves of UV, IR and Visual to block their solar heat and the fourth ceramic has a density 50 times lighter than paper so the heat cannot physically load into the surface.

This creates high emissivity and reduces conduction...acting like sunscreen on the roof and walls therefore no heat load!
No other coating performs this function. Along with the unique urethane and acrylic binders, **Super Therm®** is highly durable and tough!

J.E. Pritchett, the President of SPI Coatings, USA is a ceramic researcher and formulator worked with NASA engineers and spoke at the NASA new technologies symposium in Chicago in 1995 as a ceramics specialist where he is leading in his field worldwide. **While many companies mention NASA, SPI Coatings and Super Therm® has been developed and tested by NASA since the 1980s!**

This is why the surface of **Super Therm®** is no more than a few degrees over ambient in any climate as it blocks 95% of the heat. There's no heat load, so no heat absorbed and transferred even when the surface is dirty. It passively keeps performing!



Note: All claims made in this brochure are proven with labratory testing world wide.
Visit: https://neotechcoatings.com/super-therm-testing-and-results/

Super Therm® - The Overview

- For Commercial/Office, Industrial and Residential use where you want the best heat blocking solution on the market
- Water based combination of compounds
- Safe and non-toxic low VOC
- Approved for use around food and potable water
- Max. surface temp when applying is 65°C and min. 5°C
- Easy preparation with pressure cleaned of substrate to be free of any contaminants and corrosion.
- Application by airless sprayer, brush & roller (2 coats).
- Apply wet at 425 microns / 17 mil and dries to 230 micros / 10 mil (business card thickness).
  Generally 30-60 minutes to tack free.
- Overcoat in 2 hours at 21°C and fully cures in 21 days.
- See instructions for full and correct application

20 Year Manufacturer's Warranty

GOLD SUPER THERM STANDARD

J.E. Pritchett, President of SPI demonstrates a 1090°C blow torch in his hand showing emissivity in the **Super Therm®** compounds. This actively demonstrates how Super Therm won't load heat.

High Performance ›››
SUPER THERM
Insulation Coating

The SUPER Hero that insulates and protects you!

Commercial, Industrial and Government Worldwide application

Super Therm® BLOCKS the Australian heat!

The stakes are high and we know how it feels to struggle with rising power costs and CO_2 emissions. **NEOtech Coatings Australia are authorised distributors of innovative SPI Coatings (USA) who have successfully proven globally their advanced insulation solutions** that **block solar heat.** This ultimately gives you multiple benefits including a return on your investment while protecting you, your assets and the hip pocket. For over **30 years, clients globally** have **reduced their struggle with heat and energy costs as the high performance range of coatings** from SPI help them deal with many different and extreme environmental challenges.

How much energy use is really costing?

Constant efforts go into saving money on power bills, energy efficient appliances, switching off air-conditioning or finding the best solar options. Not too mention dealing with the pure discomfort of heat entering buildings and creating a hot box.

There's also the unseen cost of thermal shock (expansion and contraction of your roof) causing long-term roof damage...**the blindspot in the insulation battle is keeping the heat out by blocking as much UV, Visual and Infrared heat energy at the envelope of the building or structure.**

Nissan Japan saving 75% energy consumption with Super Therm®

JAPAN

Sony Koda Factory, Aichi, Japan: 200,000m²

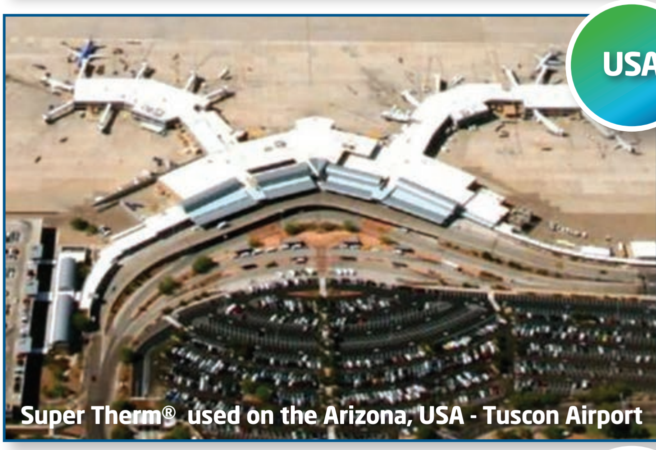
Application to Nissan Factory	**May**	**June**
Before Super Therm® applied	3,767 kW	5,647 kW
After Super Therm® applied	519 kW	1,896 kW
TOTAL KW SAVINGS	**87%**	**67%**

Source & Photo: Daiko Shokai, Japan Distributor

DUBAI

Super Therm® used on the Address Dubai Marina Hotel

USA



Super Therm® used on the Arizona, USA - Tuscon Airport

AUS

Hepburn Springs 12 Shipping Containers home, Australia

5 Core Benefits of Super Therm®

1. **World's only insulation coating tested internationally to block 95% of solar** (radiational) heat; Infrared 99.5%, UV 99% & Visual 92% energy!
2. **Saves you thousands in energy costs** over many years with clients showing ROI within 3 years^
3. **Proven to last over 30 years with a 20 year Manufacturer's Guarantee***
4. **Prevents thermal shock** protecting your assets, **reduces fuel consumption, running engine costs, refrigeration and maintenance.**
5. **Environmentally friendly**, safe and simple water based application approved by the EPA. No fire spread or smoke.

Proven, tested outstanding success globally since 1989

*Warranty based on Approved NEOtech Coatings Applicator ^Individual results may vary

SPI COATINGS
PROVEN PERFORMANCE • REAL WORLD SOLUTIONS
AUTHORIZED DISTRIBUTOR

Global Projects = SUPER Hero Solutions

High Performance >>>
SUPER THERM® Insulation Coating

Super Therm® is transforming the planet with its success!

Many national organisations and governments around the world apply and use Super Therm® and other SPI's coatings. Whether it's a house, factory, farm or truck...Super Therm® has you covered with cases studies all over the globe!

Global Savings

20-50% energy savings

Industry testing with the Florida Energy Conservation Assistance Program after applying **Super Therm®** records moisture block and air flow reduction as well as a **20-30% energy savings on homes** (hot humid climates) and in Denver (dry climates) as well as steel containers in Texas finding **46-52% energy savings!**

40% air conditioning savings

Super Therm® was applied to 34,800m² of the **Tucson International Airport**, it saw a **22% reduction in total energy usage** (lighting, elevators, food facilities, etc) and a **40% reduction in air conditioning costs.^**

55% energy savings

Cumming New Life Church, Cumming, GA, needed help with high electric bills coupled with cooling units running all the time and inside temperatures not going below 25°C (78°F). Atlas Air and Heat Inc. performed a CHVAC load calculation and found 22.8 tons of cooling were needed yet the existing system could only produce 15 tons. **Super Therm®** was applied on the existing metal roof.

The power bill from September previous year showed 11,320 kWh's used vs. September next year usage of 5,200 kWh's. **The cooling tonnage was re-tested at 16.97 tons from 22.8 tons. The church reduced their energy use by 55% and the amount of cooling needed by 26%.**

50-60% utility savings

Temperatures in **Las Vegas** average 43.3°c in July (summer). Adobe Homes coated the roof and walls with **Super Therm®** of a home and report up to 50-60% savings on the total utility bill. The house maintains temperatures not over 27°c without air conditioning.

Global Companies Using Super Therm®

- Mitsubishi
- Nissan
- Sony
- Panasonic
- General Dynamics
- Hoover Dam
- HEB Grocery Company
- Major Oil Firms - Worldwide
- Trucking & Transportation
- Halliburton Company
- Vodafone Group PLC
- Home Builders
- U.S. Army
- U.S. Air Force
- U.S. Navy

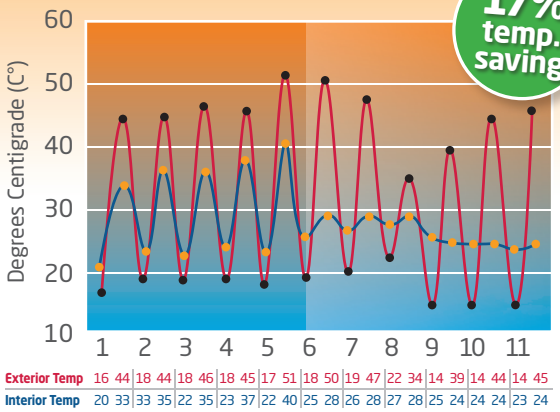
...and many more

CO_2 Emission Reduction

Super Therm® beats the heat in Spain

A metal roof in Sevilla, Spain had temperature readings taken 8am to 2pm to determine increase of heat load from the coolest point of the day to the hottest. **Super Therm®** was applied at the beginning of the 6th day. A noticeable change is recorded to the interior on subsequent readings, indicating a leveling of temperature between the morning and afternoon compared to the consistent exterior temperature readings (private industry test data). Internal temperature dropped from 30°C to 25°C or 17% saving.

17% temp. saving



Exterior Temp	16	44	18	44	18	46	18	45	17	51	18	50	19	47	22	34	14	39	14	44	14	45
Interior Temp	20	33	33	35	22	35	23	37	22	40	25	28	26	28	27	28	25	24	24	24	23	24

Trucks & Reefers using Super Therm®

Denver to Phoenix, USA

Cool-down time was cut by **1.75 hours or 44%**
Extend the life of the refrigeration trailer units
20% less fuel on the outbound "hot" haul
29% less fuel on the return "cold" leg

NO FIRE SPREAD

FUEL 20-30% SAVINGS INDUSTRY TESTED

Visit
neotechcoatings.com
for more savings
and case studies

*ARISTA Air Conditioning Corp: aristair.com/blog/15-tips-to-keep-your-energy-bills-from-skyrocketing-this-summer/
^ neotechcoatings.com/coating-products/super-therm-insulation-coating/super-therm-case-studies/

SUPER

The Hero aims to protect our environment

High Performance >>>
SUPER THERM®
Insulation Coating

Easily reduce your footprint!

Industries, government and residents globally rely on **Super Therm®** due to its unique and outstanding high performance and sustainability results and benefits. The core properties of **Super Therm®** continue to attract smart customers needing a genuine and long term eco-friendly insulation solution that yield passive energy efficiency, reduces CO_2 emissions and reduces costs. Super Therm stopping the BTUs entering buildings means less cooling needs!

Super Therm® the proven leader!

EPA Energy Star Program

Super Therm® is an approved and accepted Energy Star Partner

- ASTM E 903-96 Reflectivity=80%
- Only 1% loss in reflectivity over 3 Years (3% over 10 years)
- ASTM C 1371 and C 1549 Solar Reflectance and Thermal Emittance
- Tested to maintains thermal efficiency for 30 years

CRRC (Cool Roof Rating Council)

Rated Products Directory: Field-Applied Coating. CRRC Product ID# 0802-0001

LEED - Leadership in Energy & Environmental Design

Cradle to Cradle Silver Certification

Environmentally Safe and Eco-effective

SPI - Member U.S. Green Building Council

Why roof colours matter with heat

Dark roofs can attract 25% more heat than white roofs due to emissivity. While dark roofs may blend into the environment better, they **increase the temperature more in your building**!

As energy prices and temperatures rise you'll need to consume more energy to remain cool, therefore it costs you more. **Black or dark coloured surfaces absorb more heat energy and magnify the temperature more** than white roofs, sometimes **reaching 80°C+ on a hot day with no heat barrier**. This heat is transferred into the building where fibreglass insulation loads the heat and air conditioners work hard to keep up...eventually its all overloaded!

Solar panels are able to create more input credits with **Super Therm®** blocking heat and reducing need on air conditioning.

Super Therm® blocks 95% of that heat at the best place, the envelope, leaving near ambient temperatures. This creates a very energy efficient building that also has the roof protected from thermal shock and corrosion and reduces urban heat loading effects.

LOW CO_2 EMISSIONS

REDUCE URBAN HEAT ISLAND™

Super Therm® passively reduces CO_2 emissions

Certified and Tested

energy star

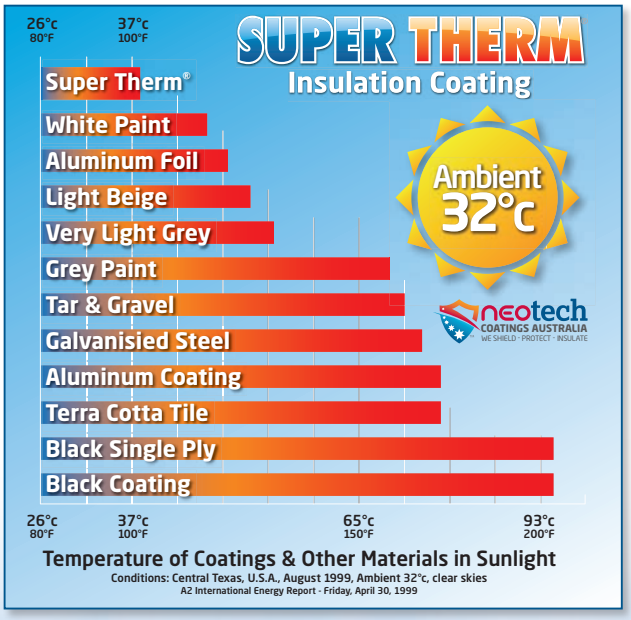
cradle to cradle®

U.S. GREEN BUILDING COUNCIL LEED CERTIFIED USGBC

LEED LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

CRRC COOL ROOF RATING COUNCIL

Super Therm® has been proven for 30 years to save you energy by blocking heat. These savings reduce CO_2 & costs



Save 39% more energy at 25°C

Con Edison, NY research stated "keep your thermostat set at 78°F (**25.5°C**) when your building is occupied...turning down the thermostat to 75°F (23.8°C) costs 18% more, and 72°F (22.2°C) costs 39% more!"* .
Therefore BTU Reduction = KW savings = a ctual dollar savings...keeping out as much heat load as possible saves money and energy use.
Super Therm blocks heat = less energy to cool!

WATER BASED SAFE ECO FRIENDLY

CRA™ COOL ROOF AUSTRALIA

CO_2 Emission Reduction neotech COATINGS AUSTRALIA

Energy Savings Guide

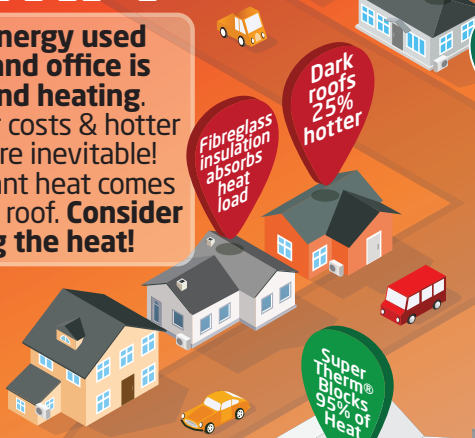
High Performance >>>

SUPER THERM®

Insulation Coating

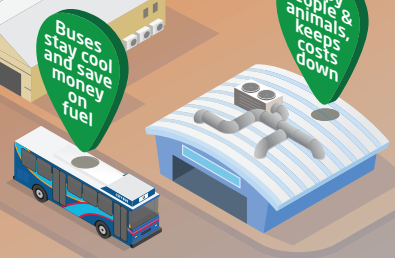
1 IDENTIFY

40% of energy used at home and office is cooling and heating. Rising power costs & hotter summers are inevitable! 93% of radiant heat comes through your roof. **Consider stopping the heat!**



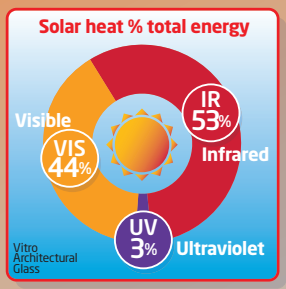
CHOOSE 2

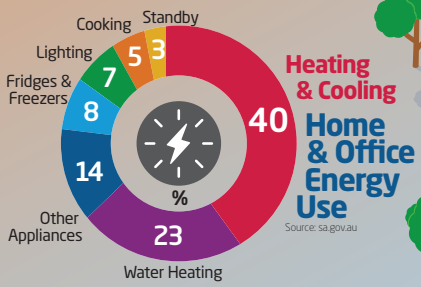
Many insulation choices fall short of what **Super Therm®** Insulation Coating provides. Compare **20-50% saving in energy use** (DOE), **99.5% BTU heat block**, **lasts 30 years**, **eco friendly, no maintenance!**



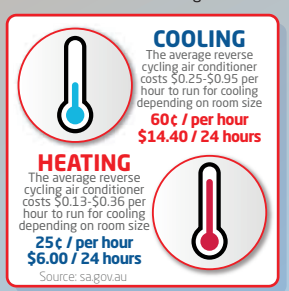
PREPARE 3

Contact NEOtech Coatings for more information and we'll help you understand all the ins and outs. Quote, agreement, invoice and get ready to apply, **save energy and save money!**





A 3°C reduction in the thermostat produces a 39% reduction in utility costs.
Con Edison, NY.

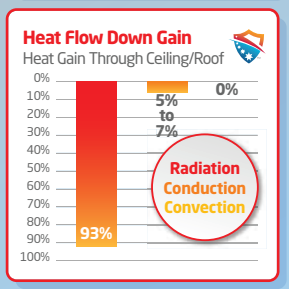


4 APPLY

Qualified applicators pressure clean your roof and apply **Super Therm®** insulation coating that starts to work instantly to **passively block 95% of heat!**

REWARDS 5

Super Therm® brings years of passive insulation benefits. **It's also saving money, much cooler in summer and warmer in winter with less energy used! Contact us today!**
neotechcoatings.com



SPI GLOBAL DISTRIBUTOR NETWORK

neotech COATINGS AUSTRALIA
HEROS THAT PROTECT / SHIELD / INSULATE

SUPER
The Hero Tested; still the Best!

High Performance >>>
SUPER THERM
Insulation Coating

Super Therm® is a proven insulation coating solution

Super Therm® and other SPI coatings have been tested in labs across the world along with successful global field testing. From NASA, Japan, Russia, Saudi Arabia, Australia and much more, its proven consistently outstanding results for 30 years.

95% Heat Blocked
SUPER THERM
INSULATION
SHIELD
PROVEN 30 YEARS
neotech

Super Therm® Application

Preparation

The surface must be clean from all dust, oil, tar, rust, grease, salts, films or any contaminants. Power wash minimum of 3000 psi. Surface must be completely dry before applying. Recommend drop sheets and caution as **Super Therm**® is difficult to clean up if spilt due to its bonding strength.

Mixing

Due to it's thick ceramic compounds **Super Therm**® is best mechanically mixed or mixed by hand (boxing) thoroughly for a minimum of 4 minutes, then apply.

Application

Super Therm® can be applied by brush, roller or sprayed. The preferred method of application is by air or airless sprayer. Remove filters from the sprayer and apply on a day with no wind. See and search neotechcoatings.com for airless sprayer instructions.

Spread & Coverage Rates

Super Therm® should be applied at no less than 17 mil wet = (425um Microns) and dries down to 10 mil = (250um Microns) after each application.

The total Dry Film Thickness (DFT) is a quarter of a mm (business card thickness) at 250um Microns. Recommended coverage is 2.5m² per litre.

Note: Roofs with corrugations
2" corrugation = roof size x 135%
2.5" corrugation = roof size x 145%
3" corrugation = roof size x 160%

PASSED

Application Temperature

Maximum Surface Temp. when applying: 65°C (150°F)
Minimum Surface Temp. when applying: 5°C (40°F)
Maximum Surface Temp. after curing: 149°C (300°F)

Drying and Cure Times

First coat: 30-60 minutes to tack free at 21°C
Overcoat: 2 hours later at 21°C at 40% relative humidity
Full Cure: 21 days
Note: If **Super Therm**® is wet or rained on during the curing process it may bubble. Do not puncture bubbles as the coating will settle down and retract to normal.

Clean Up

After completion tools should be cleaned with water; cleaned brushes and rollers can be reused.

Storage

Store between 5°C and 37°C and thoroughly close the container to air tight as **Super Therm**® will dry out.

Colours and Tinting

Super Therm® is a pearl white colour. It can tint to any earth-tone colours yet will loose its effectiveness. **Not medium to dark tones**. Never tint to grey-black as the tint will cover the ceramic particles first and block their effectiveness. Best approach is to apply **Super Therm**® in 2 coats, let dry, then paint a light coloured paint it as your finishing coat. Anything darker than 40% grey should have **HSC® Coating** applied underneath.

Test and Certifications

PASSED

- **UL** (Underwriters Laboratory) approved
- **Flame Spread Test** (ASTM E84; 0 smoke, 0 flame)
- **NASA**: NHB 8060.1B/C Test 1 **Flammability testing "0" Burn, Class "A" rating,** NHB 8060.1C, Test 7 Toxic Off gassing
- **UV & Salt Spray Resistance** (ASTM 5894) 5000 hours
- **USDA Approved**
- ASTM C236: **Fiberglass Batt insulation comparison**
- **Flexibility** (ASTM E1737): 180 deg. bend - passed
- **Perm Rating** (ASTM E96): 8.8 average
- **Abrasion Resistance** (ASTM D4060): 3,000 cycles
- **Resistance to Wind Driven Rain** (ASTM E514)
- **Department of Energy USA** - ECAP-CUL-1-03 - **Energy Conservation Assistance Program** - Standard Method for Comparing Utility Loads in Standard Constructed Buildings. Director, Alexander Othmer. **FEO Energy Conservation Assistance** / USF Tampa, Florida
- **ICC** Approval (International Code Council) Legacy Report #21-25. ICC consolidates approvals for: **BOCA** (Building Officials Code Administrators)
- **EPA Energy Star Program**: Approved and accepted as an energy star partner for saving energy
  - ASTM E 903-96 Reflectivity=80%
  - Only 1% reduction in Reflectivity in 3 Years (3% 10 yrs)
  - ASTM C 1371 and C 1549 Solar Reflectance and Thermal Emittance
- **CRRC (Cool Roof Rating Council)** Rated Products Directory: Field-Applied Coating, CRRC Product ID# 0802-0001
- **LEED - Leadership in Energy & Environmental Design** - Qualifies Sustainable Sites Credit 7.2 Heat Island Effect
- **United States Department of Agriculture - USDA** Environmentally safe and safe for use around animals

Visit: neotechcoatings.com - Search 'testing' for the full range of Super Therm® tests.

The genuine SUPER Hero 21st century Solution?

High Performance >>>
SUPER THERM®
Insulation Coating

At NEOtech Coatings we understand the struggle with the rising power costs, more energy use and rising environmental temperatures.

As summer's get hotter you can protect yourself with **Super Therm®** ***high performance insulation coating*** tested and proven to **stop 95% of heat**, including **Infrared.** This reduces your air conditioner running, power costs and saves money. **In fact the US Department of Energy ran three separate tests showing Super Therm® brought an energy saving of 20-50%*.**

Industries cannot rely on unsustainable energy efficiency when delivering their products and systems. That's why **NEOtech Coatings** with **SPI Coatings** are working hard for you to have outstanding energy solutions. **Super Therm® has proven to reduce heat and last over 30 years!**

We bring peace of mind to combating high energy use and associated costs. Transformation across all industry sectors including Government, business, trucking and transport, cool and cold storage, homes, schools and much more! Contact us today to start blocking the heat!

Super Therm® Physical Data

KAPOW THE HEAT!

- **Solids:** By w/w 70% / By v/v : 54% (+/-2%)
- 30-60 minutes to tack free at 21°C (70°F)
- **Overcoat:** 2 hours when 21°C (70°F) at 40% Relative Humidity
- **Full Cure by Evaporation:** 21 days
- Lead and chromate free
- USDA approved and permitted for use for potable water
- **Weight: 1.42kg/litre** (11.88 lbs./gallon)
- **Shelf Life:** Up to 5 years if unopened under appropriate storage conditions (See SDS).
- **Vehicle Type:** Urethane/Acrylic/Resin blend
- **VOC Level:** 67.2 grams/litre 0.561 gal/lbs
- **Acid resistance:** Will withstand mild acids
- **Viscosity:** 105 - 110 KU
- **pH:** 8.5 - 9.0
- **Apply:** 17 mils (425 microns) wet

Visit neotechcoatings.com for full Material and SDS pdfs

STOPS 99.5% Infrared Heat

TSR 96.1
Reflectivity 83%
Emissivity 90%
BTU 99.5%
ASTM E1461-92

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ENERGY 20-50% SAVINGS
INSULATES 95% Heat Block
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1-3 Edmund Street, Norwood SA 5067
PO Box 54, Stepney SA 5069
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*neotechcoatings.com/super-therm-testing-and-results/

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Roof Coating

Men are atop this row of 53-foot-long by 102-inch-wide Hyundai semitrailers, preparing to apply the ceramic-based insulating coating to their roofs. The trailers haul bread one way and ice cream back.

PHOTOS: CURT LUNDBERG

Ceramic Roof Coating Saves Fuel for Food-Hauling Fleet

Sunshine brings warmth and happiness, but to refrigerated trailers it brings only heat, and too much of it. Those hot rays from far away can raise temperatures inside the trailer to unbearable levels and cause the reefer unit to work really hard to keep things cool.

That was the case with Pacific Shipping & Trucking of Denver, which has a two-way food products haul with temperature extremes that were difficult to deal with. Then came a special roof coating that proved to be an impressive solution.

The carrier moves truckloads of baked bread from Denver to Phoenix, then returns to Denver with ice cream, explains Keith Robertson, the fleet's owner and president. Bread is maintained at 80 degrees, but ice cream must stay frozen at minus 20 degrees – "extreme heat to extreme cold," he says. It's a drop-and-hook operation, with trailers full of bread left at docks in the usually hot southern Arizona city while empty reefer trailers wait nearby.

A driver backs his tractor onto an empty, then starts the reefer unit to begin cooling down the trailer's interior so it can take on ice cream. Temps inside the trailer can be 120 degrees or more, and it's got to be cooled to below zero. "It was taking us two and a half hours to get the reefer that was sitting out in the sun to get to minus 10 – from there they can start loading – then," Robertson says. "Now it takes 45 minutes to an hour," so the reefer runs less and burns less fuel.

Bare aluminum roof bakes to 144 degrees on a moderately warm day in Denver, but measures only 54 degrees after it's coated.

The product is called Super Therm, a ceramic-based compound that blocks the sun's rays and prevents the trailer's roof from becoming a heat sink. The product costs $900 to $1,000 to apply, but saves enough fuel to pay for itself in 10 to 11 months, Robertson says. He has had Super Therm installed on 22 trailers involved on this

Tom Berg • Senior Editor

haul and plans to put it on more of his 100 trailers.

Super Therm is a water-borne insulating coating that also prevents moisture penetration and air infiltration over a surface, says its maker, Superior Products International, of Shawnee, Kan. "It is the most effective and longest lasting ceramic insulation coating on the market today," SPI claims on its web site, www.spicoatings.com. It is ecologically safe, fire-resistant and approved for use around food by the federal Food and Drug Administration. SPI makes seven insulation coatings for various applications, and others for corrosion and fire control.

Super Therm reflects over 95 percent of the three radiation sources from the sun, which are ultraviolet, visual light and infrared rays, the site says. On building roofs, where it has been used for more than 20 years, it does the work of 6 to 8 inches of traditional insulation. It is Energy Star qualified as a 20-year roof coating.

The roof is power-washed with a common detergent before it's coated.

Super Therm can be sprayed over large areas or rolled onto smaller surfaces. Coating needn't be cleaned to stay effective and lasts more than 20 years.

Curt Lundberg, a Denver-based distributor of SPI products who sold the Super Therm to Robertson, did a study of Pacific's bread-ice cream operation that measured fuel use before and after the coating was in place. As Robertson said, after coating roofs with Super Therm, the cool-down time in Phoenix was cut by 1.75 hours or 44 percent. The study showed a reefer unit also used less fuel while under way: 20 percent less fuel on the outbound "hot" haul and 29 percent less on the return "cold" leg.

A reefer burned thus 5.75 fewer gallons per day and saved about $13.50 with non-road fuel at $2.35 per gallon. Long-term savings depend on the number of trips a trailer makes; at 200 to 250 trips a year, the savings could total $2,500, Lundberg says.

Installation is fairly simple, he says. "You pressure-wash the roof with a detergent – we use Simple Green – then roll or spray it on. It goes on to the thickness of a credit card, 18 mils wet and dries to 9 mils, or about a thousandth of an inch. We have had it on buildings in Kansas for years and it doesn't deteriorate and it lasts through hail storms. It will last more than 20 years, which is more than the life of a trailer. You don't have to re-coat it at any time; you don't even have to clean it for it to work."

Another part of Pacific's operations involves hauling refrigerated containers of meat to West Coast ports for export to Asia. Robertson says he doesn't use the coating on the containers because they are stacked aboard ships, which blocks the sun for most of them. He also says roofs painted white at the factory perform better than the bare aluminum he had covered by Super Therm.

Lundberg has measured roof-surface temperatures and found them to be even higher than interior temps. "A roof gets to 144 degrees in Denver in the sun. Elsewhere it'll get to 200 degrees," he says. "By putting this on, the product doesn't allow the roof to heat up. It'll only be 2 or 3 degrees above ambient. It amounts to putting a tent over the trailer." ■

The Business Magazine for Professional Truckers
LAND LINE MAGAZINE
The Official Publication of the Owner-Operator Independent Drivers Association

Super Therm insulates reefers

Industrial Coatings Alliance Group Inc. is an international consultant, distributor, application and maintenance company of roof coatings and roofing systems. Headquartered in Roswell, GA, ICAG is a charter member of the EPA's Energy Star Roof Coatings Program and is a leader in researching and implementing energy conservation roofing programs for various prominent business owners. With more than 5 million square feet of roofing surface coated, as well as more than 30,000 over-the-road trucking trailers, ICAG is recognized as a leader in roofing solutions.

While most roofing systems are merely a means of keeping the weather out, ICAG's coating and roofing systems will provide superior insulating qualities, structural protection and aesthetics that will significantly lower utility cost, provide maintenance savings and enhance the aesthetics of the facilities and/or vehicle. Our research indicates that energy savings alone provide an extremely favorable payback period making the application a viable financial option.

Industrial Coatings Alliance Group has recently tested its proprietary insulation coating with one of the nations largest private refrigerated carriers. ICAG is pleased to announce that Super Therm, its proprietary coating, when applied to the top of a refrigerated trailer, can reduce the units fuel consumption approximately 30 percent versus a multi-temp refrigerated unit with traditional aluminum roofs.

Super Therm is a non-conductive ceramic coating that repels 99.5 percent of long-wave energy, 92.5 percent of short-wave energy and 99.9 percent infrared heat energy.

The test began in July 2002. Super Therm roof coating was applied to five multi-temp reefers in Tolleson, AZ. This facility was chosen due to the extreme amount of radiant heat that refrigerated units were exposed to daily, on mostly a year-round basis.

The "Control Group" consisted of five multi-temp trailers with traditional aluminum roofs. A third group of trailers, five multi-temp trailers coated with the trailer manufacturer's proprietary heatresistant composite roof, was included in the test as well. All 15 units were 2001 model year and manufactured to identical build specifications, with the exception of the addition of the heatresistant composite roof by the manufacturer.

The primary area of focus for this test was on fuel economy; would the Super Therm coated reefers burn less fuel than the control group and even the group with the heat-resistant composite roofing system. In addition, would the difference in fuel consumed justify the cost of the product?

After gathering and analyzing test results for the months of July and October, ICAG is pleased to announce that Super Therm not only met, but also exceeded the expectations of the private refrigerated carrier.

In July, the Super Therm coated units burned 30 percent less fuel than the "control" units and 20 percent less than the manufacturers heat-resistant composite units. On an annual basis, this

resulted in decreased fuel consumption of 1,039 gallons and 463 gallons respectively. At $1.10 per gallon, the cost savings were $1,143 and $509 per unit.

In October, the Super Therm units burned 27 percent less fuel than the "control" units and 22 percent less fuel than the manufacturers' heat-resistant composite roofing system units. On an annualized basis, this resulted in decreased fuel consumption of 599 gallons and 435 gallons respectively. At $1.10 per gallon, the cost savings were $659 and $479 per unit. Per our test, we can expect that savings would be highest in the summer months, lowest in the winter months and average in fall and spring months.

With product cost and installation cost considered, a payback could be expected of less than one year. These savings estimates do not include maintenance savings which would likely result from the refrigeration unit running less hours, or running a higher percent of hours in low speed versus high. This would, in theory, also extend the life of the refrigeration unit. In addition, savings associated with a decrease in labor that would result from fueling the reefers less often is not included in the cost savings.

Industrial Coatings Alliance Group Inc. believes that this coating system is consistent with private and for-hire refrigerated unit carriers' goal to provide superior service to their customers and staff while improving the bottom line of that company through significant cost reductions.

For information, contact Industrial Coatings Alliance Group Inc. at (770) 313-3735.

Publisher's Note: These announcements are written and provided by the manufacturers of the products and are offered here as a service to our readers. Product announcements are the opinion of the manufacturer or marketing company and do not reflect the opinions or beliefs of *Land Line Magazine* and its publisher.

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1 NW OOIDA Drive
Grain Valley, Missouri 64029
1-800-444-5791 or
816-229-5791

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

Update: Super Therm® on Reefer Trucks

July 2008

On July 25th, 2003, Land Line Magazine (The Business Magazine for Professional Truckers) wrote an article that reported the results of a test done by a large grocery company in Arizona. The company compared its Super Therm® coated trucks to 2 "control" trucks. One control truck was un-coated, and the other having the truck manufacturer's "heat resistant" composite top. Their 2003 report on fuel savings states:

"In July, the Super Therm® coated units burned 30 percent less fuel than the "control" units, and 20 percent less than the manufacturer's heat-resistant composite units."

"In October, the Super Therm® units burned 27 percent less fuel than the "control" units and 22 percent less fuel than the manufacturers' heat-resistant composite roofing system units."

Though impressive, these numbers were figured when the national average for Diesel fuel $1.10 per gallon. As validated on the graph at the end of the update, a review shows that Diesel fuel now has a national average of $4.72 per gallon. More than 4 times the cost of Diesel fuel 5 years ago.

The percentage of savings has remained the same. Although, the dollars saved has changed greatly.

The July report also states:

"On an annual basis, this resulted in decreased fuel consumption of 1,039 gallons and 463 gallons respectively. At $1.10 per gallon, the cost savings were $1,143 and $509 per unit."

Calculating Diesel fuel at today's price of $4.70 per gallon, this now calculates to a cost savings of $4,883 and $2,176 per unit respectively. This is over 4 times the dollar savings than figured in 2003.

The October report also states:

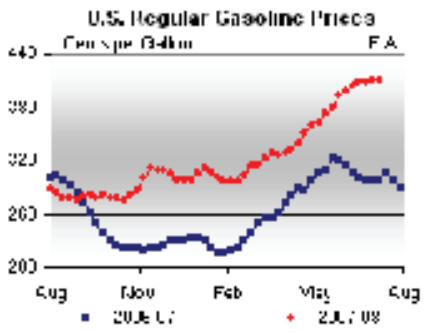
"On an annualized basis, this resulted in decreased fuel consumption of 599 gallons and 435 gallons respectively. At $1.10 per gallon, the cost savings were $659 and $479 per unit."

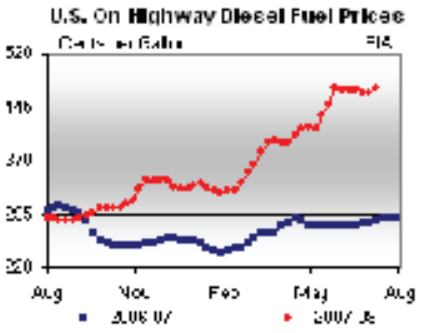
This considers the cooler temperatures and shorter days of October. Calculating Diesel fuel at $4.70 per gallon, this now calculates to a cost savings of $2,815 and $2,044 per unit respectively.

10835 W. 78th Street • Shawnee, Kansas 66214 • Phone: 913-962-4848; Fax: 913-962-6767
Website: www.spicoatings.com Email: sales@spicoatings.com

SUPERIOR PRODUCTS
INTERNATIONAL II INC
USA

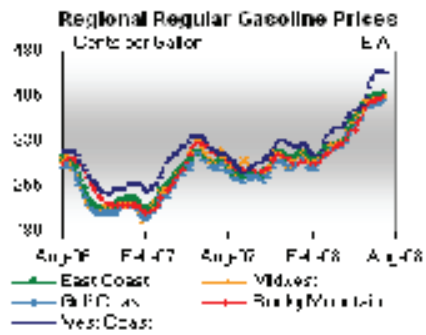
U.S. Gasoline and Diesel Fuel Prices, 07/07/08

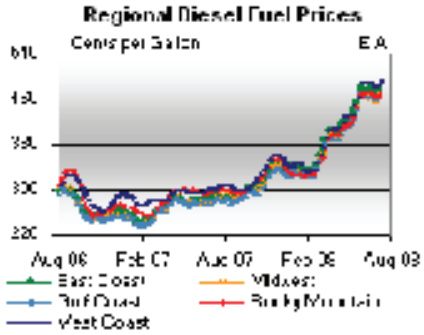




Gasoline (Cents per Gallon)	07/07/08	Change from	
	Price	Week Ago	Year Ago
U.S.	411.4	↑ 1.9	↑ 113.3
East Coast	407.9	↑ 2.2	↑ 115.5
New England	414.3	↑ 2.3	↑ 115.7
Central Atlantic	411.5	↑ 1.1	↑ 115.8
Lower Atlantic	403.3	↑ 3.0	↑ 115.2
Midwest	405.9	↑ 2.8	↑ 101.4
Gulf Coast	395.8	↑ 3.0	↑ 110.0
Rocky Mountain	406.5	↑ 3.1	↑ 99.9
West Coast	444.0	↓ -1.6	↑ 136.0
California	455.0	↓ -2.3	↑ 141.4

Diesel Fuel (Cents per Gallon)	07/07/08	Change from	
	Price	Week Ago	Year Ago
U.S.	472.7	↑ 8.2	↑ 187.8
East Coast	478.9	↑ 8.5	↑ 193.6
New England	486.3	↑ 4.1	↑ 192.1
Central Atlantic	488.7	↑ 6.5	↑ 195.1
Lower Atlantic	474.1	↑ 9.8	↑ 193.1
Midwest	465.4	↑ 8.3	↑ 183.2
Gulf Coast	469.7	↑ 9.3	↑ 191.2
Rocky Mountain	467.2	↑ 3.4	↑ 171.7
West Coast	488.6	↑ 6.9	↑ 189.9
California	500.1	↑ 7.3	↑ 191.1





SUPERIOR PRODUCTS
INTERNATIONAL II INC
USA

Additional Information regarding refrigerated trucks and trailers:

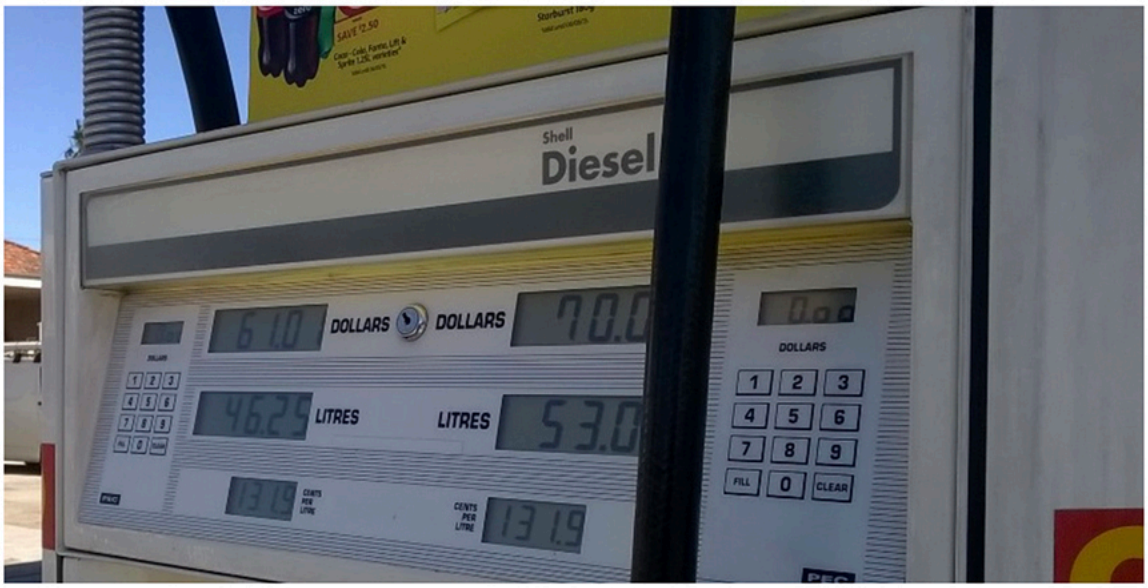
When coating trailers to insulate, there are a couple of points that are of interest to the trailer owners or operators.

a. Fuel consumption is one point that can be reduced because the trailers do not become hot and absorb as much heat which causes the units to run on high all the time. This is not as important as you would think because of the following points.

b. A Thermo King Refrigeration unit costs approximately $20,000-$25,000. The projected life is approximately 3-6 years with proper maintenance. If a trailer top, sides and bottom (heat from asphalt and concrete) is coated with Super Therm®, the absorption of heat is cut by up to 90%. Since the metal skin cannot absorb heat, then the heat transfer is reduced by the same percentage. At this pace, the Thermo King would be able to cycle and run more on medium speed. This is expected to extend the life of the unit by double or more. $20,000 X units X trailers X every 3-6 years equates to a tremendous amount of money saved per replacement cycle plus maintenance.

c. Operation managers are very keen on how much a trailer can haul to expand the business or move additional product on any given day to get more dollar volume using the same trailer. If the trailer is built with 4" of foam in each wall, the wall thickness could be reduced to only 1" of foam with the SUPER THERM on the exterior. Therefore, gaining interior space for additional product. With Super Therm® on the exterior, the metal cannot absorb the solar heat, and the need for foam thickness to slow transference is reduced. This gives the trailer 6" across the floor more capacity to haul product which is increased dollar production from each trailer every day.

Note: The manufacturer of Thermo King is not interested in knowing this nor promoting this since it would cut down on their units sold.



Historical diesel pump prices in Australia

Posted By: Marc on: May 12, 2018 In: Fuel, Industry Statistics

Print Email

Working out annual fuel budgets can feel like guess work even with the most reliable forecasts. To help with this process, and also for a trip down memory lane, Fleet Auto News has sourced historical pump prices on petrol and diesel in each state from the Australian Institute of Petroleum website.

Average Diesel Pump Prices

	NSW	VIC	QLD	SA	WA	NT	TAS	National
2007	134.7	129.8	124.7	133.1	135.9	139.1	135.4	131.3
2008	164.3	160.3	154.9	163.1	166.7	171.1	168.1	161.6
2009	123.3	119.8	119.4	122.1	127.3	132.2	128.4	122.5
2010	130.3	126.5	129.6	129.1	133.3	139.3	134.1	130.1
2011	148.9	145.1	148.3	148.2	150.8	159.0	152.6	148.5
2012	147.9	146.2	149.3	149.5	150.5	158.6	155.1	150.6
2013	154.1	151.2	154.4	154.4	156.3	168.4	159.6	154.3
2014	156.8	153.1	156.6	155.9	159.7	172.6	164.2	156.8
2015	130.1	125.9	131.1	128.2	134.9	138.2	137.8	130.4
2016	117.8	116.2	118.9	116.4	121.6	123.3	122.8	118.5
2017	128.5	128.3	129.5	127.1	132.3	135.1	136.4	129.6
2018	148.9	148.8	148.7	147.6	152.8	164.8	156.9	149.8
2019	147.9	146	147.1	147.9	148.9	161.4	158.8	148

The prices listed in the tables above are the average retail pump prices including GST.

For more information visit www.aip.com.au

https://fleetautonews.com.au/historical-pump-prices-in-australia/

Moore Hi Tech Coatings

Bob Fountain Transport

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15th February 1990

Hi-Tech Coatings,
P.O. Box 201,
MINLATON SA 5575

Dear Sir,

During the latter part of 1989 I heard about a product called SuperTherm which was supposed to be able to reduce inside temperatures.

Being the owner of a fleet of prime movers - pantech and tautliners - I have continual problems with heat build up in the tautliners which are primarily used to cart bananas from Northern New South Wales to Adelaide. Temperatures are frequently around 35°c. up to 50°c. in mid-summer. This heat build-up causes the produce to rot and at times the loss rate could be as great as 15%.
Bananas need to be carted at between +10°c and +13°c but the tautliners with refrigeration units running constantly would run at a constant +18°c.

Although a little sceptical about any real benefits of SuperTherm I decided to test the product with the following results :

Inside the tautliner - when it is standing empty it is noticeably cooler than a unit without SuperTherm.

The motor on the refrigeration unit if set at 10°c (normal temperature for carting bananas at that time) will in fact idle, hence a reduction in fuel costs to run the unit.

The reduction in temperature due to SuperTherm has eliminated produce losses which of course was my prime concern, the added fuel saving being a bonus.

To anyone considering having SuperTherm applied to their pantech or tautliner, my comments could only be —— to delay the application is to waste money ——.

K N Fountain

BOB FOUNTAIN TRANSPORT

UPS Case Study

UPS coated brand new Mitsubishi trailers with Carrier refrigeration units on the top which they leased from Trans West for 4 years. To coat 450.5 sq ft (41.8 sqm) per trailer at 18 mils wet we ordered 5 gallons (18.9 litres), but were right on the money in using 4.5 to 4.75 gallons for each trailer. It is cleaner and almost as quick to simply roll the Super Therm® on as compared to spraying it. It takes about 1.5 hours to prep and paint a trailer.

We compared two side by side identical trailers and directly after painting the top brought the surface temp down from 150°F (65.5°C) to 85°F (29.4°C) which was right at the ambient temperature. The temperature on the inside of the coated trailer was 12 degrees cooler than an identical, uncoated trailer, but we have studies that prove the average temp difference is as much as 23°F (5.5°C) cooler.

The intangible benefit includes less maintenance on the reefer units. If they are running less it can be assumed they will not require maintenance as often. Additionally, should a unit break will hauling a cold load the added insulation will provide additional time before the load is lost/spoiled/melted.

Below are the fuel savings results from the refrigerated trucks coated with Super Therm®.

The coated and uncoated trucks tested, traveled from Denver to Phoenix in early September, 2009. The trucks were tested for two types of loads:

Hot Loads: carrying bread from Denver to Phoenix at 26°C.
Cold Loads: carrying ice cream from Phoenix to Denver at -6.6°C
Cool down time: the time it takes the trailer to cool from 26°C to -6.6°C

Here are the results:

	Uncoated Trucks Fuel Used Gal (Lts)	Super Therm Trucks Fuel Used Gal. (Lts)	Savings Gal. (Lts)	%
Hot Loads	**20.5 (77.6)**	**16.5 (62.4)**	**4 (15.1)**	**20%**
Cold Loads	**26 (98.4)**	**18.5 (70)**	**7.5 (28.4)**	**29%**
	Time Required	Time Required	Hours	%
Cool Down	**4 (15.1)**	**2.25 (8.5)**	**1.75**	**44%**

The results show a 20% savings on ‘hot loads’ and 29% on ‘cold loads’, plus cool down time was reduced by 44% - getting the trucks back on the road much quicker!

Daily and Annual Savings

By using an average of 5.75 gallons (21.7 litres) less per trip and a diesel fuel price of estimated $1.35, this is a daily savings of $29.30 for the refrigerated trailers.

Assuming 200 to 250 trips per year (1/2 hot and 1/2 cold) this is an annual savings of $5,860 to $7,325 per year per coated trailer.

Return on Investment

The Return on Investment is **less than 6 months** and the one time application has a life expectancy of **10+ years with NO required maintenance and NO reapplication necessary.**

And, by reducing cool down time by over 40% - drivers wait time is reduced by many hours every week, getting the product to the end user sooner and drivers on to their next haul.

Comments From Australian Distributor On Coating Trailers

In trailer applications there are 5 points to follow.

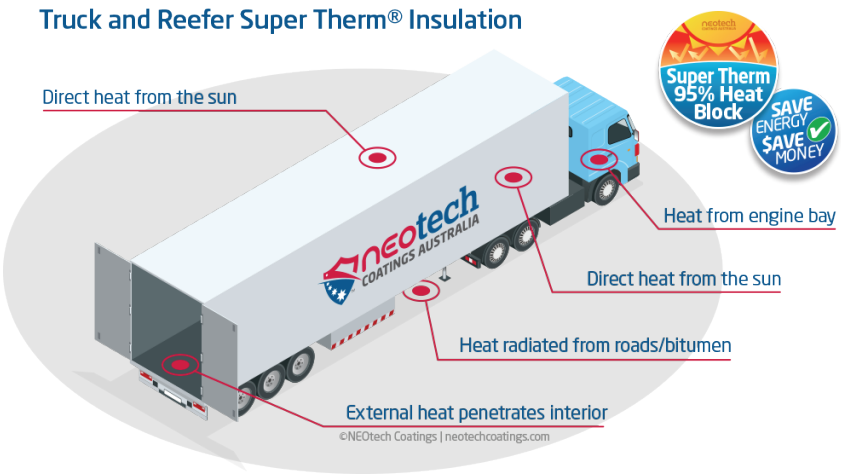
1: The roof of the trailer to be coated with 1 coat of Super Therm @ 250um (Microns Dry).
Apply 2 coats Enamo Grip HG Clear.
By using the above system stops exhaust gases leaving a large black area.
And is easier to clean as rain will also remove some of the soot.

2: The forgotten area in the trailer insulation is the underside and the running gear.
Bitumen road surfaces tested can have a temperature of 100°C.
A truck traveling @ 110 KPH the heat load into the underside is about 55°C.
Engineers that I have spoken to tell me I am wrong until I proved otherwise to them.
Insulate the underside with 1 coat Super Therm 250um Dry and 2 coats Enamo Grip HG Clear.
Do not coat the axles as heat needs to be dissipated.

3: As the walls are lined with Polyurethane as insulation and over time will granulate and absorb moisture.
The insulation value is reduced and the Thermo King Unit has to work harder.
To prove this point go to the lowest point of the trailer drill a small hole and capture the water that runs out. Insulate all the external area with 1 coat Super Therm 250um Dry and 2 coats Enamo Grip HG Clear.

4: Dry trailers can also be insulated to keep out heat using the same method as above.

5: Tautliners coat the roof / underside / and both ends with the above system.
The curtains should only have Super Therm applied @ 100um Dry (Do not apply Enamo Grip).
If there is signage on the outside then coat the inside of the curtains with the same thickness as above. By using the above method, the curtains still fold up as they designed to do.



Visit NEOtechCoatings.com for more testing information

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HEROS THAT PROTECT / SHIELD / INSULATE

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

CONTROLLING GAIN OF HEAT INTO COLD STORAGE UNITS

Fact:

In the initial analysis of how to control the cold inside a box, one must understand that it is "not" the lost of cold that is the issue. It is the gain of heat. Cold is measured as the lack of heat. Measured in the C or F degrees which is the measurement of heat and being + or – degrees. Therefore, in viewing the best approach to keep cold inside a unit is to prevent the loading of heat from the exterior side that is driven to load and transfer to the cold air. It is not the lost of cold. It is the gain of heat that diminishes and warms the cold.

In the double walled cooler boxes that are currently in use, the double wall is designed to hold the foam that is there to provide the "R" rating or heat transfer reduction. The given fact that the box will face the heat source, absorb and load all the heat onto it's surface will happen. The foam or other batt type insulation materials are designed to slow up the transfer.

Cooler Box:

In the use of the coatings to insulate the box, the approach is different. The most important point of blocking heat "load" that is available to be "transferred" is the surface facing the heat source. If you block the heat load onto this surface, you do not have the heat load that wants to transfer through the walls and into the cold space.

Use two of the coatings, First coat the stainless surface with the SUPER THERM® –AL at 100 sq ft. or 9 sq.m per gallon to provide the best adhesion to the surface. Then apply HSC™ (Hot Surface Coating) as the non-conductor over this primer coat of SUPER THERM® –AL on the exterior wall at 250 mils (6 mm) dry thickness at 5 sq.ft. per gallon (0.45 sqm per gallon), then overcoat with SUPER THERM® at 10 dry mils (250 microns) at 100 sq.ft. or 9 sq.m per gallon coverage. This system provides SUPER THERM® which reflects off radiational heat which is UV, Visual Light and Infrared and the HSC blocks conductive heat. This eliminates the need for a double wall to catch and slow down heat transfer. Therefore, reducing the cost of construction and gaining space inside the cooler.

Concrete foundation:

As to the foundation or concrete slab on which the buildings will set and preventing this slab from allowing the ground beneath to freeze, the approach is as follows:

a. Prepare the bed for the concrete as usual.
b. Take a tarp and coat both sides with EPOXOTHERM (Insulated epoxy coating). Each side is coated with three coats or to a dry thickness of 16 mils (400 microns). The tarp is the same size as the slab.
c. Allow this to dry.
d. Place this coated trap onto the sand base.
e. Pour the concrete on top of the tarp.
f. Finish the slab as normal.

What we are doing with this is to prevent the heat of the ground to be drawn up into the cold slab of the concrete with the cooler unit setting on top. As the concrete goes cold, the heat in the ground will be drawn to it and the coated tarp will block the heat transfer. This will help prevent the ground from freezing due to the concrete slab.

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

REFRIGERATED UNITS

The technical requirements for transport refrigeration units are more severe than for many other applications of refrigeration. The equipment has to operate in a wide range of ambient temperatures and under extremely variable weather conditions (sun radiation, rain, etc.). It also has to be able to carry any one of a wide range of cargoes with differing temperature requirements, and it must be robust and reliable in the ever-changing transport environments.

Estimated diesel power requirements (as equivalent fuel use) for road units are from 11 kW for a typical van unit to 23 kW for a trailer unit, giving an overall figure of around 0.05 kWh per tonne km.[6] This high power requirement is necessary to obtain a fast temperature pull down and fast recovery in distribution with many door openings. This corresponds to equipment with cooling capacity about 4 times the body heat loss cooled at –20°C and 10 times the body heat loss cooled at 0°C at 30°C ambient. Running hours may be between 1800 and 4000 hours per year.

Intermodal container units may require electrical power of around 2 kW for frozen goods and 5 kW for chilled, but this is very dependent on unit design and operating conditions. It is notable that the close temperature control requirements and more rapid air circulation needed for chilled goods result in higher power requirements than for frozen goods, despite the lower temperature differences to be maintained.

Although the degree of temperature control (and thus the degree of security for food safety and quality) in refrigerated transport equipment is excellent, the effects of equipment, packaging and stowage mean that this is achieved at the expense of energy use.

Good thermal insulation is a necessary part of efficient use of refrigeration, and changes in insulation foams, necessary for other environmental reasons, may increase power consumption. Insulation suffers degradation of thermal properties with time, which must be allowed for in energy budgets. For chilled cargoes in particular, new technologies such Super Therm should be evaluated.

Typically, from the moment fiberglass insulation is placed in retail packaging, it is exposed to air, packaged, shipped, and placed on the shelf for shipment to the end user. The fiberglass insulation will lose 30% of its volume due to hydrolysis from the moisture trapped in the packaging.

It is imperative for the trailer's insulation to perform effectively year after year. Thereby, decreasing operational cost as the cooling unit will run less, consume less fuel, and require less maintenance. Extended productivity and a longer useful life cycle are also obtained as Super Therm® helps maintain the insulation performance as the trailer ages. As a refrigerated trailer ages, its insulation system will degrade because of trailer damage, moisture intrusion, or air loss. Insulation degradation is largely due to the normal aging of the trailer. The cooling unit has to work harder to make up for this loss of thermal efficiency, causing cooling unit run-times and fuel costs to increase. Eventually the insulation will degrade so much that the unit will not have enough cooling capacity to get the job done.

Even well maintained refrigerated trailer liners is permeable, meaning the liners allow gasses to escape and suffer insulation degradation over time. Refrigerated trailers are insulated with polyurethane foam, which is a light weight polyurethane foam insulation with a highly thermally efficient cell gas is the goal of the insulating process. When used in refrigerated trailers, polyurethane foam is injected into the walls, floors and ceiling, etc. A chemical reaction then takes place, during this process, the "insulating" gas in foam or the "blowing agent" expands the foam and is retained in the cell structure of the polyurethane matrix. However, over time, some of the cell gas escapes from the foam and air migrates into the cells. As more of the insulating cell gas escapes and air gets into the cells, the polyurethane foam loses its insulation capacity. This is called thermal degradation and happens to the polyurethane foam insulation in all traditionally lined refrigerated trailers.

Until now, the only way to compensate for the decreasing insulation performance has been to make sure the cooling unit has enough excess capacity to maintain temperatures over the course of time. But a refrigerated trailer coated with Super Therm will dramatically slow down the loss in insulation performance, extending the useful life, and increasing the effectiveness of the trailer. Super Therm helps to keep refrigerated trailer on the road and generating revenue by maintaining excess cooling capacity, decreasing unit maintenance downtime, and expanding its productivity.

The sun can heat a trailers roof surface to over 200°F. Most trailer roof substrates are poor reflectors of heat, absorbing as much as 98% of solar heat (radiation). The roofs become a solar oven; hot enough to cook an egg when the outside temperature is only 90°F. The sun's rays and high temperature transforms the trailer roof into heating panels radiating heat to every surface within the trailer. In refrigerated trailers this means that the cooling units must work harder to keep the perishable contents at their prescribed temperatures, using excess fuel and energy.

SUPERIOR PRODUCTS
INTERNATIONAL II INC
USA

Longevity

- Super Therm® can also increase the longevity of the reefer roof. Ultraviolet (UV) rays from the sun break down many conventional roofing materials.
- Super Therm® reflects the sun's ultraviolet rays, and slows down roof aging.
- Super Therm® prevents corrosion, fights against the growth of mold, mildew, fungus, and algae.

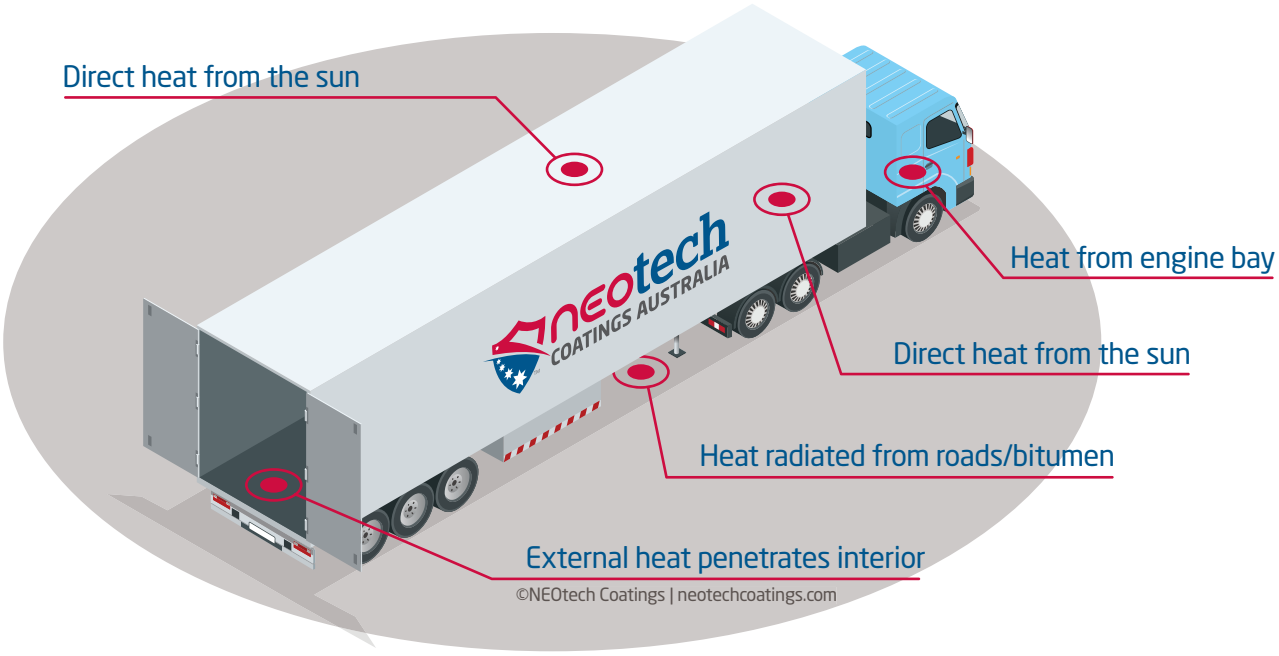
Contraction/Expansion

The reefer roof materials also contract and expand daily as they heat up during the day and cool down at night.

- Super Therm® can lower roof and wall temperatures also reduce the rate of any chemical breakdown.
- Super Therm® reduces expansion and contraction of the roof, which helps to keep the roof seams from leaking.
- Super Therm® doesn't experience large daily temperature fluctuations so it undergoes less thermal fatigue.
- Super Therm® can increase roof and wall system life and significantly decrease maintenance and expenditures.

Insulation

- Insulation restricts heat conduction across walls, flooring, doors, and the roof of transportation vehicles. The load area is reasonably or even tightly sealed to restrict air leakage.
- Insulation limits the amount of ambient heat and humidity that enters the vehicle during hot weather and the amount of internal heat (mostly from the product) escaping to the outside, causing product chilling or freezing during freezing weather.
- Most insulation is foamed-in-place or components of extruded panels that are composed of materials that deteriorate slowly over time (about 5% of the insulating quality per year). Manufacturing improvements have brought about trailers with thinner walls, creating greater internal load space, while maintaining sufficient insulating capability for most conditions of produce transportation.
- Insulation can be damaged and its thermal barrier value lessened by lift truck damage during loading and unloading operations. Water intrusion that initiates at these damage points greatly reduces the insulation quality and even facilitates temperature transfer.
- Highway trailers typically do not have ducted sidewalls because this feature, while improving temperature management, adds weight and reduces the available load space. In hot weather, in particular, this may be an important factor in localized product temperature gain if produce is loaded directly against the sidewalls.



SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

PRODUCT RECOMMENDATIONS FOR VEHICLES

Insulation for Vehicles

* SUPER THERM® applied to the interior of the top roof area to resist heat transfer through the roof. Roofing materials can be glued directly over it.
* SUPER THERM® applied over the fire wall facing the engine to repel heat back to the engine compartment.
* SUPER THERM® over the underside of the hood to repel heat from the engine which the blanket is unable to prevent from affecting the painted surface on top. This extends the paint life.
* SUPER THERM® coated on the body facing the transmission, tail pipes and muffler system on the underside of the car to prevent heat from loading and transferring to the interior.
* SUPER THERM® coated on all sides of the interior doors, framing, divisions to the trunk, wheel wells, etc. to help block noise level transmission.

Vehicle Corrosion

* RUST GRIP® applied over all metal rusted or non-rusted surfaces to prevent or stop corrosion.

Finishes for Vehicles

* ENAMO GRIP is a two-part polyurethane enamel that forms a uniquely hard and durable coating film, which demonstrates unsurpassed semi-gloss retention, color retention and chalk resistance when used in exterior applications. It is resistant to water and humidity, stains, acids, solvents, and chemicals, as well as having tremendous scuff, mar and impact resistance.

Hot Surfaces in Vehicles

* HPC™ over emission units or fuel combustion components to maintain a higher heat level that will burn the fuel more efficient (improved gas mileage) while reducing hydrocarbon emissions from a more efficient burn.

VEHICLES COATED WITH SUPER THERM®, RUST GRIP®, & ENAMO GRIP

Pictured above and below left, UAE (Dubai) Trucks, Freezer Trucks, Chemical Tankers and Car Applications Using Super Therm®, Rust Grip®, Enamo Grip and Moist Metal Grip. All vehicles were approved and passed by Police Traffic Department and Dubai municipality.

Pictured above, Country Bread trucks being coated with Super Therm® to cool the interior and stop condensation.

A Mercedes van coated with Super Therm® and topcoated with Enamo Grip for a high-gloss finish.

Pictured above, refrigerated trucks coated with Super Therm®.

Pictured right, recreational vehicle having its exterior coated with Super Therm® and topcoated with Enamo Grip.

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

PRODUCT RECOMMENDATIONS for the REPLACEMENT OF FIBERGLASS & DOUBLE-WALL CONSTRUCTION for TANKER TRUCKS OR RAILCARS

Apply the HPC™ on the exterior of the single wall at 10-12mm (400-500 mils) as the main insulation material. Then overcoat with SUPER THERM® and top coat with ENAMO GRIP for toughness and appearance.

Since it is a truck tanker and they request very bright and shiny metal, we would do the following: When the HPC is applied (sprayed), it is not smooth. After spraying the HPC™, you simply take a foam roller and make it moist but not wet. Lightly roll the surface of the HPC™ to smooth the surface of the HPC.

Let this dry for a day in good sun.

Apply SUPER THERM® by spray at 100 sq.ft.(9 sq.meters) per gallon.

Let this dry for a day or two in good sun.

Apply White ENAMO GRIP two-part to give a shiny and tough surface over the SUPER THERM®. **If additional gloss or shine is desired**. You could spray the Clear High-gloss ENAMO GRIP as a finish coat over the white.

Double wall construction is very costly. Fiberglass (90% air pocket) allows heat to migrate through it as the "R:" (Resistance) rating dictates, allows condensation and will become moist and wet over a short time. When wet, it cannot insulate and can cause corrosion problems.

HPC™ holds temperature with the ceramics (no heat migration because no air pocket structure). It does not absorb moisture because no air pocket. Seals moisture and heat from migrating to the surface of the tank to affect insulation or corrosion.

United Parcel Service

Heat Reduction Testing Conducted on Package Cars and Trailers

Product Tested: Super Therm®

Manufactured By: Superior Products International, II, Inc.
Tested For: Industrial Coatings Alliance Group, Inc.

Product Tested By: Liberty Mutual

Report Written By:

Chronology of Events:

1. Met with Bill Calhoun who represents Bobby Allison Systems on January 7, 1998. He was proposing the use of a highly insulated spark plug wire set for our use in the package car fleet and a rust treatment for our trailer, dolly and package car steel frames. During our conversation, he mentioned the **Super Therm®** product as a way to reduce heat in our buildings by applying to our roofs. I told him I was not in the Plant Engineering group but would pass his product information on to them. Bill left me with the product test data at the end of our meeting.

2. On February 18, 1998, I attended the OSHA Facility Committee meeting as the automotive representative. During the meeting, a discussion was held with several people showing ideas on how to reduce the heat in our trailers. I found many of the ideas to be either cost prohibitive or excessively high in maintenance issues for our use. In place coolant lines which spray water on the trailers, BIG fans, misters for the employees to walk through and high volume air exchangers (vents in our trailer roofs, sides, and front nose) were all reviewed. It was agreed at this time to work with the fans and Steve Harmon would look at the coolant lines to spray on the top of the trailers. Automotive would work with Liberty Mutual on the air exchange concept using an ADA trailer at the Orlando Florida Trailer Conditioning Incorporated (TCI) building.

3. On March 10, 1998, I again met with Bill Calhoun. We reviewed at this time the rust coating product, **Rust Grip®**, and he gave me an updated engineering report for the **Super Therm®** product. An electronics corporation in Japan with excellent results completed the engineering report. The tests indicated a reduction more than 35 degrees Celsius inside the building. Pictures show the product being rolled on to the roof of the building and sprayed with an airless sprayer.

4. I reviewed the engineering report with Kevin Sondrup, Fred Griffith and Don Parkinson. All agreed the report was valid as a third party, not a testimonial letter from the electronic corporation, completed it. I told Kevin I would consider testing the product for our trailer roofs to see if we can lower the heat inside. Kevin agreed to the testing and I contacted Bill Calhoun to provide us with the appropriate MSDS sheets. Larry Chandler was asked to contact Bill and order enough of the product to coat a minimum of three trailer roofs. Liberty Mutual would provide the expertise; test instrumentation required and validating all test results.

5. Liberty Mutual representatives Don Standfield and Richard Newton, **Super Therm®** representatives Bill Calhoun and Dave Phillips, and UPS representatives Larry Chandler, Doug Anderson and Dale Derham met at the TCI location April 29 and 30, 1998 to conduct the air exchange testing and apply **Super Therm®** product to the trailer roofs. Vent holes had been cut into tan ADA trailer with removable covers to test the air exchange inside our trailers. The airflow test indicated the airflow was at the lowest possible readings with the fans currently in use at our hub doors. The air movement was again checked with the trailer loaded with packages and found to be so low the person in the trailer would not gain any improvement in the temperature reduction of the work area. Twelve 12-inch openings had been cut into the trailer sides. Front and roof area. All openings had covers which allowed them to be completely closed, open six inches or completely open. Each test was conducted with a combination of one to all 12 vents set at various openings. The airflow was again checked using larger fans. The test indicated the larger fans did not increase airflow enough to make the vents and a small increase in door fan size a viable option.

6. The roofs were pressure washed on four UPS trailers. The unit numbers are 293937, 287204, 287249, and 298973. Each unit was placed outside the TCI building and allowed to dray (As a side note, we received rain shortly after moving the units outside. All four units did not have the product wash off or loosen due to the unexpected shower.) The coated units had a noticeable temperature reduction later in the afternoon. As the sun continued to shine on the roofs of the trailers in the yard, a large degree of difference was felt in the coated units as opposed to the units with the plain aluminum roof.

7. It was agreed we would have to return to the Orlando facility to do more testing. Hub door fans were to be changed and a temperature test of the trailers with the **Super Therm®** coating against a non-coated unit and air exchange flow were all to be tested. Don Standfield, Richard Newton, Roger Maddox of the Corporate Plant Engineering, and Larry Chandler from TCI performed the test and recorded the results. The fans in the hub doors again were not capable of pushing an airflow, which would resolve the heat issue.

8. Temperature test of the trailer 293937 (coated with **Super Therm®**) during the same time frame versus a trailer without the roof coating indicated a temperature reduction of 20 degrees. The trailers were moved to another location on the Orlando hub yard and the test performed again. The same results were obtained.

9. The test results for the fans, vents and roof coating were reviewed at the OSHA Facility Committee meeting in June. It was requested to move one of the units with the roof coating, 293937, be located and moved to the Roswell GA center. The unit was located, loaded and moved to Roswell. Liberty Mutual conducted the same heat build up testing with the trailer loaded. The results of the test indicated the loaded trailer with **Super Therm®** coating was 26 degrees cooler than a loaded trailer without any coating.

10. While the test indicated the coating would reduce the heat build up in the trailer, it was agreed a durability test of the product must also be conducted. The four trailers were to be left in normal service. The trailers were not marked with any notice of the test product having been applied to the roofs. The units would be reviewed in January 1999 for the coating durability.

11. The coatings were looked at on the three trailers January 29. All roofs were in excellent condition. The coating had not deteriorated or lifted from the roof. All units were returned to service.

12. A meeting was held in Dallas concerning many building issues. The roof coating was discussed and a question was raised about use for package cars. Don Standfield and Richard Newton requested I test the material on the package car roofs. It was previously agreed we would test the trailer again in March to qualify the coatings ability to retain its heat reduction capability.

13. Two package cars were selected and prepped for the test. One unit had the **Super Therm®** applied to its roof leaving a 12 inch wide opening for light passage. The opening was located in the center of the translucent section of the roof. Attending the test were Don Standfield and Richard Newton from Liberty Mutual, Roger Maddox, Dough Anderson, Paul Bonham, and Dale Derham from UPS, and David Phillips, **Super Therm®** product representative. The test was conducted with the ambient temperature reaching 76 degrees Fahrenheit. The uncoated unit temperature build up exceeded the coated unit by 11 degrees. A question was raised about coating the side panels also (the side panels tested reached and outside temperature of 128 degrees and the inside panels reached a temperature of 138 degrees). The unit with the coated roof had the **Super Therm®** applied to the side panels (from the top of the lower shelf to the roofline).

Test results the following day were not usable due to high clouds and moderate winds. The conditions were not compatible with the previous day so the test results were deemed non-usable.

14. It was agreed after the review of the package car results the test should be performed again. South Florida was selected as the test site to perform the test in higher temperatures.

15. The South Florida district prepared (washed the roof) three cars for the test. Car one was coated on the outside of the roof, complete cargo compartment inside walls and rear door area. Car two was coated on the outside of the roof only, and car three received only a roof cleaning. The material was applied by roller to the roofs and sprayed with an airless sprayer on the sidewalls and read door area.

16. The tests were performed on the three cars at the Hialeah hub location. The ambient air temperature reached 84 degrees Fahrenheit on the test day. The test results show the roof coated only package car produced the best reduction in heat reduction. The results were:

Car #	Treatment	Time of Day	Reading	Difference
804009	None	15:57 PM	128	Base
802687*	Cargo Area & Roof	15:57 PM	115	Minus 13
802279	Roof only	15:57 PM	111	Minus 17

* It was determined the product worked as an insulator as it would hold in any heat build up and not allow the heat to dissipate through the aluminum side panels. Liberty Mutual is preparing a complete analysis package of the tests. Liberty Mutual is going to recommend the use of the product on the roof of our package cars and trailers. The product will assist us in keeping the best possible work environment for our employees.

United Parcel Service

Instructions for the application of Super Therm® heat reduction coating on Package Cars and Trailers

Product Tested: Super Therm®

Manufactured By: Superior Products International, II, Inc.
Tested For: Industrial Coatings Alliance Group, Inc. (iCAG)

Date: June 23, 1999

Super Therm® Description

Super Therm® is a water-based elastomeric, ceramic industrial coating that provides insulation rather than just reflection to reduce heat. Independent testing has rated **Super Therm®** an R-19 for its insulation properties or the equivalent of 6 to 8 inches of fiberglass batt insulation. Due to its unique combination of acrylics and urethanes, **Super Therm®** is extremely tough, durable, non-yellowing, water-proof and weather resistant coating that also provides flexibility and UV-stability. Its ability to insulate is unparalleled in the coatings industry.

Surface Preparation

Make sure the top of the trailer or package car is clean, with no dirt, oil films or residues of any kind. The surface should be completely dry before applying **Super Therm®.** A cleaning solution of soap powders can be used to remove oils and debris. Household Tide detergent is an effective cleanser. Rinse completely and let the surface dry.

Application Instructions

Super Therm can be brushed, rolled, or sprayed on. In most cases a roller will be used to coat the trailers and package cars.

Rolling Instructions:

- Open the five-gallon bucket and thoroughly stir the product to ensure the ceramics are completely suspended in the coating. Use of a low speed drill with a paint stirrer is the best method of mixing the product. **Super Therm®** can be thinned (if required) with a small amount of water. **Super Therm®** is normally thicker than most coatings. When thinning the product add small amounts of water at a time until the desired thickness is achieved.

Caution: Do not thin Super Therm unless it has become extremely thick and unworkable due to prolonged exposure to the atmosphere in an open bucket. If thinning is required, use only small amounts of water (one quart per 5-gallon bucket.

- Use a ¼ inch commercial roller. Use of a roller handle will make the application easier.

- It is best to work out of a 5-gallon bucket with a roller screen inserted into the bucket. **Super Therm®** is a high-solids coating and it is difficult to evenly dip the roller if a roller tray is used. It is preferable to submerge the roller in the coating in a 5-gallon bucket that is partially filled and remove the excess coating on the roller screen suspended in the 5-gallon bucket.

- The coating can be applied with a roller as any other coating once the surface has been properly prepared. You will notice that one coat will appear to completely cover the surface being coated.

Note: It is extremely important that the coating is applied at a thickness of 14 wet mils to obtain the insulation required.

- When a roller is used to apply **Super Therm®** a thickness of only 7 wet mils will be applied in one coat.

Note: Two coats are required to achieve the correct thickness.

- As a general rule, one gallon of **Super Therm®** at a thickness of 14 wet mils will cover 100 square feet on non-porous surfaces. When using a roller to apply **Super Therm®** you will be applying the product at 200 square feet per gallon. The second application will result in coverage of the required 100 square feet per gallon.

- **Super Therm®** will dry to the touch in one hour. A second coat can be applied under normal drying conditions within two hours. Once the first coat has dried, apply the second coat in the same manner as the first coat.

- **Super Therm®** fully cures in 14 days, however, since it can withstand weather and rain generally within 2 hours the trailers and package cars can be immediately placed back in service. If humidity Is high or it rains constantly for 34 days after applying **Super Therm®** (never apply outdoors if it is raining or there is a chance of rain that day), you may notice some bubbling effect on the coating. DO NOT PUNCTURE these bubbles. This is normal as the formula is water-based and is absorbing the moisture and, therefore, forming bubbles. When the rain quits, the sun will dry out the coating and allow it to cure down naturally. As the moisture is drawn out by the sun, the bubbles will settle down and allow the coating to adhere in its normal dry down without a problem.

- Clean up is with soap and water. After product dries, acetone can be used to loosen the coating.

Spraying Instructions:

- When applying **Super Therm®** with a sprayer it is best to use a 3,000 psi airless sprayer.

- Spraying requires a steel carbon spray tip of sizes .028-.032.

- All filters must be removed from the sprayer or the ceramic particles will block the filter.

Note: Super Therm® is a high solids coating and the removal of the filters and the use of the appropriate size spray tip is necessary to prevent clogging of the sprayer. In addition, keep the sprayer set at a high pressure setting.

- **Super Therm®** can be applied in a single 14 wet mil coat using a sprayer. As with a roller, it is extremely important to achieve the proper thickness to obtain the required insulation. It is recommended that a paint mil gauge be used to ensure the coating is applied at 14 wet mils.

- Clean up of the sprayer is accomplished by running water through the sprayer until all the coating has been flushed from the sprayer.

General Information

- 52% solid, 14 wet mils/7 dry mil coat
- Dry time: 1 hour-touch, 2 hours re-coat, 14 days full cure
- Spread: 100 sq. ft. / gallon = 7 dry mils
- Flame Spread Test: ASTM E-84-89 UL 723 / Flame: 0 / Smoke: 0
- Viscosity: 105-110 KU / R-19 rating
- Fire test: (Project #8940-89285) ASTM E119: Evaluation of thin coatings for thermal transfer properties at elevated temperatures – 1,600F degrees; Findings: 30 minutes fire rating at 30 mils. **Super Therm®** has the ability to stabilize thermal conductivity at various temperature levels.
- Elongation: 125% / Hall – resistant to cracking
- Flexibility: 180 degree bend test – ASTM D1737 1/8" mandrels
- Salt Spray: 450+ hours / Fungal/Mildew resistant
- Weathering: Ability to last a minimum of 10 years
- Ability to withstand 500F degrees constant temperature over a long period of time
- Noticeable sound deadening qualities
- U.S. Consumer Product Safety Commission approved as not hazardous
- U.S.D.A. approved for use around foods
- K Factor insulating rating (BTU transfer per hour/foot of heat through a substrate) K=0.019 W/mK
- VOC (Volatile Organic Compounds) is 67 grams/liter. California environment maximum required upper limit 420 grams/liter, **Super Therm®** is extremely health-and-environmentally safe
- pH 8.5-9.0
- Density: 12.02 lbs./gallon
- Salt Spray Corrosion Test: ASTM B117 450 hrs evaluation ASTM D1654 over black steel; Rating procedure B:9 (key to rating 0-10; 0=complete failure; 10=excellent)

Important

Do not take internally. Avoid contact with eyes. If solution does come in contact with eyes, flush immediately with water and contact physician for medical advice. Avoid prolonged contact with skin or breathing of spray mist. For quickest removal from skin, wash with water before drying. KEEP OUT OF REACH OF CHILDREN.

Super Therm®
In the Trucking Industry

Reduces temperatures by up to 30F degrees

Benefit: Reduction in heat damaged goods claims

Additional Benefit: Increased worker productivity and reduction of heat stress related Workman Comp Claims.

In the trucking/package delivery industry, heat related claims are a major cost due to damaged goods and heat stress related employee claims. Worker productivity is reduced due to discomfort both for the drivers and employees that load and unload the trailers

Super Therm® is an industrial coating that insulates the trailers and delivery vans. It is both a reflector of radiant heat and a non-conductor, providing an R-19 insulation rating (Equivalent to 6 to 8 inches of fiberglass insulation) with just a 7 mil coating that can be brushed, rolled or sprayed on. The reflectivity does not rely on the coating being clean, as is the case with other reflective coatings. Because it is a non-conductor of heat, it works effectively when applied to the inside walls, as well as, the exterior roofs of the trailers.

Once the heat is allowed to penetrate into the trailer or van, the packages absorb the heat and it is impossible to reduce heat with ventilation. The key is to stop the heat from being absorbed by the packages by reducing the transmission of heat in the beginning.

Actual Temperature Test Results

- Infrared temperature testing of the inside roof temperatures dropped from 129F degrees to 89F degrees on uncoated versus coated roofs. Ambient temperature we 75F degrees with hazy sunshine. **Super Therm®** was applied to the exterior of the roof
- Interior wall temperatures dropped from 133F degrees to 105F degrees on uncoated versus coated walls. Ambient temperature we 75F degrees with hazy sunshine. **Super Therm®** was applied to the interior of the walls.


PORTER

SUPER THERM & ENAMO GRIP ON " WILD MOG"

Fleet Lease Savings

Presentation of Fuel Savings for Reefer Trucks using *Super Therm*

Prepared for

Carson Trailer

Bakersfield, California

Prepared by

D. Curtis Lundberg
Fleet Truck Specialist
Tuned Coatings ~ Denver

September 2009

Fleet Leasing Specialists: Fuel Savings for Reefer Trailers

Here is a great way to save hundreds to thousands every month!

By installing **SUPER THERM**, our ceramic-based coating, on the roof of refrigerated trailers with you will block **over 95%** of all heat sources and keep that heat from transferring through the roof and increasing the temperature inside the trailer, while at the same time holding the cold air inside the trailer. By virtually eliminating the heat from above and holding in the cold, the refrigeration unit will run much less often instead of constantly cycling to stay cold, *reducing both fuel usage and maintenance to the refrigeration unit*.

A typical sunny day can quickly heat the roof of the trailer from **120 to 170** degrees. A trailer roof coated with **SUPER THERM** will reduce that temperature to only a few degrees over the outside temperature and block any heat from moving to the inside of the trailer.

Reduce fuel usage in the refrigeration unit by 15-30%

The other area of immediate benefit is the '**cool down**' time. A trailer with a hot roof will normally take 4 hours or longer to cool down to carry frozen loads – *this time can be cut in half* if the trailer is coated with **SUPER THERM**.

To help determine the benefits of **SUPER THERM** we estimate refrigeration fuel usage with the following *'Fuel Usage Exhibit'*.

Fuel Usage Exhibit:

Example:

Estimated runs per week	4		Total Annual Runs	208
Estimated Gallons per run*	22		Total Annual Gallons	4576
Savings using Super Therm	**15%**		Annual Gallons Saved	686.4
Price Per Gallon	$ 2.40		Total Annual Savings	$ 1,647.36

** Estimated use of fuel for the refrigeration unit only*

Assuming 4 runs per week and fuel usage of 22 gallons on refrigeration unit, the annual use is about **4500 gallons** per year. And, by saving **only an average of 15%** the annual savings is about $1600 per trailer annually or about $135/month.

Annual Savings of $1600 per trailer with savings of only 15%

Product Cost and Leasing Cost *(based on a typical 5-year lease)*

The cost of our product ranges from $1000 to $1200 per trailer (53'), including installation, based on the number of trailers coated. The product is applied *on-site* at your customers fleet yard in about 24 hours and we can install anywhere in the US.

The typical return on investment is **less than 6-9 months** and the one time application will last for well over ten years, with **NO** required maintenance and **NO** reapplication.

And, by reducing *cool down time* by over 40% - drivers wait time is reduced by hours every week, getting the product to the end user sooner and drivers on to their next haul.

Leased Trailers

For a lease on a new trailer it is even easier! The monthly cost on a 4 or 5 year lease is about $25-30 which can be added to the lease payment like any other add-on *(see table below)*. Assuming savings, like those described in the fuel savings exhibit above, your customer would net over $100.00 per month – with **NO UPFRONT COST!**

Leasing Model 4 & 5 Year Leasing Plan

Interest Rate 7%

4-year	BALANCE	ANN PMT	MO PMT	PRIN	INT
	$ 1,200.00				
year 1	$ 924.00	$ 360.00	$ 30.00	$ 276.00	$ 84.00
year 2	$ 628.68	$ 360.00	$ 30.00	$ 295.32	$ 64.68
year 3	$ 312.69	$ 360.00	$ 30.00	$ 315.99	$ 44.01
year 4	$ (25.42)	$ 360.00	$ 30.00	$ 338.11	$ 21.89
total		$ 1,440			

5-year		ANN PMT	MO PMT	PRIN	INT
	$ 1,200.00				
year 1	$ 984.00	300	$ 25.00	$ 216.00	$ 84.00
year 2	$ 752.88	300	$ 25.00	$ 231.12	$ 68.88
year 3	$ 505.58	300	$ 25.00	$ 247.30	$ 52.70
year 4	$ 240.97	300	$ 25.00	$ 264.61	$ 35.39
year 5	$ (42.16)	300	$ 25.00	$ 283.13	$ 16.87
total		$ 1,500			

Amazing Fleet Savings

With a fleet of 500[1] trailers and a savings of only $1600 per trailer the return is substantial:

FLEET SAVINGS 5-Year Return on Investment (ROI):

Assumptions:

Fleet Size	500	
Projected Savings	15%	
Savings Period	5 Years	
Annual Savings	$ 800,000	
Projected 5-Yr Savings		$ 4,000,000
Cost Per Trailer	$ 1000	
Product Tax	$ 30	
Total Cost per Trailer	$ 1030	
Total Fleet Cost		$ 515,000
Total Savings after Cost		$ 3,485,000
5-Yr Return on Investment		777%
Payoff Time *(in months)*		7.7

In just 5 years your customer's fleet savings will be **over $3,000,000** AND the pay-off period is less than **8** months at only a 15% savings.

Let us help you bring these savings to your fleet customers!

Superior Products International

Our coatings were created by Superior Products International in conjunction with NASA. the company has been solving heat and energy problems world-wide for over 20 years.

We BELIEVE in our product and are willing to prove our performance to get your business.

1. **Fleet Trials**

   To prove our product works we are willing to coat a small number of trailers (5-10) with **SUPER THERM** at a discounted price. allowing the operator to test the results for themselves. We ask that your customer tracks the fuel usage for the reefer unit and if the product provides a minimum of 15% fuel savings they allow us to install the coating on their fleet.

2. **Income for You or Your Company**

   Based on the size of the order we will pay you or your company a referral fee equal to 5-10% of the total cost of the job.

Thank you for taking the time to review this information. We are available at your convenience to discuss your customer's needs or provide additional information on our products.

We look forward to working with you to help your customers save energy and save thousands per year on their fleet.

Call us to schedule an appointment today …

Best regards,

Curt Lundberg

D. Curtis Lundberg
Fleet Truck Specialist
Tuned Coatings, LLC
Denver, CO
303-909-1017

~ Authorized Distributor for Superior Products International ~

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

HYUNDAI TRANSLEAD

INSTRUCTIONS FOR APPLICATION OF SUPER THERM® ON TRAILERS

Product:
Super Therm®

Manufactured By:
Superior Products International II, Inc.

Date: January 31, 2006

10835 W. 78th Street • Shawnee, Kansas 66214 • Phone: 913-962-4848; Fax: 913-962-6767

SUPER THERM® DESCRIPTION

SUPER THERM® is a water-based, elastomeric, ceramic industrial coating that provides a heat barrier to prevent the absorption and loading of heat. Independent testing has rated SUPER THERM® a RE-19 for its insulative properties (the equivalent of 6 to 8 inches of fiberglass batt insulation).

Because of the unique combination of acrylics and urethanes, SUPER THERM® is an extremely tough, durable, non-yellowing, waterproof, and weather resistant coating that also provides flexibility and UV-stability. Its ability to repel and block heat is unparalleled in the coatings industry. In emissivity testing, which is the amount of heat absorbed into a surface, SUPER THERM® allows only a 5% surface heat load and repels and blocks 95% of radiation heat (short and long wave) preventing surfaces from absorbing and loading heat.

GENERAL INFORMATION

The products used to clean and coat the trailers are environmentally safe. MSDS sheets are provided as part of this manual and discuss the preventative measures that are necessary and the actions that should be taken if the products are ingested or if there is other contact with the products such as accidental splash in the eyes, etc. Generally, no special safety precautions are necessary that are not otherwise required for the use and application of other water based products and paints.

During all cleaning and application procedures, there should be general compliance with OSHA standards which generally require the trailers to be coated from the sides using stair ladders or from the tops of the vehicles using a harness. Please check your local OSHA requirements.

SURFACE PREPARATION

Prepare the top of the trailer to ensure that it is clean and dry with no dirt, oil films, contaminants, or residues of any kind. The surface should be completely dry before applying SUPER THERM®. If there is any remaining moisture on the surface after cleaning, acetone should be used to remove the moisture before applying SUPER THERM®.

To ensure the roof is properly cleaned, test wipe the roof with a clean throwaway towel to see if the towel appears to be soiled. If the towel shows any signs of soiling, repeat the process until the test wipe indicates a clean and oil free surface.

The roof must be dry to the touch before applying SUPER THERM®. SUPER THERM® will adhere to aluminum without the need for a primer. Clean up is accomplished with water.

MIXING INSTRUCTIONS

The consistency of SUPER THERM® is thicker than most other coatings, but thinning the product is normally not necessary.

Open the five-gallon pail and stir the product thoroughly and slowly to ensure consistency. A low speed drill with a paint stirrer or mixing by hand with a paint paddle are the best methods for mixing the product. Mix for approximately 2 minutes or until the consistency of the product is uniform and smooth.

CAUTION: DO NOT THIN SUPER THERM® UNLESS IT HAS BECOME EXTREMELY THICK AND UNWORKABLE DUE TO PROLONGED EXPOSURE TO THE ATMOSPHERE IN AN OPEN BUCKET. IF THINNING IS REQUIRED, USE ONLY A SMALL AMOUNT OF WATER (ONE QUART PER 5-GALLON BUCKET).

Once a pail 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).

APPLICATION INSTRUCTIONS

SUPER THERM® can be applied with a brush, a roller, or an airless sprayer. In most cases, a roller will be used to coat the top of trailers.

Rolling Instructions:

- Use a ¾ inch nap commercial roller. Use of a roller handle will make the application easier. Use of larger 18-inch long, ¾ inch nap rollers can reduce the time it takes to coat the vehicle roof.
- It is best to work out of a 5-gallon bucket or a large high capacity paint tray can be used. High capacity trays can be purchased at local Home Depot stores and are designed to work with the larger 18-inch rollers.
- SUPER THERM® is a high-solids coating, and it is difficult to evenly dip the roller if a regular roller tray is used. It is preferable to submerge the roller in the coating in a 5-gallon bucket that is partially filled or the high capacity roller tray. The 5-gallon bucket or high capacity roller tray can be marked

with graduation marks to ensure the proper amount of SUPER THERM® is being applied. This is accomplished by marking the container close to the bottom (low level mark) at a level that allows a reserve of SUPER THERM® in the bottom sufficient for the roller to be completely submerged. Another mark can be made on the container (high level mark) at a level that indicates the number of gallons above the low level mark in the container necessary to accomplish the proper amount of SUPER THERM® to be applied in one rolled coat. In other words, by using all of the SUPER THERM® between the graduation marks on the container for each of the two coats, it can be assured that the correct mils of material are being applied.

- SUPER THERM® (68% solids by volume) covers 100 square feet per gallon at 16 mils wet (10 mils dry). Proper thickness is the key to obtaining the desired heat barrier on the vehicles. Depending on the size of the trailers, the number of gallons of product required for the proper coverage can be calculated by determining the square feet of the roof surface and dividing the square footage by 100. The following is the recommended gallons for the various size trailers:

TRAILER SIZE	SQUARE FOOTAGE	GALLONS REQUIRED
26' X 8.5'	221	2.3 GALS
28' X 8.5'	238	2.5 GALS
40' X 8.5'	340	3.4 GALS
45' X 8.5'	383	3.9 GALS
48' X 8.5'	408	4.1 GALS
53' X 8.5'	451	4.5 GALS

- SUPER THERM® can be applied with a roller, as any other coating once the surface has been properly prepared. The key difference is that you are not merely painting the roof. Rather, you are trying to achieve the appropriate thickness of the coating. Many people attempt to apply SUPER THERM® like paint and do not keep the roller saturated. The tendency is to continue to roll the roof after the roller has become relatively dry. It is important to keep the roller

saturated and apply SUPER THERM® liberally with each coat. You will notice that one coat will appear to completely cover the surface being coated. Two liberal coats, however, are required to achieve the desired insulation value.

NOTE: IT IS EXTREMELY IMPORTANT THAT THE COATING IS APPLIED AT A THICKNESS OF 16 WET MILS TO OBTAIN THE REQUIRED HEAT BARRIER.

- When a roller is used to apply SUPER THERM®,each coat is applied at a thickness of only 8 wet mils/ 5 mils dry, so two coats minimum will always need to be applied when using a roller.

TWO COATS ARE REQUIRED TO ACHIEVE THE CORRECT THICKNESS OF SUPER THERM®.

- SUPER THERM® will dry to the touch in approximately one hour. A second coat can be applied under normal drying conditions within two hours. Hot sunshine and air movement over the coating will expedite the drying process. If the vehicles are coated inside, installing fans to move the air over the coating will greatly reduce the dry time required. Once the first coat has dried, apply the second coat in the same manner as the first coat.

- SUPER THERM® fully cures in 14 days. However, since SUPER THERM® can withstand weather and rain generally within 6 hours after application, the trailers can be immediately placed back in service. If humidity is high or it rains constantly for 3-4 days after applying SUPER THERM® (never apply outdoors if it is raining or there is a chance of rain that day), you may notice some bubbling effect on the coating. DO NOT PUNCTURE these bubbles. This is normal as the formula is water-based and is absorbing the moisture and, therefore, forming bubbles. When the rain stops, the sun will dry out the coating and allow it to cure down naturally. As the sun draws out the moisture, the bubbles will settle down and allow the coating to adhere in its normal dry down without a problem.

NOTE: SUPER THERM® IS A WATER-BASED ACRYLIC COATING. IT MUST HAVE A CHANCE TO DRY. COATING VEHICLES IN THE EVENING HOURS AND ALLOWING THEM TO DRY OVERNIGHT MAY NOT PROVIDE SUFFCIENT DRY TIME ESPECIALLY IF THERE IS HEAVY DEW DURING THE NIGHT. IN SUCH INSTANCES, THE COATING MAY APPEAR AS WET IN THE MORNING AS IT WAS WHEN IT WAS COMPLETED THE EVENING BEFORE.

- Clean up is with soap and water.

Spraying Instructions:

- When applying SUPER THERM® with a sprayer, it is best to use a 3,000 psi airless sprayer.
- Spraying requires a steel carbon spray tip of sizes .028 - .032.
- All filters must be removed from the gun and the sprayer, or the ceramic particles will block the filters.

NOTE: SUPER THERM® IS A HIGH SOLIDS COATING AND THE REMOVAL OF THE FILTERS AND THE USE OF THE APPROPRIATE SIZE SPRAY TIP IS NECESSARY TO PREVENT CLOGGING OF THE SPRAYER. IN ADDITION, KEEP THE SPRAYER SET AT A HIGH PRESSURE SETTING.

- SUPER THERM® can be applied in a single 16 wet mil coat using a sprayer. As with a roller, it is extremely important to achieve the proper thickness to obtain the required insulation.
- Clean up of the sprayer is accomplished by running water through the sprayer until all the coating has been flushed from the sprayer.

SAFETY PRECAUTIONS

Refer to the attached material safety data sheet before use. Safety precautions must be strictly followed during storage, handling, and use.

This product is to be used by those knowledgeable about proper application methods. SPI makes no recommendation about the types of safety measures that may need to be adopted because these depend on application environment and space, of which SPI is unaware and over which it has no control.

If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product.

WARRANTY

SPI warrants its products to be free from defects in material and workmanship. SPI's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at SPI's option, to either replacement of products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made in

writing by Buyer to SPI within five (5) days of Buyer's discovery of the claimed defect. Buyer's failure to notify SPI of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

SPI makes no other warranties concerning the product. No other warranties, whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall SPI be liable for consequential or incidental damages.

Any recommendation or suggestion relating to the use of the products made by SPI, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable. However, the products and information are intended for use by Buyers having requisite skill and know-how in the industry. Therefore, Buyer must satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

LIMITATION OF LIABILITY

SPI's liability on any claim of any kind, including claims based upon SPI's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. In no event shall SPI be liable for consequential or incidental damages.

Super Therm® Test Study
Passenger Bus Roof Application
City of Hermosillo, Sonora, México.
June 2005

Written by: Bladimir Barrios, Architect
Translated by: Damian Barrios

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For more information visit us at www.spcoatings.ca

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3368 Cockshutt Rd.
RR 1 Scotland, ON, N0E 1R0
CANADA
519-443-4698

Test Study: Results of the Application of Super Therm® on Passenger Bus.
Company : Econotours, Hermosillo, Sonora, México.

Record of temperatures on the roof's surface and in the bus interior BEFORE Super Therm®.

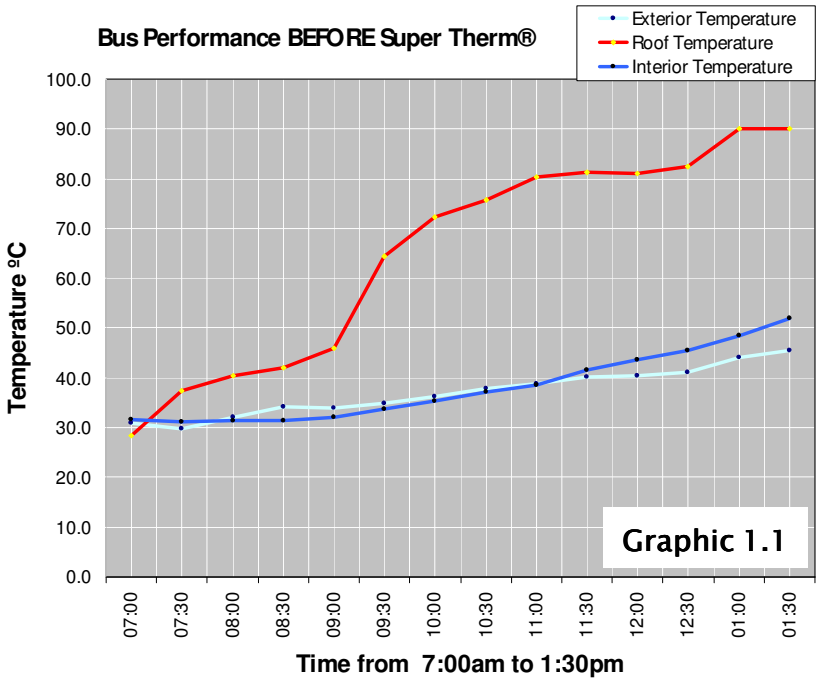
Friday, June 24, the bus remained completely closed from 7:00am until 1:30pm, this with the intention of registering the inside and roof temperatures every 30 minutes, Table 1.1 and Graphic 1.1.

Bus temperature readings BEFORE Super Therm®
from 7:00am to 1:30pm
Date 06/24/2005

Hour	Exterior. Temp.	Interior Temp .	Roof Temperature
07:00	30.9	31.7	28.4
07:30	29.8	31.1	37.4
08:00	32.0	31.4	40.4
08:30	34.1	31.4	42.0
09:00	34.0	32.2	45.9
09:30	34.9	33.7	64.4
10:00	36.3	35.3	72.4
10:30	37.8	37.2	75.7
11:00	38.9	38.6	80.4
11:30	40.1	41.5	81.4
12:00	40.4	43.6	81.0
12:30	41.1	45.6	82.5
01:00	44.2	48.5	90.1
01:30	45.6	52.0	90.1

Highest Temperatures
* All temperatures ºC

Table 1.1



Graphic 1.1

Observations and Temperature Data from the Bus Roof's Surface and Interior BEFORE Super Therm®.

Roof Surface Temperature Data

Roof Temperature BEFORE Supertherm® (June 24, 2005)				
Time	**Variation ºC**	**Temp. gain C**	**Time in hrs.**	**Degrees gained each hour**
7:00am to 1:30pm	28.4 to 90.1	61.7	06:30	9.5 C
9:00am to 11:00am	45.9 to 80.4	34.5	02:00	17.2 C

We can see that temperature increased from 28.4 ºC to 90.1 ºC from 7:00am until 1:30pm. A range of 61.7 ºC, 9.5ºC each hour.
The temperature rose at a faster pace from 9:00am till 11:00am, from 45.9 ºC to 80.4 ºC, it increased 34.5 ºC in only 2 hours. This is a total of 17.2 ºC rise each hour.

Bus Interior Temperature Data

Bus interior temperature BEFORE Super Therm® (June 24, 2005)				
Time	**Variation ºC**	**Temp. gain C**	**Time in hrs.**	**Degrees gained each hour**
7:00am to 1:30pm	31.7 to 52.0	20.3	06:30	3.1 C
9:30am to 1:30pm	33.7 to 52.0	18.3	04:00	4.5 ºC

The inside bus temperature from 7:00am till 1:30pm went from 31.7 ºC to 52.0 ºC in a lapse of six and half hours. The temperature rose 20.3 ºC. At a pace of 3.1 ºC each hour. Also we can see the inside bus temperature rose gradually from 31.7 ºC until it reached 52.0 ºC at 1:00pm.

Record of Temperatures on the Bus Roof's Surface and Interior **AFTER** Super Therm®.

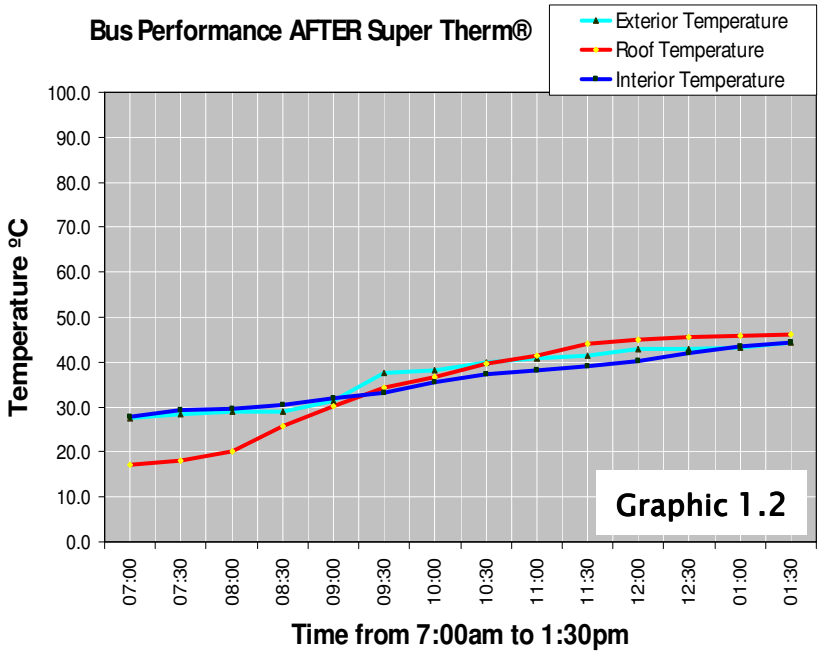
Saturday, June 25, 2005.
Table 1.2 and Graphic 1.2

Bus temperature readings AFTER Super Therm®
from 7:00am to 1:30pm
Date 06/25/2005

Hour	Exterior. Temp.	Interior Temp .	Roof Temperature
07:00	27.4	27.9	17.2
07:30	28.3	29.4	18.0
08:00	28.9	29.7	20.0
08:30	29.1	30.5	25.7
09:00	31.3	32.0	30.1
09:30	37.5	33.0	34.4
10:00	38.3	35.4	36.8
10:30	39.9	37.2	39.7
11:00	40.7	38.1	41.5
11:30	41.5	39.0	44.1
12:00	42.8	40.1	44.9
12:30	43.0	41.9	45.6
01:00	43.3	43.4	46.0
01:30	44.3	44.5	46.2

Highest Temperatures
* All temperatures ºC

Table 1.2



Observations about the temperature behavior on the roof's surface and the bus interior AFTER Super Therm.

Roof Surface Temperature Data

Roof Temperature AFTER Super Therm® (June 25, 2005)				
Time	**Variation ºC**	**Temp. gain C**	**Time in hrs.**	**Degrees gained each hour**
7:00am to 1:30pm	17.2 to 46.2	29.0	06:30	4.46 C
8:00am to 11:30am	20.0 to 44.1	24.1	03:30	6.9 C

We can see in the table 1.2 and graphic 1.2 that at 7:00am the roof temperature was 17.2 ºC, while at 1:30pm the recording was of 46.2 ºC. The temperature Increased 29.0 ºC in 6 and half hours, this average 4.46 ºC rise each hour.

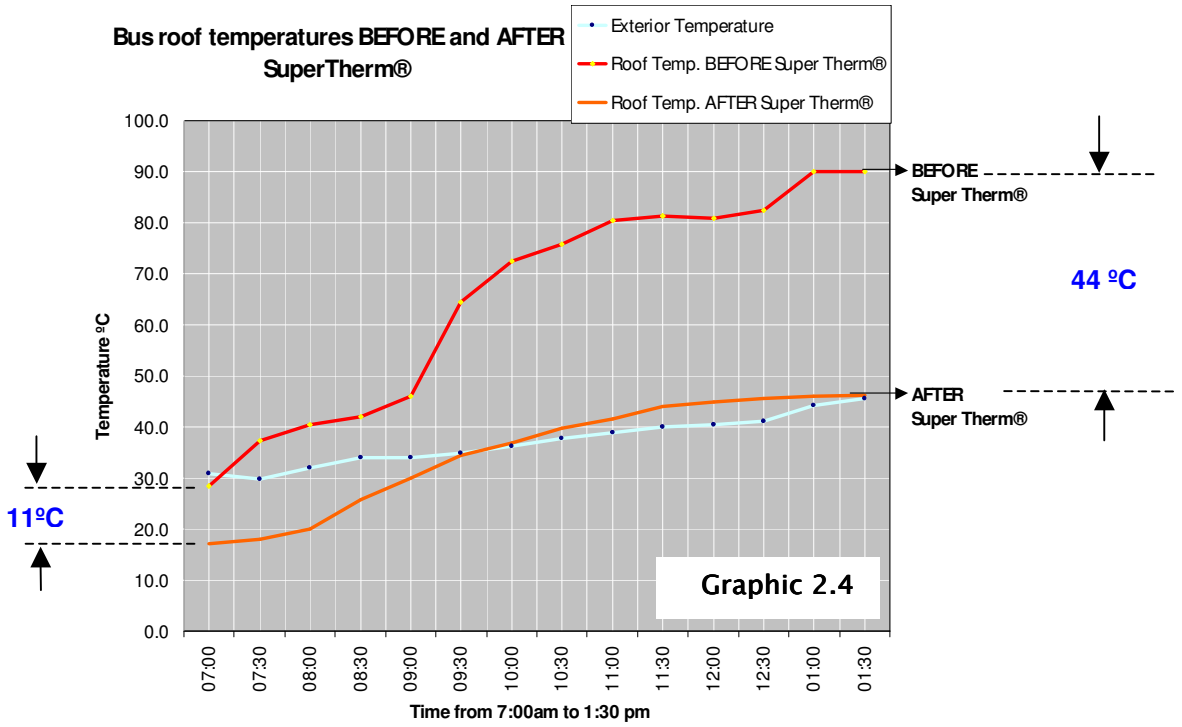
In this period of time the highest increment on the roof's surface was from 8:00am to 11:30am (from 20 ºC till 44.1 ºC). In a period of 3 and half hours the temperature increased 24.1 ºC. After 11:30am the roof's surface temperature remained almost constant with a value of 46 ºC (see graphic 1.2).

Bus Interior Temperature Data

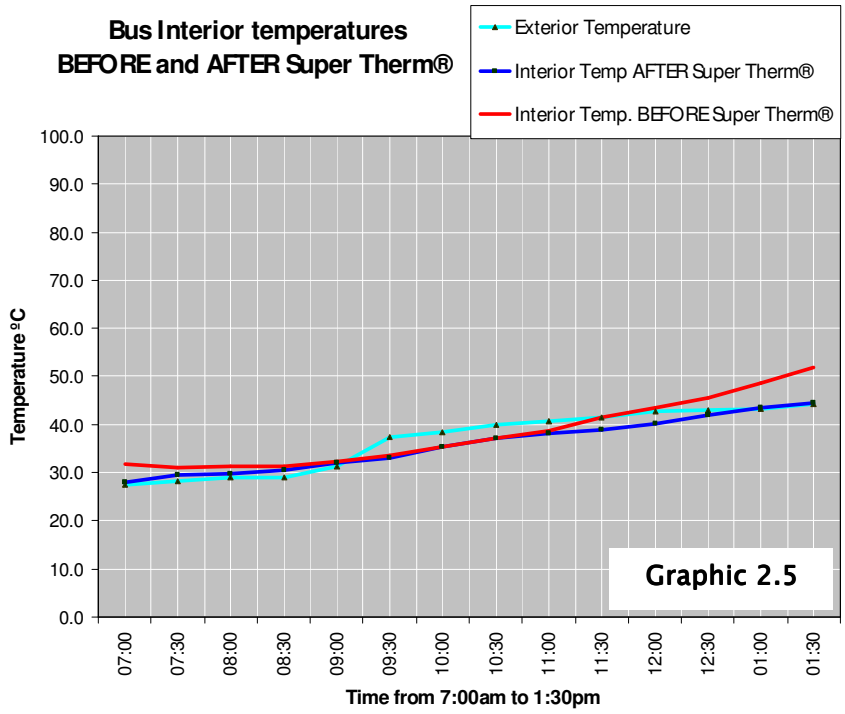
Bus interior temperatures AFTER Supertherm® (June 25, 2005)				
Time	**Variation ºC**	**Temp. gain C**	**Time in hrs.**	**Degrees gained each hour**
7:00am to 1:30pm	27.8 to 44.5	16.7	06:30	6.56 C

In the table 1.2 and graphic 1.2 we can observe the temperature record inside the bus, at 7:00am, was 27.8 ºC and at 1:30pm the temperature was 44.5 ºC. The temperature inside the bus increased, in a lapse of six and half hours, 16.7 ºC. Under these new circumstances we can observe the inside temperature and the outside temperature performed similarly from the beginning of the test until the end. (Graphic 1.2) Also we can observe how the roof's temperature was below the outside temperature and inside temperature from 7am to 9am (17.2 ºC to 30.1 ºC); after 9am the temperature behavior on the roof was very close to the other two temperatures (outside and interior, see table 1.2 and graphic 1.2)

Graphic Representation of Roof Temperatures Before and After SUPER THERM



In Graphic 2.4 we see the roof temperatures before and after applying SUPER THERM®. We can see the huge differences in temperature values from the time the test began until the end. At 7:00am SUPER THERM® had reduced the temperature by 11 ºC, by 1:30pm SUPER THERM® had reduced the roof's temperature by 44 ºC. The percentage of heat reduction during the test time was of **46.27 %,** close to half.



Thermo King Unit Test

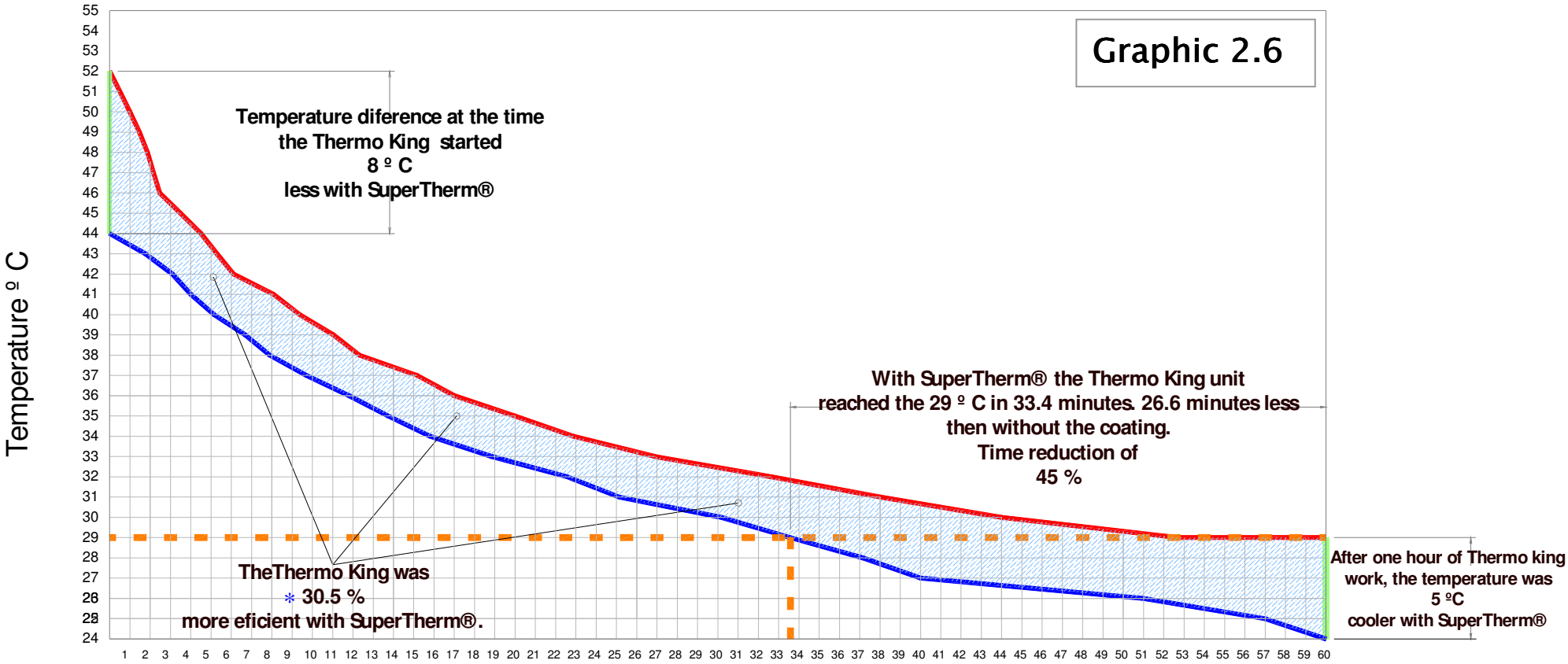
In order to conduct this test the Thermo King unit was turned on for a lapse of time of 60 minutes, after the bus had been closed for 6 and a half hours, from 7:00am to 1:30pm.

When the uncoated Thermo King unit was started the first day, at 2:00pm, the temperature inside the bus was **52 ºC.** At that time the outside temperature was 45.6 ºC and the roof's temperature was **90.1 ºC**. After the Thermo King unit had been on for one hour (60 minutes) the temperature inside the bus was cooled to **29 ºC** (From 52ºC to 29 ºC). This is a reduction of 23ºC. **(Refer to Graphic 2.6).**

After the SUPER THERM® application, the same test was conducted to determine how long it would take the Super Therm coated bus to cool down to the same temperature of 29 °C. On the test day, the outside temperature was 44.3 ºC, the interior temperature was **44.5ºC** and the roof's temperature was only **46.2 ºC**.

Once the Thermo King unit started it took **only 33 minutes** to bring the temperature down to 29 ºC. This is **27 minutes less** time than the uncoated bus. By the end of the hour the Thermo King Unit brought down the inside temperature to 24 ºC. **5 ºC** cooler than the bus without SUPER THERM®. **(Refer to Graphic 2.6)**

Thermo King efficiency BEFORE and AFTER Super Therm® Application



* The 30.5 % efficiency is obtained by comparing areas. The first area which is represented by the graphic without Super Therm® (area formed by the *x*, *y* and red line) is taken as 100 %. The second area represented by the graphic with Super Therm® (area form by the *x*, *y* and the blue line). This last area represents 69.5 % of the first area. The efficiency is represented by the blue hatch area and equals 30.5 %.

Conclusions

From the observations and remarks we can conclude the following:

1. Before coating with SUPER THERM®, the roof's temperature and the interior temperature were much higher.

2. After application of Super Therm the roof's temperature was significantly lower than before application. Without Super Therm the roof's temperature rose to **90.1 ºC**, after SUPER THERM the temperature only reached **46.2 ºC**. This proves SUPER THERM's strength in reducing heat transfer (Refer to Graphic 2.4).

3. As a direct result of application of SUPER THERM®, the temperature inside the bus **decreased 8ºC**, always tending to equalize itself with the outside temperature during the test (from 7 a.m. to 1:30 p.m.) (Refer to Graphic 2.5).

4. The Super Therm coated roof absorbed **46.27% less heat** than the non-coated roof (Refer to Graphic 2.4).

5. With Super Therm®, the Thermo King unit only needed 33.4 minutes to reach 29 º C, **45 % less running** time than without using Super Therm®. (Refer to graphic 2.6).

6. Given the need to put the bus back onto its route, the testing and temperature results taken from the SUPER THERM® bus were done within one day of application. Super Therm typically takes 7-10 days to fully cure and thus even more favorable results might be seen after full cure.

7. The Thermo King unit coated with SUPER THERM® became 30.5% more efficient.

This project demonstrates that using Super Therm® results in a significantly cooler bus/building. This will lead to fuel savings, maintenance savings, a more efficient and comfortable unit, and most importantly, better service and a more comfortable environment for customers.

Photo Gallery

G b m e x

Gbmex (Mexico) and Superior Performance Coatings (Canada) represent the fine products of Superior Products International II.
For more information visit us at www.spcoatings.ca

SUPERIOR PERFORMANCE COATINGS

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CANADA
519-443-4698

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

PRODUCT RECOMMENDATIONS for the REPLACEMENT OF FIBERGLASS & DOUBLE-WALL CONSTRUCTION for TANKER TRUCKS OR RAILCARS

Apply the HPC™ on the exterior of the single wall at 10-12mm (400-500 mils) as the main insulation material. Then overcoat with SUPER THERM® and top coat with ENAMO GRIP for toughness and appearance.

Since it is a truck tanker and they request very bright and shiny metal, we would do the following: When the HPC is applied (sprayed), it is not smooth. After spraying the HPC™, you simply take a foam roller and make it moist but not wet. Lightly roll the surface of the HPC™ to smooth the surface of the HPC.

Let this dry for a day in good sun.

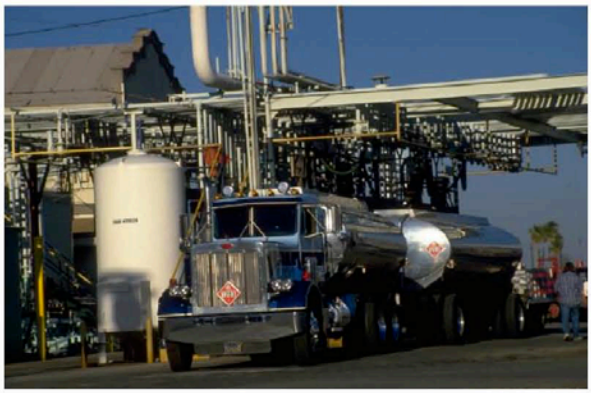
Apply SUPER THERM® by spray at 100 sq.ft.(9 sq.meters) per gallon.

Let this dry for a day or two in good sun.

Apply White ENAMO GRIP two-part to give a shiny and tough surface over the SUPER THERM®. **If additional gloss or shine is desired.** You could spray the Clear High-gloss ENAMO GRIP as a finish coat over the white.

Double wall construction is very costly. Fiberglass (90% air pocket) allows heat to migrate through it as the "R:" (Resistance) rating dictates, allows condensation and will become moist and wet over a short time. When wet, it cannot insulate and can cause corrosion problems.

HPC™ holds temperature with the ceramics (no heat migration because no air pocket structure). It does not absorb moisture because no air pocket. Seals moisture and heat from migrating to the surface of the tank to affect insulation or corrosion.



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

Amerit Fleet Solutions
One of their customers is BRINKS Armored Trucks.
Coating tops with SUPER THERM

Amerit Fleet Solutions, is nationwide comprehensive maintenance services for private public & for-hire fleets and has over 100k vehicles under contract at over 550 locations nationwide. A few weeks ago, SCofST offered a free Super Therm application for a Brinks armored truck with noticeable interior changes (no imperial data was gather nor required) which resulted in additional regional Brinks trucks applications. We have negotiated a set regional price and the district fleet manager has authorized the Super Therm application on more trucks within the Houston, Austin, San Antonio, and Corpus Christi area. Number of trucks TBD. There is additional comments of possible national applications.

If you can offer any insight or guidance to such an endeavor, should a national contract be discussed, please advise. There was comments regarding Brinks' application at an OEM level but nothing more. Thank you all for the continued support and hope you have a great day!

Michael Polanco
(210) 827-6617 cell
Proudly Served and Honorably Discharged from the United States Navy
God Bless our Beloved Country, Her Citizens, and those who gave the Ultimate Sacrifice in Her Defense.

SUPERIOR PRODUCTS EUROPE

SUPER THERM®

REFERENCE

COMPANY: WILD MOG BELGIUM

PRODUCTS: SUPER THERM ; ENAMO GRIP

MARKET: SHIPPING & TRANSPORT

COUNTRY: BELGIUM (COURTESY OF SUPERIOR PRODUCTS EUROPE)

PROJECT DESCRIPTION

"A Wild Mog has a specially designed, uniquely customized 10+ ton powerhouse to support your off-road explorations. This armoured home built on a Unimog U500 base has an action radius of over 3500 km, 1400 litres of water, the power to ascend a 70° steep climb, fine-grained speed control, both left and right hand drive, SUPER THERM heat insulation technology, a switch to inflate and deflate your tires from inside, and an extra solar-powered battery."

COATING SOLUTION

After coating with 250 micron DFT Super Therm®, a top coat of ENAMO GRIP (white) was applied for easier maintenance.

RESULTS

Superior Products Europe nv/sa
Kampweg 123 | B-2990 Wuustwezel | Belgium
Phone: +32 3 690 02 40 | Fax: +32 3 690 02 41 | **www.specoating.com** | **info@specoating.com**

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

UNITED ARAB EMIRATES (DUBAI)

TRUCKS, FREEZER TRUCKS, CHEMICAL TANKERS, AND CAR APPLICATION OF SUPERTHERM, RUSTGRIP, ENAMO GRIP, AND MOIST METAL GRIP

Freezer Trucks

Tanker

Pipes

Car

ALL VEHICLES / PIPES WERE APPROVED AND PASSED BY POLICE TRAFFIC DEPARTMENT AND DUBAI MUNICIPLITY

Projects Completed by Emcon General Trading
United Arab Emirates, Bahrain, and Qatar

Authorized Distributor of Superior Products International II, Inc.
Shawnee, Kansas USA

10835 W. 78th Street ● Shawnee, Kansas 66214 ● Phone: 913-962-4848; Fax: 913-962-6767

SUPER THERM®
Insulation Coating

Registration and Certifications

PASSED

1 **Energy Star Program:** Approved Partner
Approved and accepted as an energy partner for saving energy.
- Passed ASTM E903-96 Reflectivity = 80%
- Only 1% Reduction in Reflectivity over 3 Years (3% over 10 years)

2 **BOCA (Building Officials Code Administrators):** Approved
- ICC Approval (International Code Council): Pending
- Passed ASTM E 84 for Flame Spread
- Passed ASTM C 411 for High Temperature for Surface Performance
- Passed ASTM C 177 for Thermal Conductivity (*SUPER THERM Specific)

3 **USDA (United States Department of Agriculture):** USDA Approved
- Letter of Authorization from USDA Product Safety Branch
- Letter of Written Certification as Accepted by USDA from Manufacturer

4 **Marine Approvals for World-wide Salt Water and Maritime Use**

DNV (Det Norske Veritas)	DNV Certified
ABS (American Bureau of Shipping)	ABS Certified
IMO (International Marine Organization)	IMO Certified
US Coast Guard	Certified

5 **Factory Mutual Approval**
- Tested and Approved for Roofing and All Other Applications

6 **GSA Approval for Federal US Government**
- SUPER THERM Product ID# 6311

7 **Underwriters Laboratories Approval (UL)**
Tested and Approved for Roofing (Metal and Foam Flat roof systems)

8 **California Cool Roof Program**
Approved and listed

Continued next page

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

SUPER THERM®
Insulation Coating

Registration and Certifications cont.

9 State of California Bureau of Home Furnishings and Thermal Insulation
License Number TE 1392

10 State of Florida Energy Rebate Program
Percentage reduction from cost of coating

11 Florida ECAP (Energy Conservation Assistance Program)
ECAP-CUL-1-99 Field Test Results
Test Method for Comparing Utility Loads in Standard Constructed Buildings

12 IMO (International Maritime Organization)
IMO A. 653 (16) Flame spread for bulkhead, wall and ceiling linings

13 MSC (Marine Safety Counsel)
MSC.41 (64) Toxic Gas generation using Colorimetric Gas Detector

14 NASA (National Aeronautics and Space Administration)
NASA 8060.1B/C, Test 1 Flammability Test "0" Flame Spread
NASA 8060.1C, Test 7 Toxic Off-gassing "K" rating (no off gassing)

15 JIS (Japanese Institute of Standards)
JIS A 5759 Reflectivity Light and Radiation
Light Reflectivity Ratio 92.2% blocking light spectrum (Short wave)
Long Wave Radiation Ratio 99.5% blocking Infrared (Long wave)

16 China Center for Technical Testing

GB/T 1771-91	Resistance to Salt Fog (2000 hours)
GB/T 1866-88	Manual Aging (2000 hours)
GB/T 10834-88	Resistance to Salt Water (1000 hours)
GB/T 5219-85	Adhesion (pulling apart method) 4.07 pa
GB/T 1733-93	Boiling Water Immersion 8 hours

PASSED

*Superior Products International II, Inc. (Super Therm Manufacturer) is an active member of the NRCA. National Roofing Contractors Association.

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

SUPER THERM®
Insulation Coating

Super Therm Insulation Qualifications

California's Title 24

Florida State Building Code 2007

International Energy Conservation Code (IECC)

ASHRAE Standards 90.1 and 90.2 To qualify:
Must have a minimum of 65% Reflectance (Super Therm 83%),
Emissivity of 75 (Super Therm 91) and SRI of 78 (Super Therm 103).

FTC (Federal Trade Commission) - requires a product is tested under and passes the ASTM C236 "Guarded Hot Box under Steady State Conditions" test to be considered an "insulation material". SUPER THERM tested and outperformed fiberglass in the entire scope of test.

Green Building Programs:

- ASHRAE Advanced Energy Design Guides
- USGBC's LEED 2009
- Green Globes
- Built It Green's Greenpoint Rated
- Collaborative For High Performance Schools

PASSED

Rebate Programs: Florida: Florida Light and Power, Progress Energy, Gainsville Regional Utilities. Super Therm listed as rebate product.

ROI Results (specific testing by corporations and laboratories):

- **Sony/Japanese Government** testing on 40,000m^2 - Result: 1.5 year ROI.
- **Saudi Aramco Oil** testing result: 1.5 year ROI.
- **Russian Academy of Sciences testing result**
  Super Therm outperformed polished aluminum mirrors (90% reflectivity across the spectrum) and Super Therm at 96%.
- **Mechanical engineer, construction physics, Belgium** - testing in winter months with Super Therm applied on walls - result 76% savings in heat loss.
- **Jamaica Defense Force, Engineer Regiment** - with use of Super Therm on roof, able to eliminate 50% of air conditioning units operating to cool roof.

KAPOW HEAT!™

Visit Supertherm.net.au or NEOtechCoatings.com for more information

SPICoatings.com USA Manufacturer. NEOtech Coatings - sole Australian Distributor
*Approved Applicator ^Results may vary

United States Department of Agriculture

Food Safety and Inspection Service

Regulatory Programs
Building 306, BARC-East
Beltsville, MD 20705

June 01, 1990

Mr. J. E. Pritchett
Superior Products of Kan-Tex, Inc.
2361 Saxwood
Salina, KS 67401

Dear Mr. Pritchett:

This is in reply to your request for compound authorization received on April 19, 1990 for your product Super Therm.

This product is chemically acceptable as a coating for application to structural surfaces or surfaces where there is a possibility of incidental food contact in official establishments operating under the Federal meat and poultry products inspection program. This letter does not authorize use of the coating on any surface where there is direct or prolonged contact with food. Before food product may be placed in the area where the material is being used, the area should be sufficiently free of odor to prevent product contamination. As a safety precaution, smooth coatings should not be applied to walking or standing surfaces in processing areas.

The final granting of authorization to use coatings on structural surfaces such as walls or ceilings, or on equipment surfaces below the product zone, is the responsibility of the inspector in charge of the official plant. Before applying the coating to equipment which will subsequently be installed in an official plant, you must obtain clearance from the Equipment Standards and Review Branch, Meat and Poultry Inspection Technical Services in Washington, DC 20250. Technical advice will be provided by the Product Safety Branch upon request.

The above acceptance of this compound will not be indicated in the publication, "List of Proprietary Substances and Nonfood Compounds." This letter acts as continuing authorization for its use under the conditions stated above.

Acceptance of compounds by this Department is in no way to be construed as an endorsement of the compounds or of any claims made for them.

If any change is made in the labeling information or formulation, the authorization for use in official plants becomes void immediately.

Sincerely,

Charles R. Edwards/ACH

Charles R. Edwards, Chief
Product Safety Branch
Food Ingredient Assessment Division

MAR 20 1995

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.

INSULATION COA
CORROSION PROTECTIO

May 4, 1995

RE: NASA Space Flight Center Testing of SUPER THERM

This is the first test report of a series of tests being performed by NASA on SUPER THERM.

In this report they tested and classified SUPER THERM as a Class "A" rated coating having -0- flame spread in the burn test. Flame spread is rated from "0" being the best to over "100" as being the worst as to contributing to flame or fire. SUPER THERM rated excellent in absolutely no contribution to flame or fire. This is an unusual rating for any paint product as most will score from a low of 15 up to 88. The "A" classification is the highest classification that can be achieved. This result definitely shows the quality of SUPER THERM.

NASA is currently so impressed with SUPER THERM that they are now establishing testing in additional areas of need for the space center. These needs involve not only their facilities but other classified areas.

As seen from the attached test memo from NASA, SUPER THERM was applied at 8 thousandths, 7.6 thousandths and 7.9 thousandths thickness for testing. This is our dry thickness as specified in our application instructions. All three samples were tested and received the same "0" result and "A" classification.

Regards,

J.E. Pritchett
President

6459 Universal Avenue • Kansas City, MO 64120 • Phone: 816-241-1976; Fax: 816-241-1772

National Aeronautics and
Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812

Reply to Attn of. LA20

JUN 28 1995

Mr. J. E. Pritchett
Superior Products Int'l II, Inc.
6459 Universal Avenue
Kansas, MO 64120

Dear Mr. Pritchett:

Thank you for submitting the Technology Transfer Agreement entitled "Insulation and Corrosion" which was given the reference number 2617. As discussed in your recent phone conversation with our representative, this response will close our action on this inquiry.

In response to your inquiry, enclosed are test results on your product for flammability, outgassing, and liquid oxygen compatibility. Super Therm water-based paint passed the toxic outgassing test and received a K rating, which is the highest rating possible. A K rating means that over 100 lbs. of the material could be present in a man-rated situation without exceeding allowable values established by NASA. The chemicals outgassed, and their amounts are provided on page 2 of the Toxic Offgassing test result. For more information on maximum allowable concentrations of these compounds, consult the OSHA handbooks in your local library.

Your product failed the liquid oxygen compatibility test, which means that it should not come in contact with liquid oxygen. According to Marshall Center Materials and Processes Laboratory personnel, a failure of this test occurs when a flash and/or subsequent explosion occurs when the test specimen is impacted while in contact with liquid oxygen.

Super Therm water-based Paint received an A rating, the highest possible rating in the flammability tests. In fact, the samples did not burn under any of the test conditions. A copy of NHB 8060.1C is enclosed, which describes NASA flammability, odor, offgassing, and compatibility requirements.

Regarding your inquiry about the use of your product on the external tank, discussions have been held with the Marshall Center's Materials and Processes Laboratory. Your sales literature has been forwarded to them for review. You will be contacted for additional samples of your product if the laboratory determines that they are interested in pursuing the use of Super Therm on the external tank.

If you need any other information, please call Dinah Higgins at (205) 544-2632. Please let us know if we can be of additional assistance. We will contact you at a later time to determine if this information has solved your problem and benefited your company.

Sincerely,

Kenneth R. Fernandez
Manager
Technology Utilization Office

Enclosures

cc:
LA20/Dinah Higgins
MCTTC/Bret Cornwell
ASTA/Jim Benham
Superior Products/David Williams (w/enclosures)

National Aeronautics and
Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama
35812

Reply to Attn of: EH42(95-0152)

MAY 16 1995

TO: EH43/D.Griffin

FROM: EH01/C. F. Key

SUBJECT: Toxic Offgassing of Super Therm Water Based Paint

The subject material has been tested for toxic offgassed products by the procedures outlined in NHB 8060.1C, Test 7.

The material, parameters and results are as follows:

Material:	Super Therm Water Based Paint
Manufacturer:	Superior Products International II, Inc.
Cure:	First Coat: 2hrs. 75 F 14.7 psia Second Coat: 336hrs. 75 F 14.7 psia
Composition:	Acrylic and Polyurethane with Ceramic Filler
Material Code:	02181
Item Number:	103903
Project:	Space Station Study
Submitted by:	EH43/D. Griffin
Test Number:	M103903-D
Test Temperature:	120 F
Sum T100 Value:	.02196
Max. Limit Wt.:	2276.87 lbs.
Rating:	K

The subject material met the acceptance criteria of NHB 8060.1C for toxic offgassing. Please ensure that any subsequent cleaning or modification does not invalidate the test results and require retesting. An overall rating of K has been given to this material for toxicity.

A copy of the test analysis is enclosed.

A Material Safety Data Sheet and Product Data Sheet should be included with any materials submitted for testing.

C. F. Key

C. F. Key
Deputy Director
Materials & Processes Laboratory

Enclosure

cc: see page 2

SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

SUPER THERM®

Technical Data Sheet (12/18/19)

DESCRIPTION

SUPER THERM® is a water-borne combination of high-performance aliphatic acrylics, urethanes and resin additives which produces a tough, yet flexible coating film. Designed for performance and durability, SUPER THERM® contains 4 unique ceramics to block heat gain into the surface upon which the coating film is applied. SUPER THERM® resists 95% of Solar heat blocking Visual Light, Ultra Violet (UV), and Infrared (IR). SUPER THERM® is a flexible membrane with low permeability that can greatly reduce expansion and contraction of a roof, and prevents corrosion and surface deterioration.

TYPICAL USES

- As a one-coat insulation system on exteriors to block the migration of Solar Heat gain (roofs and side walls).
- 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, or an intermediate coat on flat roofs.
- Applied over tent fabrics to provide insulation & remain flexible.

APPLICATION METHODS

SUPER THERM® 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 SUPER THERM®. This coating should never be applied at less than 17 mils wet (425 microns), 10.0 mils dry (250 microns), each coat.

TESTS AND CERTIFICATIONS (partial list)

1. Exterior insulation against Solar Radiation
2. Blocks 99.5% of infrared / up to 68% sound blockage
3. UL (Underwriters Laboratory) approved
4. Flame Spread Test (ASTM E84; 0 smoke, 0 flame)
5. Class "A" Flame Spread
6. Marine Approvals: - American Bureau of Shipping; USCG
7. UV & Salt Spray Resistance (ASTM 5894) 5000 hours
8. USDA Approved
9. Flexibility (ASTM E1737): 180 degree bend – passed
10. Adhesion ASTM (D4541): 265 psi (1.8Mpa) @ 10 dry mils – did not pull off plate; only intercoat failure.
11. Perm Rating (ASTM d1653-13): 10 dry mils=8perms; 12 dry mils=4perms
12. Abrasion Resistance (ASTM D4060): 3,000 cycles
13. Resistance to Salt Spray: 2,000 hours
14. Resistance to Wind Driven Rain (ASTM D6904)
15. Airforce Canopy: MIL-PRF-6799

PHYSICAL DATA

- Solids: By weight 70% / By Volume: 60% (+/-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: 11.72 lbs. per gallon
- Vehicle Type: Urethane/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; 25,000 Centipoise
- pH: 8.5 – 9.5
- 95 sq.ft./gallon (8sqm): 17 mils (425 microns) wet / 10.0 mils (250 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.

MEETS MIL SPEC: MIL-PRF-6799L

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 SUPER THERM® 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

SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND CORROSION SPECIALISTS

SUPER THERM®

Application Instructions (2/28/19)

SUPER THERM® is a water-borne combination of high-performance aliphatic urethanes, elastomeric acrylics, and resin additives which produces a tough, yet flexible coating film. Designed for performance and durability, SUPER THERM® contains 4 unique ceramics to block up to 95% of Solar Heat entering a structure due to Visual Light, Ultra Violet (UV), and Infrared (IR). SUPER THERM® is a flexible membrane with low permeability that can greatly reduce expansion and contraction of a roof, and 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) SUPER THERM 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 over flexible surfaces (foam, tar, rubber and wood).

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

MIXING

SUPER THERM® should be mechanically mixed or mixed by hand (boxing) for three minutes, then applied.

APPLICATION

SUPER THERM® 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 humidity 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 SUPER THERM® 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)

SUPER THERM® will be applied at no less than a total of 17 mils wet (425 microns)/10.1 mils dry (250 microns) for each application. Spread Rate is 95 sq ft per gallon. (8.8 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: Super Therm (UPC#851207002003, SKU#768399, Part#0311)
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	%	CAS/PIN	LD-50 (species/route)	LC50 (species)
texanol	0.5	25265-77-4	3200 mg/kg (oral, rat)	NAV
mica/additives	14.0	12001-26-2	NAV	NAV
This material does not pose a potential risk of inhalation in the solution mixture contained herein.				
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.

NAP = Not Applicable NAV = Not Available

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: 9/11/18