

# **SUPER THERM**

## **Outstanding Insulation Effect and Energy Saving**

**SUPERTHERM** cuts down the sunrays heat.  
It will improve the efficiency of air-conditioning,  
and reduce room temperature.  
It will keep heat inside of a room in winter.

## **High Durability**

The combination of high quality acrylic resin and urethane resin makes for strong coating, and it gives a durability of over 10 years. **SUPERTHERM** is UV resistant, waterproof, flexible, and fireproof.

## **Environmentally Friendly**

**SUPERTHERM** passed the Safety Standard of the USDA, which permits it to be used in factories of the food industry.

## **For ISO14000**

**SUPERTHERM** will cut down the amount of electricity needed for air-conditioning. It is increasingly used by the factories seeking the ISO14000.

## **DAIKO SHOKAI CO., LTD**

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# APPLICATION

## Metal Surface

	Product Name	No. of Applications	Thickness (microns)	Coverage Rate(g/? )	Thinner	Area / Drum ( ? )
1	Surface Preparation	The surface must be clean and dry before the application. Loose or flaking old paints (by sand blast) or corrosion (by bush) must be removed as well as grease, oil or dirt.				
2	Primer <b>RUSTGRIP</b>	1	40	140	Urethane (0~10)	150
3	Insulation Paint <b>SUPERTHERM</b>	1~2	180	560	Water (0~10)	50
4	(Solvent) <b>ENAMOGRIP</b>	1	30	150	Urethane (0~10)	100
	Water Based <b>ENAMOGRIP</b>	1	50	160	Water if needed.	160

## Old Slate Surface

	Product Name	No. of Applications	Thickness (microns)	Coverage Rate(g/? )	Thinner	Area / Drum ( ? )
1	Surface Preparation	The surface must be clean and dry before the application. Moss, sand or oil must be removed from the surface. Cracks must be repaired if needed.				
2	Primer <b>RUSTGRIP</b>	2		400	Lacquer if needed.	40
3	Base Primer <b>SUPERBASE</b>	1	100	300	Water (0~10)	85
4	Insulation Paint <b>SUPERTHERM</b>	1~2	180	560	Water (0~10)	50
5	(Solvent) <b>ENAMOGRIP</b>	1	30	150	Urethane (0~1)	100
	Water Based <b>ENAMOGRIP</b>	1	50	160	Water if needed.	160

## Reinforcement Method for the Slate Surface

	Product Name	No of Applications	Thickness (microns)	Coverage Rate(g/? )	Thinner	Area / Drum ( ? )
3	Reinforcement Primer <b>SUPERBASE HS</b>	1~ 2 (by spray)	2000	1500	Water	30

## IMPORTANT

- Never apply when it is raining or when there is a chance of rain. If it rains, you may notice some bubbling effect on the coating. **Do not** puncture these bubbles. The sun will dry out the coating and allow it to cure naturally.
- Never apply when the temperature is below 5 deg. C.
- When it rains after the application, it sometimes produces white bubbles in the gutter. However, it is merely the surfactant and not harmful
- Stir well before the application. Seal containers firmly after the application.
- Avoid contact with eyes and skin. If solution comes in contact with eyes, flush immediately with water and seek medical attention.

## Product Features

<b>SUPERTHERM</b>		26.5kg Drum (19 L)	
Component	Special Ceramics, Polyurethane Resin, Acrylic Resin, Water		
Solidity	52%		
Application	A thick coat might cause cracking, 2 thin coats are preferable.		
Drying Time	Touch Dry: 1 hour (summer) 4 hours (winter), Cure: 14 days		
Thickness	350 microns (wet), 180 microns (dry)		
Elongation	125%	Heat Resistance	resistant up to 260 C
Bend Test	180°, no crack	Fire Resistance	ASTM E 119, Passed
VOC	67.g/l	Specific Gravity	1.4
PH	8.5~9.0	Viscosity	105~110KU
Safety Test	Approved by the USDA (safe for food)		
Sound Blocking	It has 66% sound blocking.		
<b>RUST GRIP</b>		21kg Drum (19 L)	
<p>RUSTGRIP is one-component polyurethane coating that offers remarkable corrosion control and effectively “galvanizes” new or old metal surfaces. It provides a protective coating of superior adhesion, flexibility and resistance to acid, abrasion, and impact. It is used to encapsulate rusted areas to stop and control corrosion activities. It will seal over and into pitted rust to seal out any contact with moisture and air or chemical pollutants that breed corrosion activity. It is resistant to chemical solvents and acid.</p>			
Solidity	45%		
Drying Time	Touch Dry: 45 minutes, Re-coat: 45 minutes after, within 4 hours		
Thickness	50~100 microns (dry)		
<b>SUPERBASE</b>		26.5kg Drum (19 L)	
<p>SUPERBASE is a strong acrylic emulsion paint that is adhesive, and resistant to water, weathering, and UV rays. It works as a protective sealer that provides outstanding adhesiveness to SUPERTHERM.</p>			
Solidity	50% (Volume) , 64% (Weight)		
Drying Time	Touch Dry: 1 hour, Re-coat: at least 4 hours after, Cure: 7 hours		
Thickness	175 microns (wet), 100 microns (dry)		
Elongation	at least 200%	Viscosity	150KU
VOC	82g/l	Specific Gravity	1.4
<b>ENAMOG RIP</b>		15.2kg Set (Base: 11.4kg, Coagulant: 3.8kg)	
<p>ENAMOG RIP is a two-component polyurethane enamel, which produces a uniquely hard and durable coating. It demonstrates unsurpassed semi-gloss retention, color-retention, and chalk-resistance. It provides outstanding resistance to water and humidity, stains, chemicals and solvents.</p>			
Color	Clear and White, other colors are available, but it may reduce the reflection by 8~10%.		
Drying time	Touch Dry: 1 hour, Cure: 4 hours		
Ratio	3:1	Specific Gravity	1.0

# Test Results

Japan Testing Center for Construction Materials

August, 1994

## Sample Preparation

Process	Material	Method	No. of Coats	Coverage Rate	Drying time
Primer (for metal)	<b>RUSTGRIP</b>	by brush	2 times	9.8 ? /l	45 minutes
Undercoat (for slate)	<b>SUPERBASE</b>	by brush	2 times	1.25 ? /l	7 hours
Topcoat	<b>SUPERTHERM</b>	by brush	2 times	2.5 ? /l	14 days

## Test Methods and Results

Test Name	Test Methods and Results	Standard
Adhesion	Galvanized steel 27.1 (kfg/? ) Mortar board 25.4 (kfg/? ) Mortar board 19.5 (kfg/? )	JIS A 6910 JIS A 6910 JIS A 6910
Hot/Cold Cycle	+20? (18h), -20? (3h), +50? (3h) :10cycles Unchanged	JIS A 6910
Impact	Slate board: 0.5kg, 30cm Unchanged	JIS A 6910
Moisture Penetration	0.8ml	JIS A 6910
Resistance to Alkaline (Slate board)	Carbonate sodium 5w/v%solution, 24 hours Unchanged	JIS K 5400
Resistance to Acid (Slate board)	Sulfuric acid 5W/v% solution, 24 hours Unchanged	JIS K 5400
Flexibility (Steel board)	90° Bend Test, Unchanged	JIS A 6909

## Examples of Machinery Application

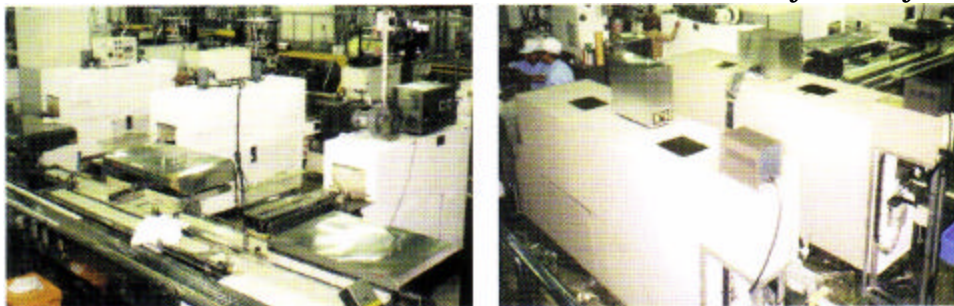
When applied to machinery where the surface has a high temperature, **SUPERTHERM** gives outstanding insulation effect by keeping the heat inside. **SUPERTHERM** is resistant to heat up to 260 C.

### **Snow Brand Co., Ltd. Nagoya Factory**

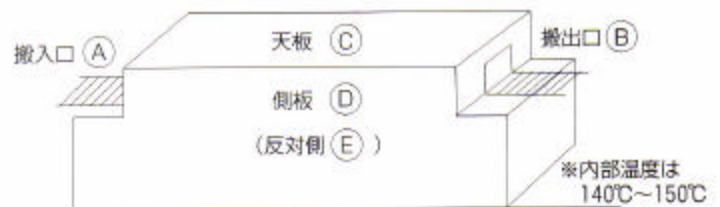
**12 Tunnel Heaters**    Date: September 1998

**SUPERTHERM** lowered the radiation from the surface and kept the heat inside. Therefore, it greatly lowered the running time, and it saved energy. Moreover, as a second effect, it lowered the room temperature.

*By Factory Manager*



	Before	After CT	GAP
A	79.6 C	57.8 C	-21.8 C
B	77.1 C	51.6 C	-25.5 C
C	52.9 C	35.6 C	-17.3 C
D	50.6 C	34.1 C	-16.5 C
E	50.3 C	36.0 C	-14.3 C



### **Company T, Toyama Prefecture**

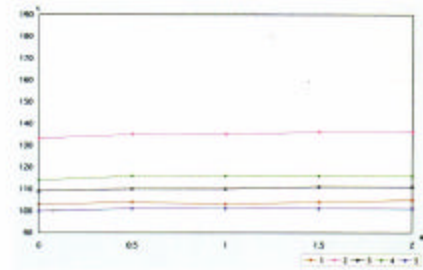
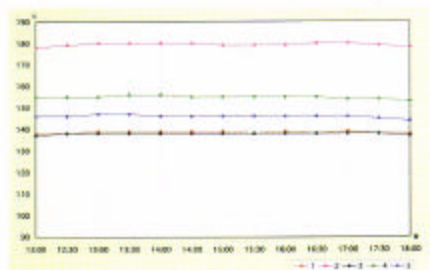
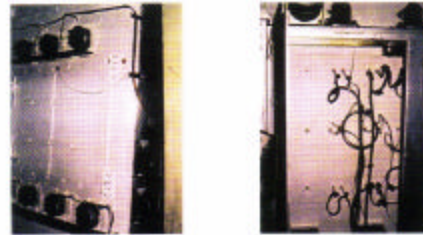
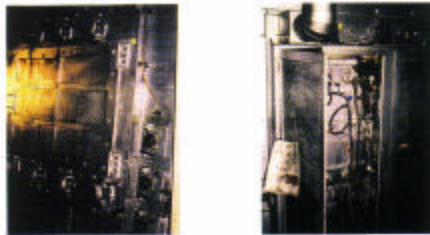
**3 incinerators**

Date: October, 2001

**HOT PIPE COATING**

Before the application Date: May 30, 2001

After the application Date: October 19, 2001



## Examples of Tank Application

**Company K, Osaka North Bay Terminal** Date June, 1996



Inside Temp.: 27.0C (Ambient Temp.: 34.0C) Inside Temp.: 32.0C

**SUPERTHERM** reduced the inside temperature by 5 C more than that of tank cooled by water spraying. Water spraying will cost 10 times more than SUPERTHERM application.

The greater the gap between the outside temperature is and the inside temperature is, the more condensation occurs. **SUPERTHERM** prevents this condensation and the corrosion caused by the condensation.

## Examples of Pipe Line



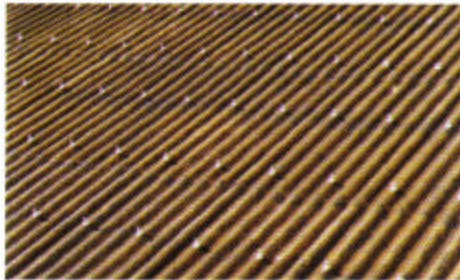
**SUPERTHERM** prevents the delamination and cracking problems caused by the low temperature liquid flowing through the pipeline. **SUPERTHERM** will prevent its condensation and the corrosion caused by the condensation. SUPERTHERM can cut down the repair cost, and it saves energy, as well.

## Examples of Reinforcement Method

**SUPERTHERM** is suited for the application to the old Slate Roof. In the “SUPERTHERM REINFORCEMENT METHOD”, **SUPERBASE** is used as the undercoating of **SUPERTHERM**. This will help the old slate to recover its strength. This is the best method for both insulation and life-extending effect.

### Sekisui Film Kyushu Co., Ltd.

Location: Kagoshima Prefecture Area: 1,200 ? Date: April, 1996



Application of **RUSTGRIP**



Application of **SUPERTHERM**



Application of **SUPERBASE**



Finish

### Test Data of “SUPERTHERM REINFORCEMENT METHOD” (CRM)

Sample: Two long pitch corrugated slates (250× 300mm, T2mm) dried for 28 days.

Method: Amsler compressor test machine (2t)

	New Slate		15 Years Old		25 Years Old	
	uncoated	<b>CRM</b>	uncoated	<b>CRM</b>	uncoated	<b>CRM</b>
1	350	<b>420</b>	260	<b>350</b>	150	<b>285</b>
2	345	<b>410</b>	280	<b>380</b>	180	<b>310</b>
3	355	<b>415</b>	275	<b>365</b>	160	<b>290</b>
Average	350	<b>415</b>	270	<b>365</b>	160	<b>295</b>

As this test result shows, “SUPERTHERM REINFORCEMENT METHOD” greatly helps the old slate to recover its strength. With the insulation effect of **SUPERTHERM**, the CRM will be your best solution.

# Durability

**SUPERTHERM can guarantee the quality of 10 years durability.**

## Accelerated Weathering Test

SUPERTHERM has taken the accelerated weathering test (in accordance with JIS B 7753) and the salt spray test at *Japan Testing Center for Construction Materials* (JIS K 5400).

No change was observed after 500 hours and 1000 hours in both tests.

SUPERTHERM is an emulsion insulatioir paint that consists of four types of special ceramics, high quality acrylic resin and urethane resin. It is flexible, strong, and has high UV resistance. If you apply the high-quality anti-corrosion primer, it has a durability of more than 10 years.

The manufacturer states that it has a durability of up to 20~30 years.

**試験結果報告書**

株式会社 大 塚 塗 料 有 限 公 司

No. 051955

報告日:平成5年1月24日

品名	クールサーム	試験受付日	平成 5年11月14日
製造者名		試験採取日	平成 5年11月 8日
		試験採取場所	提出
		試験数量	塗板 2枚
試験項目	成績	試験方法	
促進耐熱試験 (500時間) (1000時間)	異常を認めない。 異常を認めない。	JIS B 7753 サンシャイン カーボンアーチ方式による。 ただし、 ブラックパネルの湿度63±3℃ 曝露の時間 120分中で18分間ずつ	
耐塩水曝露性 (500時間) (1000時間)	異常を認めない。 異常を認めない。	JIS K 5400(1980)9.1に よる。	
	以上		

## Salt Spray Test (North West Test Center, July 2, 1990)

Item	10cm×30cm Coated Test Panels	Coating Type	White Cool Therm
Test	Salt Spray (Fog) Testing	Method	ASTM B 117
Test Parameters	Chamber Temperature	35°C (95°F)	
	Salt solution, %	5%±1%	
	PH	6.9	
	Flow	1.4ml/hour	
	Total Exposure	450 hours Equivalent to 11 years	
Evaluation	ASTM D1654 Rating Procedure B	9	0~10 scale, 9 is very good

## Customer's Voice after 10 years in the U.S.A.



Using SUPERTHERM since 1989, I have had excellent results. The product performs as well as now as the day I put them on. The color, reflection, adhesion and durability from weather has met or exceeded our hopes. Other products have come and went with their similar claims. But the difference between yours and theirs is that it lasts and works. I wanted a coating that I would not have to re-do. Thanks to SUPERTHERM, for the quality and trueness of your claims.

November 29, 2000

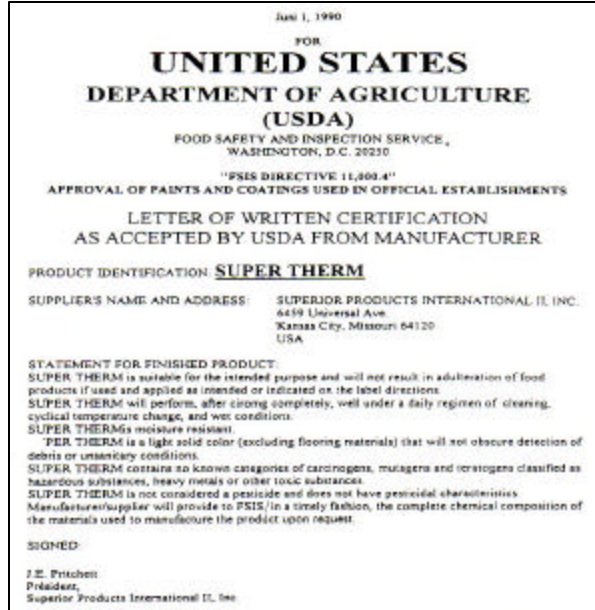
K-TECK

Roger Kunts, president

Routel Box 69 Grainfield, Kansas 67737

## Safety

**SUPERTHERM** is accepted by the USDA as a non toxic coating in terms of food sanitation, and it can be applied to food factories, dairy factories, and the interior of stockbreeding buildings.



## Fireproofing

**SUPERTHERM** has taken the burn test in accordance with NHB 8060 1B/C Test 1 at NASA.

Material	<b>SUPERTHERM</b>
Composition	Acrylic and Polyurethane
Sample Preparation	Two coats, dried for 14 days
Sample Size	6.3 ? × 30 ?
Thickness	0.05mm Aluminum
Test NO.	M103903-A~C

**SUPERTHERM** is classified as the highest 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.

## Non-Toxic

**SUPERTHERM** has been tested for toxic off-gassing in accordance with NHB8060.1C at Materials and Processes at NASA.

**SUPERTHERM** is classified as the highest class “K”. The test results prove that **SUPERTHERM** does not emit any toxic gas as in fire.

# Calculation of Energy Saving

**SUPERTHERM** will greatly reduce the heat entrance from the roof.

**Metal Roof** Suppose the roof area is 10,000 ? .

Preset Surface Temperature: SUPERTHERM---40 C, Uncoated ---60 C (based on our experiences)

## 1. Thermal Conductivity (K-Factor)



	K
Exterior Coefficient (heat resistance)	0.05
Corrugated Metal (0.8 ? )	41.32
Felt (4 ? )	0.03
Interior Coefficient (heat resistance)	0.1

$$K \text{ 值} = \frac{1}{0.05 + \frac{0.0008}{41.32} + \frac{0.004}{0.03} + 0.1}$$

$$\approx \frac{1}{0.05 + 0 + 0.13 + 0.1}$$

$$\approx \frac{1}{0.28} \approx 3.57$$

## 2. Heat Entrance

Heat Entrance (E) = (K) × Area × Temperature Gap (Roof Temp.- Room Temp.)

Uncoated (E) = 3.57 × 10,000 × (60-28) = 1,142,400kcal/h

**SUPERTHERM** (E) = 3.57 × 10,000 × (40-28) = 428,400kcal/h

1,142,400kcal/h - 428,400kcal/h = 714,000kcal/h

**SUPERTHERM** will cut 714,000kcal/h, about 63% of the heat entrance.

## 3. Energy Saving

To convert the improved efficiency of air-conditioning to the electricity bill;

Suppose: 1kw=860kcal, 9 hours/day, 25days/month, 4 months in summer (running season), ¥15/kw, ratio of clear sky 0.75%

714,000kcal/h ÷ 860kcal × 9hours × 25days × 4months × ¥15 × 0.75? ¥8,406,104

**SUPERTHERM** will reduce the electricity bill by ¥8,400,000 per year

**Metal Roof** Suppose the roof area is 10,000 ? .

Preset Surface Temperature: SUPERTHERM---40 C, Uncoated ---60 C (based on our experiences)

## 1. Thermal Conductivity (K-Factor)



	K
Exterior Coefficient (heat resistance)	0.05
Slate Board (6 ? )	1.1
Interior Coefficient (heat resistance)	0.1

$$K \text{ 值} = \frac{1}{0.05 + \frac{0.006}{1.1} + 0.1}$$

$$\approx \frac{1}{0.05 + 0.005 + 0.1}$$

$$\approx \frac{1}{0.155} \approx 6.45$$

## 2. Heat Entrance

Heat Entrance (E) = (K) × Area × Temperature Gap (Roof Temp. - Room Temp.)

Uncoated (E) = 6.45 × 10,000 × (55-28) = 1,741,500kcal/h

**SUPERTHERM** (E) = 6.45 × 10,000 × (40-28) = 774,000kcal/h

1,741,500kcal/h - 774,000kcal/h = 967,500kcal/h

**SUPERTHERM** will cut 967,500kcal/h, about 55% of the heat entrance.

## 3. Energy Saving

To convert the improved efficiency of air-conditioning to the electricity bill;

Suppose: 1kw=860kcal, 9 hours/day, 25days/month, 4 months in summer (running season), ¥15/kw, ratio of clear sky 0.75%

967,500kcal/h ÷ 860kcal × 9hours × 25days × 4months × ¥15 × 0.75? ¥11,390,625

**SUPERTHERM** will reduce the electricity bill by ¥11,390,625 per year

# Actual Achievement

**Toshiba EMI Co., Ltd.(Gotenba Factory)** Batten seam roofing, 6000 ? , 1999  
**Before the Application of SUPERTHERM**

The increase of the electric charge for air-conditioning in summer was a problem, due to the high outside temperature and radiant heat. It was impossible to place a gap between the roof and the ceiling, so the roofing material was directly placed on the roof. Therefore, the radiant heat entered and heated the room up.

**Measurement Result** Date: August 18, 2000 Temperature: 29.7 C

	Roof Surface	Underside Surface of the Ceiling Board
Before	54 C	37 C
After	34 C	23 C
Gap	- 20 C	- 14 C

**Energy Saving Effect**

The quantity of electricity                      355,770kwh/year  
 The reduction of the electricity bill            ¥4,980,000  
 Application Cost (Investment)                ¥18,000,000

**Amortized the Investment  
in 3.5 years.**

**Company M (Nara Prefecture)** Batten seam roofing, 3200 ? , 1999

After the application of **SUPERTHERM**, the energy saving effect in both summer and winter was recorded as follows

**Energy Saving Effect**

- **SUPERTHERM** reduced the gas consumption by 37,152 ? , which was 38% less, over a period of 4 months in the summer of 1999.
- This reduction was worth ¥1,700,000.
- **SUPERTHERM** also reduced the gas consumption in winter, which was worth ¥600,000.

**A 38% Energy Cut**

**The Amount of the Gas Consumption**

	City Gas	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total	
1998	?	14,026	31,026	24,914	21,493	8,312	4,241	9,442	90,489	
	@¥47.00	659	1,482	1,171	1,010	391	199	444	4,253	100%
1999	?	16,004	26,314	28,975	31,903	8,761	2,029	10,722	97,982	
	@46.00	736	1,210	1,333	1,468	403	93	493	4,507	106%
2000	?	12,783	19,933	19,169	16,315	4,448	965	7,836	60,830	
	@46.00	588	917	882	750	205	44	360	2,798	62%

# Insulation Effect

The data below is the result of the test at the Building Material Test Center and the simulation calculation. These results prove its outstanding insulation effect.

(1) Sunshine Reflective Ratio and Long Wave Radiation Ratio    Test Date: June 27, 1994

	Average	Test Method
Sunshine Reflective Ratio	92.2	JIS A 5759
Long Wave Radiation Ratio	93.7	JIS A 5759

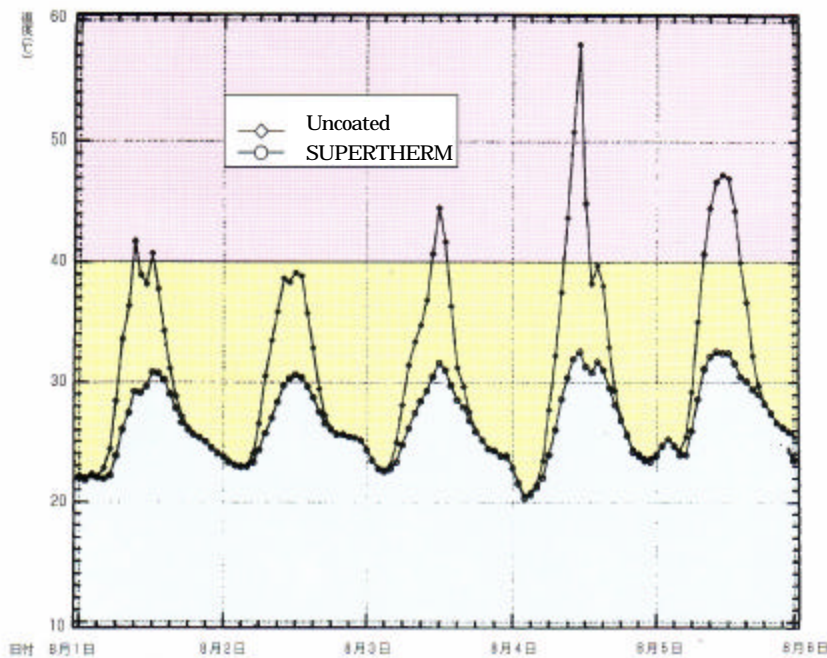
(2) Comparison of the amount of Heat Entrance

Considered Period: July 1 to August 31

Roof Type	Non-Coated	Coated with <b>SUPERTHERM</b>
Corrugated Metal Roof	33,000kcal/?	6,600 kcal/?
Slate Roof	58,000 kcal/?	6,300 kcal/?

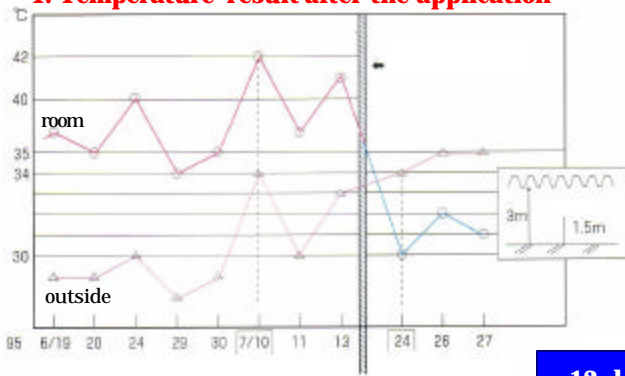
This simulation shows that **SUPERTHERM** will reduce the heat entrance to 1/5 (Metal Roof) and to 1/9 (Slate Roof) over a period of two months in the summer.

The comparison of temperature with **SUPERTHERM** and Uncoated metal roof



**Sekisui Film Co., Ltd** Corrugated Steel Roof 700 ? Date: July 1995

**1. Temperature result after the application**



**-12 degrees C (Room)**

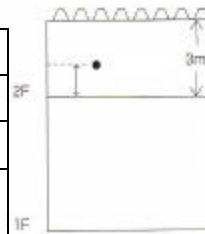
**2 . Temperature result after 3 years**

1998 ? 7 ?

12:00 Max Temp. 32.5 C



		SUPER THERM Uncoated	
Surface Temp.	1	48.2	64.1
	2	44.2	60.3
	3	42.4	59.4
Room Temp.	4	30.4	35.4



**3. Even after 7 years, the insulation effect in summer has not changed. (Room Temp.32 C)**

**KOKUYO Co., Ltd Shiga Distribution Center** 27,000 ? Date: 1996~2001

**Temperature Result**

September 12, 2001 13:00

Outside	Uncoated	SUPER THERM	Temp.Gap
25 C	56 C	30 C	26 C

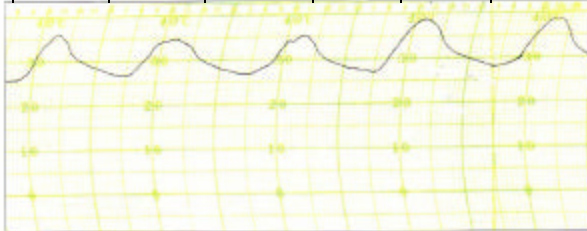


**-10.5 degrees C (Room)**

**Room Temperature Result (1999)**

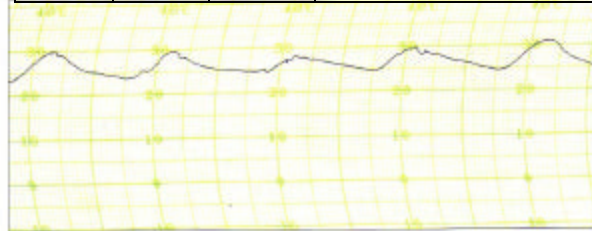
**Before**

Date	8/14	8/15	8/16	8/17	8/18
Outsid	33.6 C	30.7 C	31.4 C	32.5 C	32.4 C
Weathe	cloudy	cloudy	cloudy	fine	fine
Max.	36 C	35 C	35 C	39.5 C	39 C



**After**

Date	8/25	8/26	8/27	8/28	8/29
Outsid	31.3 C	31.1 C	32.8 C	33.3 C	34.2 C
Weathe	fine	cloudy	cloudy	fine	fine
Max.	30 C	30 C	29 C	30 C	31 C



The Room Temperature decreased by 10.5 C (Max.) and 6.9 C (average).

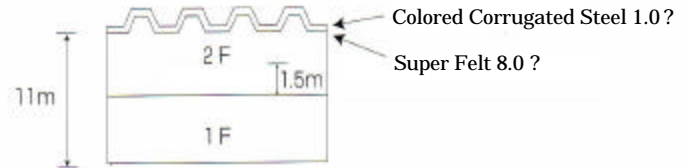
## Cool Down : -25~ 30 deg C (Surface), -6~ 7 Deg C (Room)

### Nihon Express Co., Ltd. Kobe Branch

East Kobe Distribution Center 4000? Corrugated Steel Roof Date: June 2000  
 As a result of comparison with the Kishiwada Distribution Center (uncoated) and the East Kobe Distribution Center (coated with SUPERTHERM), the difference of 18 degrees C on the underside of the roof and 6 degrees C in the room was recorded.

“The room temperature increased to 40 degrees C last year, but this year was on the average was less than 33 degrees C.”

(By Factory Manager)



**-6 degrees C (Room)**

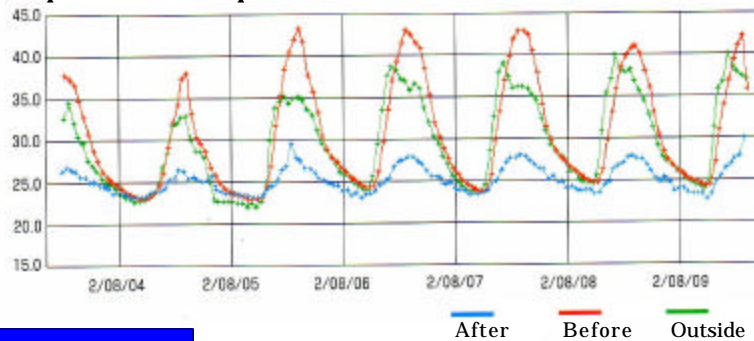
Date of Measurement: July 21, 2000 Clear Sky

	Time	Outside Temp.	Under the Roof	Room Temp.(2F)
Kishiwada Center (Uncoated)	13:00	34 C	56.5 C	38.0 C
East Kobe Center (SUPERTHERM)	14:30	33.5 C	38.2 C	32.1 C
			-18.3 C	-5.9 C

### Kanto Sanyo Semi Conductors Co., Ltd. Tochigi Prefecture

Factory No.2 Batten Seam Roofing 2400? Date: July 2002

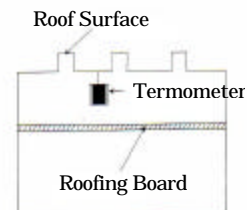
#### Comparison of the temperature under the roof: SUPERTHERM vs Uncoated



**-15.2 degrees C (Room)**

Date of Measurement: August 6, 2002

	Before	After	Gap
Underside of the roof	43.5 C	28.3 C	-15.2 C
Outside Temp.	35.3 C		
Temp. Gap	+8.2 C	-7 C	

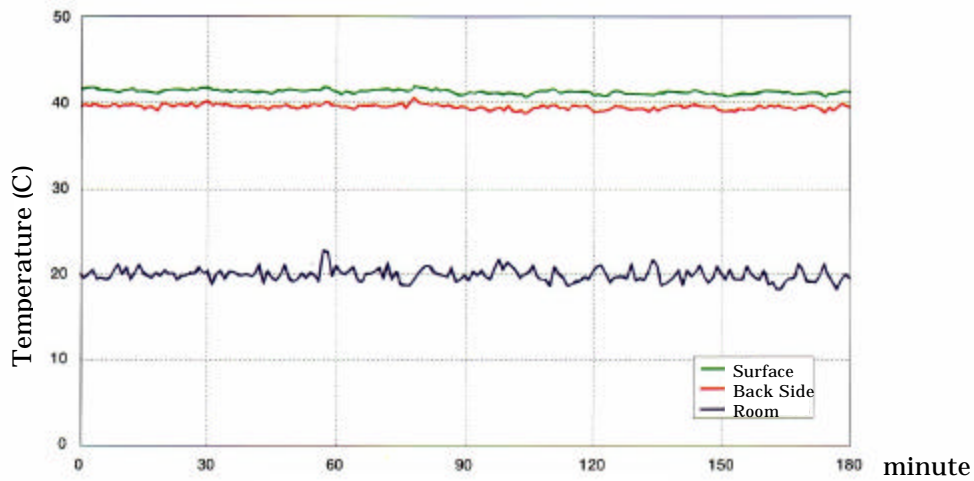


### 2-3. Measurement

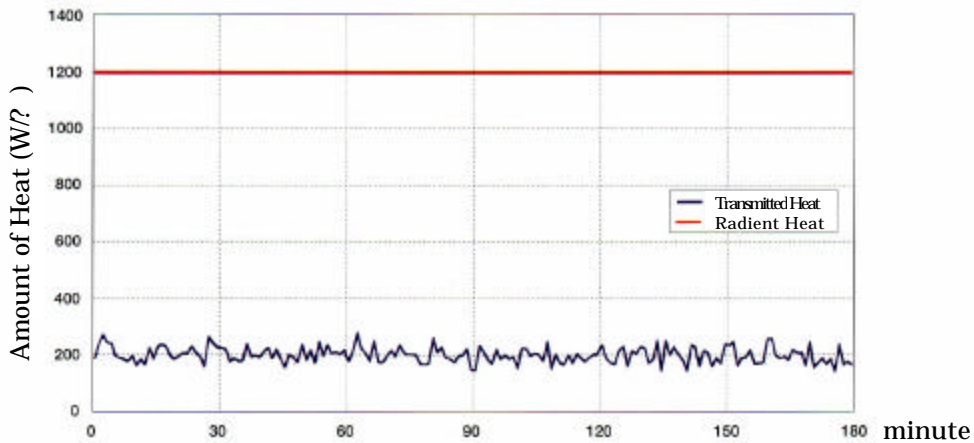
The temperature was measured at the center of the surface and the back side of the test sample with two-point thermal couple ( $\varnothing 0.2$  ? ). The amount of thermal transmission was measured at the center of the back side of the sample with heat flowmeter (MF-140). The amount of radiant heat was measured by the pyranometer (MS-801). Each value was recorded every minute by the data logger (TDS-303).

### 2. Test Result

The average amount of transmitted heat for three hours was 207W/? .



Sample and Room Temperature



Thermal Transmission and Radiant Heat

***SUPERTHERM*** reduced the thermal transmission to 200W/? (average) when 1200W/? as radiated, which is the equivalent amount of solar heat in summer. In other words, ***SUPERTHERM*** will reduce the amount of heat entrance to **1/6** of the solar heat.

$$\text{(Conversion to kcal: } 200 \text{ W/?} \times 0.86 = 176 \text{ kcal/?} \cdot \text{ h)}$$

# Thermal Transmission Test

Test Center: General Building Research Corporation of Japan,  
Environmental Laboratory

Date: July 3, 2002

## 1. Samples

One side of a Bonderized Steel Sheet Iron (W200 ? × L200 ? × T0.8 ? ) was coated with **SUPER THERM**.

Date of Sample Preparation	May, 2002
Coverage Rage	0.56kg/?
Thickness	220μ
Color	White

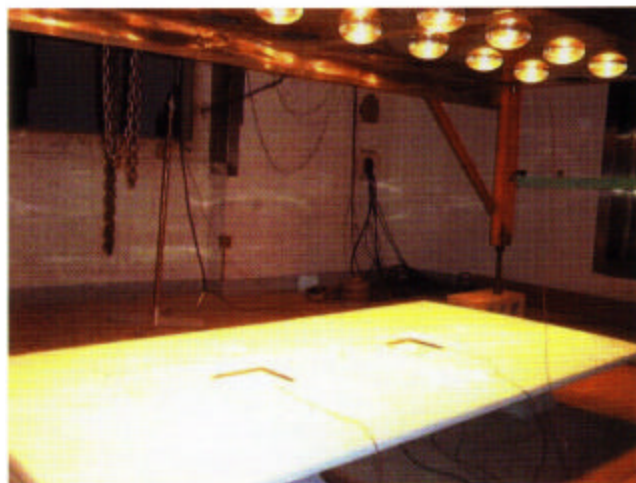
## 2. Test Method

### 2-1. Test Equipment

Thirty six infrared lamps (375W/lamp) were installed to evenly radiate the surface of the test sample. The sample was placed 1,200mm from the infrared lamps with the coated side facing up. The radiant heat shield (polystyrene foam, T25mm) was placed around the sample in order to prevent the radiant heat from heating the other side of the sample.

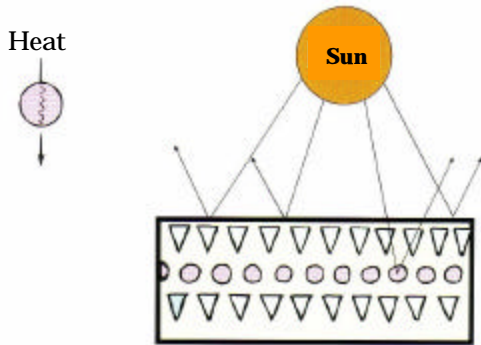
### 2-2. Conditions

The room temperature was set to 20C, and 1,200W/? was radiated. The measurement started after the heat amount that transmitted the sample and surface temperature became in equilibrium and lasted for three hours. The air current around the sample was under 0.5m/sec, which is the natural convection.

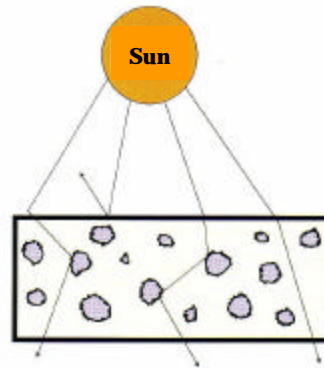


Test Condition

***SUPERTHERM*** is not a mere Reflection Paint, but an epoch-making Insulation Paint.



Four types of ceramics in ***SUPERTHERM*** line up orderly in coating, and block out the penetration of sunray and heat. Dirt or other debris that builds on the surface will not affect its insulation ability.



One type of uneven ceramic cannot reflect the sunray sufficiently, and it penetrates heat easily. Dirt or other debris that builds on the surface will reduce its ability of reflection.

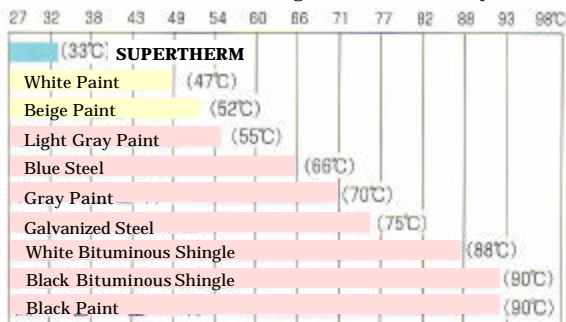


The ceramics in SUPERHERM do not conduct any heat. Therefore, you will not feel any heat even when you bum those ceramics on your hand by a torch burner (1,300C). SUPERHERM is the only product that uses this special fine ceramic developed by NASA.

This is the fundamental difference from many other reflection paints which use Microspheres that absorb heat.

**Comparison Chart of Surface Temperature**

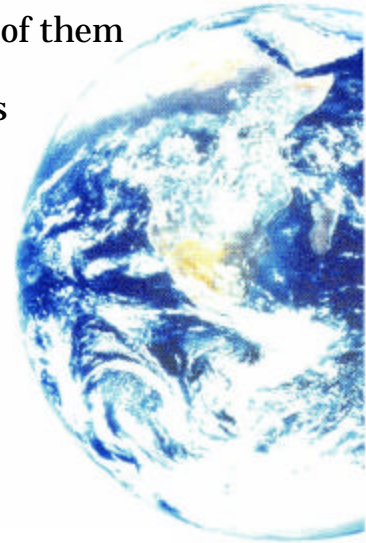
Condition: Texas, Mid-August, 32C, Clear Sky



Most reflection paints use Microspheres made by 3M. However, Microspheres absorb and keep heat in the coating; therefore, it eliminates the Microspheres' ability to reduce the heat rise. 3M states that Microspheres need at least 25mm thickness to reduce severe heat rise such as the surface of a steel roof heated by sunshine.

# ***SAVE the EARTH*** ***SAVE the ENERGY***

***SUPERTHERM*** is an emulsion insulation paint that contains four type of special fine ceramics developed by NASA. Two of them work as reflecting material that reflect the sunrays and radiant heat. Another makes dead air space and vapor barrier in its coating that stop the heat/cold conduction. The last one cut 65% of the infrared rays. A thin coating with only 200 microns on a roof forms the insulation layer that is much more effective than a glasswool insulation board.



Actually, many factories have reported that ***SUPERTHERM*** has reduced the surface temperature by 25C and the room temperature by 6~7C (average) and 12C (maximum). ***SUPERTHERM*** also works as an insulator in winter by keeping heat inside the room.

***SUPERTHERM*** will save energy by improving the efficiency of air-conditioning; it eventually contributes to cutting down the amount of CO<sub>2</sub> which is more environmentally friendly.

***SUPERTHERM*** is a great tool for you to achieve ISO140000.



**Ceramic Insulation Paint**  
***SUPER THERM***



***For Environmental Improvement  
and Energy Saving!***

DAIKO SHOKAI CO., LTD.