



# **SUPERIOR PRODUCTS INTERNATIONAL II, INC.**

## **SUPER THERM<sup>®</sup> IS CERTIFIED ENVIRONMENTALLY FRIENDLY AND ENERGY EFFICIENT**

### **U.S. GREEN BUILDING COUNCIL**

LEED PROGRAM (Leadership in Environmental and Energy Design)  
Green Building Rating System

Points offered for the use of SUPER THERM<sup>®</sup> in each of the following categories:

1. LEED for New Construction - Possible 16 points
2. LEED for Commercial Interiors Possible 16 points
3. LEED for Homes Possible 20 points
4. LEED for Neighborhood Development Possible 16 points

Points come from the following criteria:

- a. Temperature Reduction
- b. Containment of biohazards- Lead-based paints and asbestos.
- c. Environment improvements for humans and animals.
- d. Reduction of harmful environmental properties

### **MBDC CRADLE TO CRADLE CERTIFICATION**

"Gold Certificate" awarded to SUPER THERM<sup>®</sup>

Certifies the following: (i) product is environmentally safe and contains healthy materials; (ii) product is design for material reutilization, such as recycling or composting; (iii) product promotes renewable energy and energy efficiency; (iv) product production employs efficient use of water, and maximum water quality; and (v) company has instituted strategies for social responsibility.

MBDC is a product and process design firm dedicated to transforming the design of products, processes, and services worldwide and to promote and power "the Next Industrial Revolution" through intelligent design. Employs Cradle to Cradle Design using strategies called "eco-effective" (rather than the widely promoted "eco-efficiency") to create products and systems that contribute to economic, social, and environmental prosperity.

### **U.S. DEPARTMENT OF AGRICULTURE**

SUPER THERM<sup>®</sup> has been tested and approved for use inside food facilities.

### **JAPANESE TESTING OF PERFORMANCE AND DURABILITY**

SUPER THERM<sup>®</sup> performance and durability has been proven over fifteen (15) years with a reduction in total reflectance of 19.4% and in visible light reflectance of 15.9%. Twenty-one other high reflectance coatings lost 30% of total reflectance after 571 days (1½ years).



# U.S. GREEN BUILDING COUNCIL

## LEED PROGRAM

### (Leadership in Environmental and Energy Design)

### Green Building Rating System

SUPER THERM<sup>®</sup> qualification for LEED points as set forward by the LEED program is as follows:

SUPER THERM<sup>®</sup> is compliant with the “LEED-NC and LEED-EB, Green Building Rating System for New Construction and Existing Construction and Major Renovation” Version 2.2, Sustainable Sites

Credit 7.1 Heat Island Effect: Non Roof and 7.2 Heat Island Effect: Roof.

Coatings under VOC of 250 grams/litre for pitched and flat roofing. Under architectural interior wall paint (1 point) as well as roofing (1 point). SUPER THERM<sup>®</sup> is 25 grams/litre.

SUPER THERM<sup>®</sup> falls under the criteria of meeting the test requirements of ASTM E 903 reflectance and ASTM C 1371 emittance. SRI (Solar Reflectance Index) required minimum percentage of 0.75 (SUPER THERM<sup>®</sup> - 0.85 which far exceeds the LEED requirement).

SUPER THERM<sup>®</sup> passes and easily complies with the LEED standards for achieving energy points. There is no assigned number to products. The customer applies for points when building a new construction or doing major renovations under version 2.2. The line of SPI Coating Products will add points to the building owner in achieving the highest point system under LEED.

#### Point System:

Certified	32-39 points
Silver	40-47 points
Gold	48-63 points
Platinum	64-85 points

Standards for construction and site protection as well as building and site operation.

Checklist of credits that SUPER THERM<sup>®</sup> promotes:

**Credit 6.1**                      “Heat Island Reduction”                      Possible points 1

Thermal gradient differences between developed and undeveloped area to minimize impact on microclimate and human and wildlife habitat.

Option B – Use/maintain light-colored/high albedo materials (reflectance of at least 0.3) for 30% of the site’s non-roof impervious surfaces on the site, including parking lots, walkways, plazas, etc. Provide 3rd party reflectance documentation.



**Credit 6.2**                      “Heat Island Reduction”                      Possible points 1

Thermal gradient differences between developed and undeveloped area to minimize impact on microclimate and human and wildlife habitat.

Option A Have in place over the performance period ENERGY STAR compliant, high-reflectance and high emissivity roofing material that has a minimum emissivity of 0.9 when tested in accordance with ASTM 408 for a minimum of 75% of the roof surface.

**Energy and Atmosphere**

Credit 2.1-2.4 - On site renewable energy 12%                      Possible points 4  
Over the performance period, meet some or all of the building’s total energy use through the use of on-site or off-site renewable energy systems.

MR Credit 3.1 and 3.2  
Optimize Use of the IAQ Compliant Products                      Possible points 2  
Replace the indoor air quality (IAQ) impacts of the materials acquired for use in the operations, maintenance and upgrade of buildings. Must include the following product groups: paints and coatings.....etc.

IEQ Credit 6.2 - Controllability of Systems  
Temperature & Ventilation                      Possible points 1  
Provide individual temperature and ventilation controls for at least 50% of the building occupants, enabling adjustments to suit individual needs and preferences, or those of a group having a multi-occupant space or workgroup area.

IEQ Credit 7.1 - Thermal Comfort: Compliance                      Possible points 1  
Provide a comfortable thermal environment that supports the productivity and well-being of building occupants. Comply with ASHRAE standard 55-2004, Thermal Comfort Conditions for Human Occupancy.

IEQ Credit 10.4 & 10.5 - Green Cleaning:  
Low Environmental Impact Pest Management Policy                      Possible points 2  
Develop, implement and maintain a low environmental impact integrated indoor pest management policy. OMEGACIDE™

IUOM Credit 1 - Innovation in Upgrades  
Operations and Maintenance                      Possible points 4

Credit 1.1, 1.2, 1.3 and 1.4. Provide documentation of each proposed innovation credit, including a description of the achievement, the additional environmental benefits delivered over the performance period.

Possible points to achieve using SUPER THERM® and OMEGACIDE™ on only the  
**LEED-EB (Existing Buildings) is                      TOTAL 16**

If the entire line of SPI Coating Products is used on the other LEED categories:

- |    |                                   |             |
|----|-----------------------------------|-------------|
| a. | LEED for New Construction         | Possible 16 |
| b. | LEED for Commercial Interiors     | Possible 16 |
| c. | LEED for Homes                    | Possible 20 |
| d. | LEED for Neighborhood Development | Possible 16 |

Possible total of 68 different points could be achieved from entire line of SPI Coating Products for:

- Temperature reduction.
- Containment of biohazards - Lead-based paints and asbestos encapsulation.
- Environment improvements for humans and animals.
- Reduction of harmful environmental properties.

This would help qualify the owner for the Platinum Rating on the LEED program.

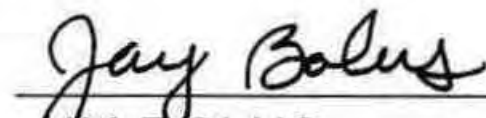
**CRADLE TO CRADLE™**  
PRODUCT CERTIFICATION

**GOLD**

IS HEREBY GRANTED TO

ENERGY BARRIERS, INC.  
**SUPER THERM®**

JANUARY 10, 2006



JAY BOLUS

VP BENCHMARKING & CERTIFICATION



**U.S. Green Building Council**

**Superior Products  
International II, Inc.  
MEMBER SINCE 2006**

THE U.S. GREEN BUILDING COUNCIL IS THE NATION'S FOREMOST COALITION OF LEADERS WORKING TO TRANSFORM THE WAY BUILDINGS AND COMMUNITIES ARE DESIGNED, BUILT AND OPERATED, ENABLING AN ENVIRONMENTALLY AND SOCIALLY RESPONSIBLE, HEALTHY, AND PROSPEROUS ENVIRONMENT THAT IMPROVES THE QUALITY OF LIFE.

Kevin Hydes, Chairman

S. Richard Fedrizzi, President, CEO and Founding Chairman



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/RCW*

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

MAR 20 1995



# SUPERIOR PRODUCTS INTERNATIONAL II, INC.

## COMPARISON OF SUPER THERM<sup>®</sup> TO OTHER REFLECTIVE COATINGS ON THE MARKET WHEN TESTED FOR ENERGY STAR PROGRAM

In the government testing procedures on the products by Insulating Coatings Corporation, Temp-Coat Brand Products, LLC, and SPM Thermoshield, Inc. dba Roof Guardian when tested for Energy Star Program, the testing was performed to demonstrate the reflectivity of a new roof and of a three-year old roof to determine the reduction in reflectivity/performance and loss of insulation effectiveness.

See the original report of the ENERGY STAR PROGRAM at <http://www.energystar.gov>.

<u>Product</u>	<u>New Roof Reflectivity</u>	<u>3 Year Old Roof</u>	<u>Percentage Reduction in Reflectivity</u>
<b>Aztec 900</b> Warranty of 10 years would mean that at the end of 10 years the reflectivity would be reduced by a minimum of 30%	<b>86%</b>	<b>77%</b>	<b>- 10.5%</b>
<b>Temp Coat</b> Warranty of 10 years would mean that at the end of 10 years the reflectivity would be reduced by a minimum of 90%	<b>87.7%</b>	<b>61%</b>	<b>- 30%</b>
<b>Thermo-Shield</b> Warranty of 10 years would mean that at the end of 10 years the reflectivity would be reduced by a minimum of 75%	<b>84%</b>	<b>63%</b>	<b>- 25%</b>
<b>Super Therm<sup>®</sup></b> Warranty of 10 years would mean that at the end of 10 years the reflectivity would be reduced by less than 0.04%	<b>.80%</b>	<b>.79%</b>	<b>- 01%</b>
<b>Envirotrol CC-100</b>	<b>Not Tested</b>	<b>Not Tested</b>	<b>Not Tested</b>

This comparison testing shows very clearly that SUPER THERM<sup>®</sup> is the best coating on the market to maintain its insulation ability over the years. The other coatings must be reapplied to maintain any insulation ability. SUPER THERM<sup>®</sup> does not have to be reapplied.



Company Name	Brand	Model	Type	Initial Solar Reflectance	Solar Reflectance after 3 years*	Low Slope?	Steep Slope?	Warranty (years)**
Henry Company	Henry	582	Coating	0.79	0.54	Y	N	10
Henry Company	Henry	582 w/ white granule finish	Coating	0.79	0.54	Y	N	10
Henry Company	Henry	869	Coating	0.7	0.54	Y	N	5
Henry Company	Henry	SolarFlex 287	Coating	0.838	0.744	Y	Y	7
Henry Company	Henry	SolarFlex 287 SF	Coating	0.838	0.744	Y	Y	7
Henry Company	Metalshield	275	Coating	0.76	0.62	Y	N	10
Henry Company	Prograde	550	Coating	0.76	0.62	Y	N	10
Henry Company	Rubberkote	827	Coating	0.76	0.62	Y	N	10
Hydro-Stop, Inc.	Hydro-Stop	Premium coat	Coating	0.82	0.67	N	N	10
Hydroseal Polymers Inc.	Hydroseal Polymers	Hydroseal Acrylic	Coating	0.76	0.69	Y	Y	10
Hyload, Inc.	Hyload	Alproof/Alpsam	Coating	0.74	0.72	Y	N	20
IB Roof Systems	IB Single-Ply	50 to 80 mil.	Single-Ply	0.83	0.83	Y	Y	10 - 25
Inland Coatings Corporation	Inland Coatings	RC-2000 White	Coating	0.82	0.72	Y	Y	10
Inland Coatings Corporation	Inland Coatings	SRC-2000 White	Coating	0.818	0.723	N	N	10
Insulated Panel Systems	IPS	Roof/Wall Panel	Metal	0.68	0.57	Y	Y	20
Insulated Panel Systems	IPS	Standing Seam Profile	Metal	0.68	0.57	Y	Y	20
Insulating Coatings Corporation	ASTECC	900	Coating	0.86	0.77	Y	N	10
Insulating Coatings Corporation	ASTECC	2000	Coating	0.866	0.767	Y	N	10
Intelliccoat Technologies, LLC	Intelliccoat Technologies LLC	Solar Save	Coating	0.881	0.786	Y	Y	10
Isothermal Protective Coatings, Inc.	IPC	Acrylink G	Coating	0.79	0.72	Y	Y	5 - 20
Johns Manville Corporation	DynaClad*		Modified Bitumen	0.85	0.623	N	N	20
Johns Manville Corporation	JM PVC	Single Ply Membrane	Single-Ply	0.86	0.57	Y	N	10-15
Johns Manville Corporation	TopGard 400	White	Coating	0.83	0.61	Y	N	
Johns Manville Corporation	TopGard 500	White	Coating	0.83	0.61	Y	N	
Johns Manville Corporation	UltraGard	.060 White EPDM	Single-Ply	0.84	0.8	Y	N	10
Johns Manville Corporation	UltraGard	SR50, SR60, SR80	Single-Ply	0.84	0.76	Y	Y	15
Johns Manville Corporation	UltraGard	TPO	Single-Ply	0.87	0.83	Y	N	15
KM Coatings Mfg., Inc.	KM	FinalCoat	Coating	0.81	0.62	Y	N	5 - 10

Company Name	Brand	Model	Type	Initial Solar Reflectance	Solar Reflectance after 3 years*	Low Slope?	Steep Slope?	Warranty (years)**
Resin Technology Company	Henry	580	Coating	0.94	0.91	Y	Y	10
Resin Technology Company	Henry	582	Coating	0.92	0.85	Y	Y	10
Resin Technology Company	Permax	100	Coating	0.9	0.73	Y	Y	10
Resin Technology Company	Permax	110	Coating	0.9	0.81	Y	Y	10
Resin Technology Company	Permax	115	Coating	0.94	0.91	Y	Y	10
Resin Technology Company	Permax	2000	Coating	0.89	0.54	Y	Y	10
Resin Technology Company	Permax	800	Coating	0.84	0.8	Y	Y	10
Resin Technology Company	Permax	Permax-108	Coating	0.92	0.85	Y	Y	10
Resin Technology Company	Permax	Permax-108 w/ White Granule Finish	Coating	0.79	0.54	Y	N	10
Resin Technology Company	Permax	Permax-115 w/ White Granule Finish	Coating	0.78	0.54	Y	N	10 - 20
RoofMart International, Inc.	Garnite Roofing Products	Garna-Thane	Coating	0.87	0.83	Y	N	10 - 30
RoofMart International, Inc.	Garnite Roofing Products	Krylyk	Coating	0.734	0.702	Y	Y	5 - 15
Ryerson	BASF Fluoroceram	815W49 Natural White	Coating	0.772	0.7422	N	Y	30
SAF-T-SCREENS, INC., dba Roof Guardian	Roof Guardian Technologies, Inc.	RG170	Coating	0.88	0.62	Y	Y	10
SOLEC - Solar Energy Corporation	LO/MIT	LO/MIT-1	Coating	0.8	0.67	Y	N	1 - 5
<b>SPM THERMO-SHIELD, Inc.</b>	<b>Thermo-Shield</b>	<b>Roof Coat</b>	<b>Coating</b>	<b>0.84</b>	<b>0.63</b>	<b>Y</b>	<b>N</b>	<b>5 - 15</b>
SR Products Group	Wite Brite Elastomeric Coating	N/A	Coating	0.8366	0.707	Y	Y	2
SWD Urethane Company	Kool-Kote	1929-F	Coating	0.81	0.72	Y	N	10
SWD Urethane Company	Kool-Kote	1929-R	Coating	0.81	0.71	Y	N	10
Sandstone Products Inc	EVERTUFF	SP-100	Coating	0.875	0.681	Y	Y	
Sarnafil Inc.	CLASSIC	All S327 & G410 48-120 Mil. Membranes	Single-Ply	0.66	0.50-0.66	Y	Y	5 - 20 (Wind & Weather)
Sarnafil Inc.	Decor Profile Roof TM	All S327 & G410 48-120 Mil. Membranes	Single-Ply	0.48	0.15-0.48	N	Y	5 - 20 (Wind & Weather)
Sarnafil Inc.	EnergySmart Roof	All S327 & G410 48-120 Mil. Membranes	Single-Ply	0.83	0.5-0.83	Y	Y	5 - 20 (Wind & Weather)
Sealoflex Inc.	Sealoflex	Finish Coat (White)	Coating	0.77	0.69	Y	Y	10
Seaman Corporation	FiberTite	FiberTite XT, SM, FB, LX, Xtreme	Single-Ply	0.81	0.77	Y	Y	10 - 15
Siplast, Inc.	Siplast, Inc.	PC-227 Elastomeric Roof Coating	Coating	0.75	0.65	Y	N	5 - 10

Company Name	Brand	Model	Type	Initial Solar Reflectance	Solar Reflectance after 3 years*	Low Slope?	Steep Slope?	Warranty (years)**
TAMKO Building Products, Inc.	AstonWood	Wood Profile - Sequoia Red	Metal	0.27	0.27	N	Y	50
TAMKO Building Products, Inc.	AstonWood	Wood Profile - Taupe	Metal	0.28	0.28	N	Y	50
TAMKO Building Products, Inc.	StoneCrest	Slate Profile - Brite Red	Metal	0.33	0.33	N	Y	50
TAMKO Building Products, Inc.	StoneCrest	Slate Profile - Canyon Copper Bronze	Metal	0.32	0.32	N	Y	50
TAMKO Building Products, Inc.	StoneCrest	Slate Profile - Sequoia	Metal	0.27	0.27	N	Y	50
TAMKO Building Products, Inc.	TAM Star	White Coating	Coating	0.75	0.7	Y	Y	7
Tech Traders Inc.	Insuladd	E-Coat	Coating	0.85	0.75	Y	Y	10
Technical Roofing Solutions, Inc.	ADURON	OC9000	Coating	0.852	0.719	N	N	5 - 10/Lifetime
Technical Roofing Solutions, Inc.	Roof-Tek	Acry-Tek 4200 White	Coating	0.799	0.776	Y	Y	10
Technical Roofing Solutions, Inc.	Roof-Tek	RT-SP2206	Coating	0.83	0.83	Y	Y	5 - 10
Temp-Coat Brand Products, LLC	TEMP COAT	Roofing & Siding Coating	Coating	0.877	0.61	Y	Y	10
Texas Refinery Corp.	Texas Refining Corp.	Aluminum Quick-Patch	Coating	0.88	0.83	Y	N	
Texas Refinery Corp.	Texas Refining Corp.	White Metal Seal Elastomeric Coating	Coating	0.83	0.8	Y	N	
The Brewer Company	Cool King	#5621 Premium White Reflective Roof Coating	Coating	0.75	0.7	Y	N	7
The Brewer Company	Fortress	#5601 White Elastomeric Coating	Coating	0.83	0.71	Y	N	7
The Garland Company, Inc.	Bare Galvalume	R-Mer Span, R-Mer Loc, R-Mer Clad, R-Mer Lite	Metal	0.68	0.57	Y	N	30
The Garland Company, Inc.	Natural Patina	R-Mer Span, R-Mer Loc, R-Mer Seam, R-Mer Clad, R-Mer Lite	Metal	0.469	0.461	N	Y	30
The Garland Company, Inc.	Portland Stone	R-Mer Span, R-Mer Loc, R-Mer Seam, R-Mer Clad, R-Mer Lite	Metal	0.458	0.454	N	Y	30
The Garland Company, Inc.	Pyramic	White Reflective Coating	Coating	0.85	0.54	Y	Y	1 - 10
The Garland Company, Inc.	Regal White	R-Mer Span, R-Mer Loc, R-Mer Seam, R-Mer Clad, R-Mer Lite	Metal	0.681	0.671	N	Y	30
The Garland Company, Inc.	Sandstone	R-Mer Span, R-Mer Loc, R-Mer Seam, R-Mer Clad, R-Mer Lite	Metal	0.542	0.539	N	Y	30

Company Name	Brand	Model	Type	Initial Solar Reflectance	Solar Reflectance after 3 years*	Low Slope?	Steep Slope?	Warranty (years)**
Siplast, Inc.	Siplast, Inc.	Veral Aluminum	Modified Bitumen	0.88	0.66	Y	N	10 - 20
Solar Guard Coatings	Solastic	Premium Fibered Aluminum Coating	Coating	0.674	0.571	N	N	5
Solar Guard Coatings	Solastic	Premium Non-Fibered Aluminum Coating	Coating	0.677	0.587	N	N	5
Solar Guard Coatings	Solastic	Premium White Elastomeric Coating	Coating	0.805	0.668	N	N	5-10
Solar Guard Coatings	Solastic	White Elastomeric Coating	Coating	0.79	0.65	N	N	5-10
Southwest Metal Roofing Systems	Galvalume AZ55	Sheet Metal	Metal	0.68	0.52	Y	Y	20
Specialty Coatings Co. and Specialty Coatings Co. DBA Specialty Finishes Co.(CA)	Super Series 4800 Super Cool	Mission Clay 408-10-2R840	Built-Up-Roof (BUR)	0.312	0.3	N	Y	20
Stevens Roofing Systems	Stevens	Stevens EP	Single-Ply	0.86	0.85	Y	N	5 - 20
Stevens Roofing Systems	Stevens	Stevens Hypalon (CSM)	Single-Ply	0.85	0.77	Y	N	5-20
Stevens Roofing Systems	Stevens	Stevens Multi-Purpose Roof Coating	Coating	0.82	0.72	Y	N	
Structural Elastomeric Products, Inc.	E-las-tek	#100 Solar Mastic	Coating	0.856	0.772	Y	N	5
Structural Elastomeric Products, Inc.	E-las-tek	#109 Solar Magic	Coating	0.792	0.783	Y	N	4
Structural Elastomeric Products, Inc.	E-las-tek	#120 Solar Tek 2000	Coating	0.839	0.795	Y	N	6
Sun Tech Coating, Mfg	Sunguard	Top Coat 1	Coating	0.81	0.7	Y	N	5
Sunlife Systems	Sunlife	Sunlife Roofing Compound	Coating	0.9	0.84	Y	Y	10 - 15
Sunshine Systems, Inc.	Sunshine Systems	Sunshine Re-Roof Systems	Metal	0.7	0.66	Y	Y	10
Sunward Corporation	Sunward	Commercial High Rib/Rockweld TS 324	Metal	0.78	0.58	Y	Y	20
Superior Products International II, Inc.	Ceramic	Super Therm	Coating	0.8	0.79	Y	N	10-20
T. Clear Corporation	Lightguard	COOLGUARD	Tile	0.84	0.65	Y	N	5 - 10
TAMKO Building Products, Inc.	AstonWood	Wood Profile - Brite Red	Metal	0.33	0.33	N	Y	50
TAMKO Building Products, Inc.	AstonWood	Wood Profile - Coastal White	Metal	0.58	0.58	N	Y	50



# **SUPERIOR PRODUCTS INTERNATIONAL II, INC.**

## **LONG TERM PERFORMANCE AND DURABILITY OF SUPER THERM<sup>®</sup>**

### **SOLAR REFLECTANCE TEST OF SUPER THERM<sup>®</sup> AFTER 15 YEARS**

Reflectance Test of 15 Year Old Roof in Western Kansas where SUPER THERM<sup>®</sup> Was Applied in 1989

### **RESEARCH ON HIGH REFLECTANCE COATINGS IN JAPAN**

Research on Cool Roof in Japan by Mr. Yasushi Kondo, PhD of Musashi Institute of Technology at International Workshop on Countermeasures to Urban Heat Island.

SUPER THERM<sup>®</sup> performance and durability was proven over fifteen (15) years with a reduction in total reflectance of 19.4% and in visible light reflectance of 15.9%.

Of twenty-one other high reflectance coatings, the coating with the highest reflectance at the time of application lost 30% of total reflectance after 571 days (1½ years).

# Solar Reflectance Test After 15 Years

## Reflectance Durability

- **User**

Mr. Roger Kuntz, President of K-Teck  
Routel Box 69, Grainfield, Kansas 67737

- **Test Piece**

The test piece was taken from a 15-year old roof in January 2006 where Super Therm was applied in 1989.



- **Climate Condition**

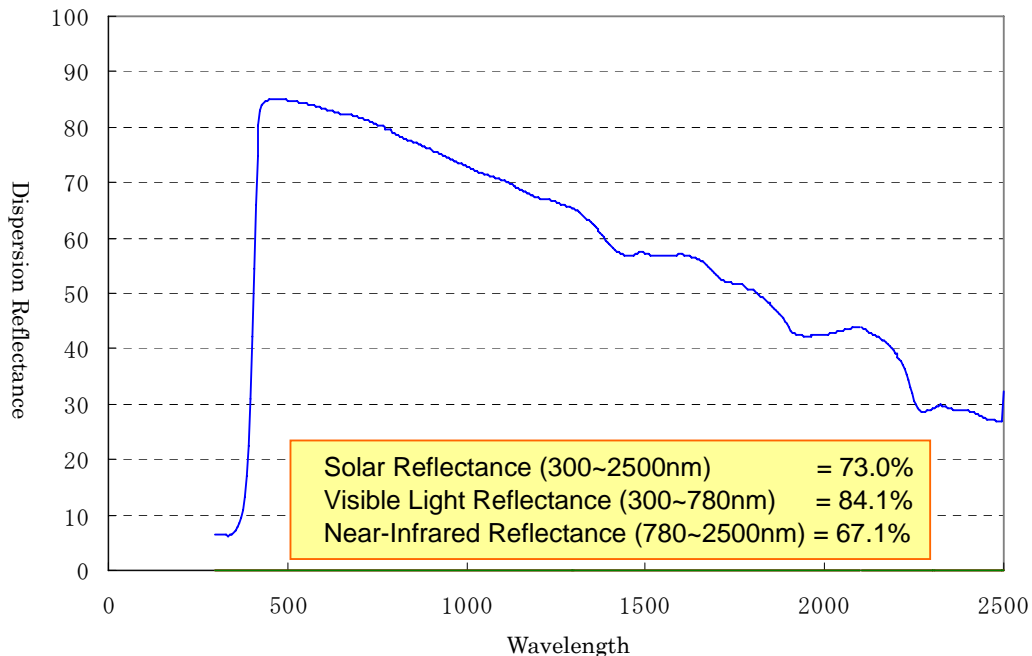
K-Teck is a manufacturing facility located in Grainfield, Western Kansas. This area's climate is very severe with  $-21^{\circ}\text{C}$  in the winter with snow and ice and with  $38^{\circ}\text{C}$  in the summer with sand storms and very strong sun radiation.

- **Solar Reflectance Test**

Test Center: Building Material Test Center

Test Method: Solar Reflectance Test JIS R 3106 (Reflectance Test on Plate Glass)

Test Result :



- **Evaluation**

This is an excellent result for a roof of a factory in extremely severe conditions to remain at 84.1% of visible light reflectance and 73% of total solar reflectance after 15 years. The reflectance of near infrared is 67.1% because the Super Therm<sup>®</sup> at that time did not contain the fourth ceramic which is designed to block infrared rays introduced in 2000. This fourth ceramic repels 65% of infrared, so the result with the current Super Therm<sup>®</sup> will be better.

# SUPER THERM<sup>®</sup>

## Reflectivity Change with Aging of Other Reflective Coatings

Twenty one high-reflectance coatings have been tested based on the JIS Standard as a part of the heat island mitigation effect investigation program by the city of Tokyo. The result of the newly applied product was publicly released before, but the result after it aged has just been released in the “International Workshop on Countermeasures to Urban Heat Island” in a presentation “**Research on Cool Roof in Japan**” by Mr. Yasushi Kondo, PhD of Musashi Institute of Technology. Dr. Kondo is a researcher with authority in the high reflectance coating field.

There are many high-reflectance coatings in the market nowadays, but not enough research has been done on its product quality. Therefore, it is difficult for users to select reliable products.

In the test done by Dr. Kondo, the product No.13 had one of its highest reflectance in the new stage, but only after one and a half years (571 days) the reflectance had decreased by about 30%.

### <Product No.13>

	Solar Reflectance (300~2500nm)		Visible Light Reflectance (300~780nm)		Near-Infrared Reflectance (780~2500nm)	
	New	571 days	New	571 days	New	571 days
White	80.8 →	54.8	85.2 →	50.4	82.1	61.4
Black	40.4 →	30.7	5.8 →	6.9	71.2	51.5

Test Method: JIS R 3106 (Reflectance Test on Plate Glass)

On the contrary to this test result, Super Therm<sup>®</sup>'s reduction in reflectivity after **15 years** was only 19.2%. (92.2% - 73%=19.2%)

This result proves that Super Therm<sup>®</sup>'s durability in reflectivity is by far excellent.

### Super Therm<sup>®</sup>

- The Solar Reflectance at the new stage was **92.2%** (Building Material Test Center)
- The Solar Reflectance **After 15 years** (K-Teck, Kansas)

	Solar Reflectance ( 300~2500nm )	Visible Light Reflectance ( 300~780nm )	Near-Infrared Reflectance ( 780~2500nm )
White	73%	84.1%	67.1%

Test Method: JIS R 3106 (Reflectance Test on Plate Glass)

- The reduction of solar reflectance in 3 years tested for the Energy Star Program by EPA was only **0.01%**.