Proving

SUPERTHERM

As an insulation material

We wanted to bring out a couple of the main points for a comfort level on your end about the SUPER THERM performances.

1. Does it have an R value?
Yes, figured at 8 mils = R 19.85
By the Only accepted formula for figuring the R values on insulation materials

2. Do we have R equivalency testing? Meaning, do we have testing compared to fiberglass and foams with an R value of 19.
Yes. Hot Box test and "MERIMAC" testing performed on shipping containers.

3. Does SUPER THERM have any other labs that have certified the R performance and put this in writing?
Yes, "VTEC Laboratories" RE 19 and "Thermophysical Research Lab" R -19.

4. Has SUPER THERM been tested to show the reduction of BTU conduction of heat through a substrate to verify its performance level?
Yes. In the Thermophysical Research Lab report, the metal plate conducted 367.20 BTU's, then with one coat of SUPER THERM applied at 7-8 mils, the BTU conduction was reduced from 367.20 to 3.99. a 92% + reduction after SUPER THERM

5. Since 57% of heat that enters a room from the sun is through Infrared radiation (from the COOL ROOF Program information printed by Lisa Gartland for the State of California), does SUPER THERM stop IR radiation?
Yes. Tested by "COSMO Trade and Services" at the Japanese Institute of Technology in the window film and coating testing, SUPER THERM blocked 99.5% of long range radiation (IR).

6. Do we have independent field studies by engineering groups to show the actual performance of the product on different substrates studied for over a year in performance?
Yes, "SONY" engineering group performed testing on buildings. Result was 78% saving on KW usage in a building which directly relates to dollars (KW times the cost of KW by the local power company).
Many other major companies have substantiated the results with their testing as attached and in the notebook. Local fast food facilities with 25% savings with only the roof coated and their grills in constant normal operation.

The above information is enough to allow for a management decision on the effectiveness of using SUPER THERM as the primary insulation material. The proof category has been filled from every angle and certified by other major labs. This gives substantiation from other engineering groups and certified labs.

We have the certifications and proof to take over the market.

SUPERTHERM

R-value Calculation

Given test facts:

K-value given from "Thermophysical Properties Research Laboratory" - Research Report TPRL 1780 (Table #5):
Stated in cm K = .00575.
Change to standard metric form (m) = K .0575 for calculation

R - factor reported in K value:

Formula: R = x/k
x - is thickness

Standard formula: R = 1/k
Given: K = .0575

Formula deduced to insert numbers:

SUPER THERM stated in 1000 inch thickness so adjustment to formula is divided by 1000 for both denominator and numerator
Therefore: R = .001 / .0000575
Base: (same as the 1" base for batt insulation and our base is established at 7 thousandths or .007) therefore both the numerator and denominator are multiplied by 7:
R = . 008/ 000403

The thickness constant as given in the formula used for Batt insulation's.
Making the calculation gives the Base R value as R 19.85

This result is only conduction and does not include reflectivity or emissivity of heat off the surface of the coating. The added benefit of reflectivity and emissivity would increase the R value rating.

SUPERIOR PRODUCTS INT'L II, INC.
ORIGINAL PRODUCT REPORT - October 24, 1994

PRODUCT IDENTIFICATION:

PROJECT DESCRIPTION:

Perform the "Hot Box" insulation test method to determine the effectiveness of using SUPER THERM as a single insulation material.

METHOD OF TEST:

Applied (1) SUPER THERM as a single insulation material as compared to a (2) control box with no applied insulation and (3) a box wrapped in R-19 Fiberglass Batt insulation, then finally (4) a box painted with SUPER THERM with a wrapping of R- 19 Fiberglass Batt material.

"HOT BOX" PREPARATION:

Each box was prepared by constructing a wooden frame from 1" x 2" studs. Each box measures 16" x 16". Boxes were then covered with 318" sheetrock using standard sheetrock nails. Each box had a hold drilled into the right side of the box to allow a heat lamp fixture to be inserted. Only the bulb entered the box, the lip of the fixture sealed the hole and the handle and switch remained outside the box to maintain the secure seal of the box and ease of access to switch. The heat source was a 150-watt flood lamp in each box. The front door of each box was hinged for ease of access and fixtured to tightly close the door during tests.

Box #1 was painted with SUPER THERM at 85 sq.ft./gallon alone as the insulation.
Box #2 was the control box without any insulation.
Box #3 was covered with R- 19 rated Fiberglass insulation batting.
Box #4 was painted with SUPER THERM and covered with R- 19 Fiberglass insulation batting.

TEST CONDITIONS:

Room temperature averaged 62F degrees with a humidity of 53%. Temperature leads from a dual lead Fluke 50 K/J Digital Thermometer were inserted through a small drilled hole in the lower front side of each door to allow the probe to extend into the box along the bottom corridor without touching the flooring to measure the lower level of air temperature inside the test cubicle.

PROCEDURES:

Two boxes were simultaneously tested with readings taken every minute for the first five minutes. The temperature readings at each interval for each box was compared to the readings for all boxes. Importance of how quickly each box heated up was significant in relation to how effective each insulation type was able to catch and hold heat inside the box.

RESULTS AND SUMMATION:

The quicker the heat buildup inside a box or room, the less energy it would take to heat up a room and maintain the heat in that room. The box painted with only SUPER THERM allowed the heat to climb faster and hold the heat better than all other boxes in the test. At the five minute recording, the heat inside the box was 92.6F while the temperature reading inside the Control Box was 73.2, R-19 Fiberglass box was 74.8. Within the first 5 minutes, the SUPER THERM coated box held the interior heat, allowing its heat to rise 26% faster than the control box and 24% faster than the fiberglass covered box.

MEASURED RESULTS
HOT BOX

CONTROL BOX (T- 1)

Time:	9:21am	:22	:23	:24	.25	:26
		1 min..	2 min..	3 min..	4 min..	5 min..
Beg. Temp.	61.2	65.2	68.8	70.6	72.0	73.2

R-19 FIBERGLASS BOX (T- 2)

Time:	9:21am	:22	:23	:24	:25	:26
		1 min..	2 min..	3 min..	4 min..	5 min..
Beg. Temp.	61.0	66.8	70.4	72.2	73.8	74.8

SUPERTHERM alone (T- 3)

Time:	4:55pm	:56	:57	:58	:59	5:00
		1 min..	2 min..	3 min..	4 min...	5 min..
Beg. Temp.	62.6	83.6	87.8	90.2	91.4	92.6

This ability to hold heat is dramatic when judged on length of run time to heat a room and energy consumed.

Merrimac Maintenance Products Company

a division of Merrimac Tool & Equipment Company
P.0. Box 218, Merrimac, Mass. 01860 U.S.A.
Telephone: (508) 346-9447 FAX (508) 3464368

NEWSLE'ITER #6

Japan

In Japan, fresh produce, fruits and vegetables, is transported between islands on coastal ships. The produce is packed in aluminum 20 foot containers for shipment. During the Summer losses of produce are high due to high temperature inside these containers.

The shipping company approached one of the largest insulation contractors in Japan for an inexpensive solution to this problem. Refrigerating the containers was not an option.

Tests were conducted in late Summer to determine the best way to keep heat out of the containers. When these tests were proposed we emphasized that HEAT SHIELD would not produce cold. HEAT SHIELD is only an insulation. It will reduce the penetration of heat but it will not reduce temperatures.

Four identical containers were selected for the test:

Container No. 1 - **Standard container, no insulation**

Container No. 2 - **HEAT SHIELD applied to outer surface at 600g/m2**

Container No. 3 - **HEAT SHIELD applied to outer surface at 600g/m2 and 25mm of fiberglass applied to inner surface.**

Container No. 4 - **Polyurethane foam in thickness of 80mm to 100mm attached to the inner surface.**

During a typical test day the ambient temperature peaked at about 29C. degrees at 13:00 hours. At that time, the temperature inside Container No. 1 without insulation was above 40C. degrees. Container No. 3 had the lowest temperature at about 26C. degrees and Container No. 2 (HEAT SHIELD) measured about 26.5C. degrees. Container No. 4 had an inside temperature at close to the ambient reading of 29C. degrees.

Over a 24-hour period Container No. 2 with HEAT SHIELD only had the most favorable readings. Those containers with insulation on the inside held the heat through the night. Indeed this is the intended purpose of most insulations that are installed inside which stores the heat and can not get rid of the stored energy.

HEAT SHIELD is designed to be applied on the outside surfaces to keep the heat from penetrating. In this test it did this very well.

As this newsletter is being prepared the shipping company and the insulation contractor are negotiating to coat all of the containers with HEAT SHIELD.

For your information:

- *** HEAT SHIELD is the private label name internationally for SUPER THERM.**
- **600g/ml = 100 sq.ft./gallon coverage = R19**
- **One inch polyurethane foam = R8**
- *** 26C = 79F, 26.5C = 80F, 29C = 84F, 40C = 104F degrees**

SUMMARY

SONY -- KODA

RESULTS: KW (Power) USAGE INSIDE A SPECIFIC BUILDING

	MAY	JUNE	
1994	3767KW	5647 KW	Before SUPER THERM
1995	519 KW	1869 KW	After SUPER THERM applied
		SAVINGS 3248 KW - 3778 KW	

2. HITACHI ELECTRIC

RESULTS: TEMPERATURE RECORDED ON UNDERSIDE OF ROOFING

UNCOATED:	82C
COATED WITH SUPER THERM:	47C
REDUCTION OF HEAT:	35C/63F

3. SEKISUT

RESULTS: REDUCING ROOM TEMPERATURE

AMBIENT TEMPERATURE:	33C
ROOM TEMPERATURE:	43C
ROOM TEMPERATURE after applying SUPER THERM:	31 C
REDUCTION OF ROOM TEMPERATURE:	12C/22F

4. YOKOHAMA TIRE-RUBBER

RESULTS: REDUCED ROOM TEMPERATURE

UNCOATED:	47C
COATED WITH SUPER THERM:	28C
REDUCTION TN ROOM TEMPERATURE.	19C/34F

5. KIRIN BREWERY (Fukuoka) 52% share of beer business in Japan

RESULTS: REDUCED ROOM TEMPERATURE

UNCOATED:	63C
COATED WITH SUPER THERM:	48C
REDUCTION IN ROOM TEMIPERATURE:	15C/27F

6. MITSUBISHI MATERIAL

RESULTS: REDUCED METAL SURFACE TEMPERATURE

UNCOATED:	54C
COATED WITH SUPER THERM.	28C
REDUCTION IN SURFACE TEMPERATURE:	26C/47F

7. SUMITOMO LIGHT METAL INDUSTRY

RESULTS: REDUCED ROOM TEMPERATURE

UNCOATED:	52C
ROOF COATED WITH SUPER THERM:	35C
REDUCTION IN ROOM TEMPERATURE:	17C/31F

8. PANASONIC - MATSUSHITA ELECTRIC

RESULTS: SURFACE TEMPERATURE ROOF:

UNCOATED SURFACE:	70C
SUPER THERM COATED SURFACE:	46C
REDUCTION IN SURFACE TEMPERATURE:	24C/43F

RESULTS: UNDERNEATH SIDE OF ROOF SURFACE

UNCOATED SURFACE:	59C
SUPER THERM COATED SURFACE:	43C
REDUCTION IN UNDERSIDE TEMPERATURE:	16C/29F
AMBIENT TEMPERATURE:	39C/70F

TESTING PERFORMED IN CONJUNCTION WITH:
DAIKO SHOKAI CO., LTD. (largest roofing/paint construction company in Japan)

ENERGY REPORT - USING OMEGA 05-652 ENERGY METER (BTU GUN)
Date: June 30, 1998 Time/Location: Pelham, Alabama -12 noon; lltomewoo4, Alabama-1:PM

The measurements taken make a comparison of the amount of heat transfer (BTU) that is taking place in the roof area (attic), walls and coolers that face the outside sun all day or are located under the roof

The following study was based upon two (2) different roof systems:

(A) Jacks Family Restaurant - H6mewood
Roof- 3,000 sq.ft.
Black rubber membrane
Cooler Roof Area - 162 sq.ft.
Cooler Wall Area- 360 sq.ft.

(B) Jacks Family Restaurant - Pelham
Roof- 3,000 sq.ft.
SuperBase, SuperTherm & Enamo Grip
Cooler Roof Area - 162 sq.ft.
Cooler Wall Area- 360 sq.ft.

BTU DATA (B)

Jacks Family Restaurant - Homewood
Ambient Temperature - 95F
Outside Air Temperature on Roof- 120F
Surface Temperature of Roof- 152F
Attic Temperature - 102F
Inside Kitchen Area Temperature - 85F

Jacks Family Restaurant - Pelham
Ambient Temperature - 95F
Outside Air Temperature on Roof- 105F
Surface Temperature of Roof- l01F
Attic Temperature - 80F
Inside Kitchen Area Temperature - 75F

BTUs per square foot I per hour

attic- 174	**attic-159**
wall- 148	**wall- 137**
cooler exposed to outside wall - 123	**cooler exposed to outside wall -94**
cooler exposed to roof- 121	**cooler exposed to roof- 84**

CALCULATIONS - ROOF*

Difference: 174 -159 = 15 BTU/sq.ft/hour x 3,000 sq.ft. = 45,000 BTU/sq.ft./hour
Convert to Kilowatts: 45,000 xO.000293 = 13.2 kilowatts
Electricity cost: $0.067 981KW/HR (Alabama Power); $0.063 7 (B.C. Hydro)
Roofs estimated to exposed to heat by radiation for 6 hours each day and HVAC is approximately 30% efficient (MAX.) at reducing temperature
Calculation: (13.2KW) x ($0.06798) x (6 his/day) /30% = $17.95 US Dollars per day x 30 days
Equals 538.50 US Dollars PER MONTH SAVINGS

CALCULATIONS - COOLERS*

Difference Roof	121-84 = 37 BTU/sq.ft./hour x 162 sq.ft. 5,994 BTU/sq.ft/hour
Difference Wall	123-94 = 29 BTU/sq.ft /hour x 360 sq.ft = 10,440 BTU/sq.ft/hour
Total Difference:	5,994 + 10,440 = 16,434 BTU/sq.ft/hour x 0.000293 =4.82KW
Calculation:	(4.82KW) x ($0.06798) x (6 hrs/day) / 30% = $6.55 USD per day x 30 days = $196.59 US Dollars PER MONTH SAVINGS

R-VALUE USING BTU GUN

(A) Temperature difference inside & out + 30F
Net heat flow (BTU/sq.ft/hour) = 6 Pt. Duff.
Reading Difference = 10
Result: Less than R8

(B) Temperature difference inside & out +30F
Net heat flow (BTU/sq.ft/hour) = 3 Pt. Duff
Reading Difference =44
Result: R17 - R18

NOTE: Calculations are based on lab studies by Purdue University and V-Tech Labs

PERIMETER

INDUSTRIES, INC.

230 OXMOOR CIRCLE, SUITE 1113 BIRMINGHAM, ALABAMA 35209

Project: Wal-Mart
Location: Sanger, TX
Date: April 15th, 2001
Contractor: Hanson-Rice
Sub-Contractor: Perimeter Industries, Inc.

Temperature Readings & Measuring Heat Flow (BTU) BTU's were measured with the Omega 05652 Energy Meter
Temperatures were measured using the Omega 05520 Hand-held Infrared thermometer

Temperature Reading #1

Maintenance Shop Roof: SUPERTHERM & Enamo Grip
Time of Reading: 11:00 A.M.
Ambient Temperature: 74 degrees F
Conditions: Sunny

The underside of the roof was measured on the second floor of the maintenance office. A step ladder was used to reach the area beyond the drop ceiling.

Underside Temperature Reading: 73 degrees F
BTU Reading: 138 BTU's/Square Foot! Per Hour
(*20 degrees F better than competition)

Pump Room: LOW-E
(This building adjoins the Maintenance Shop Building)
Time of Reading: 11:00 AM
Ambient Temperature: 74 degrees F
Conditions: Sunny
Underside Temperature Reading: 93 degrees F
BTU Reading: 154 BTUs/Square Foot/Per Hour

Temperature Reading #2

Maintenance Shop Roof: SUPERTHERM & Enamo Grip
Time of Reading: 1:30 PM
Ambient Temperature: 78 degrees F
Conditions: Sunny
Underside Temperature Reading: 73 degrees F
BTU Reading: 143 BTU's/Square Foot/Per Hour
***25 degrees F better than competitions and 35 degrees F better than the non-coated metal roof**

Pump Room: LOW-E
Time of Reading: 1:30 PM
Ambient Temperature: 78 degrees F
Conditions: Sunny
Underside Temperature Reading: 98 degrees F
BTU Reading: 172 BTUs/Square Foot/Per Hour

Non-insulated Awning: Metal Roof "Non-Coated"

Time of Reading: 1:30 PM
Ambient Temperature: 78 degrees F
Conditions: Sunny
Underside Temperature Reading: "108 degrees F"
BTU Reading: "179 BTU's/Square Foot/Per Hour"

16 April 2001

Paramount Pictures Corp.
Project:

Roof Location:

Back lot where office units H 11,12,13 are located. Trailers fitted together for office pods.

Roof condition:

Trailers are covered with cap sheet and overcoated with a silver metalized coating.
Roof surfaces are dried out and has a noticeable crunch when walking over the surface.
The silver coating is absorbing heat and accelerating the drying out of the roofing substrate.

Participants:

a SUPER THERM by Superior Products International II, Inc.
b. Liquid China by Evercrete Creto International Inc.
c. AcryshieldA55O acrylic coating by National Coatings COT.
All were invited to visit the site to understand the conditions and propose then applications.

Procedures:

We visited the site and determined that the edges of the roof were dried and deteriorating. This needed immediate attention in the application process to secure and seal.

a. We applied a coat of SUPER BASE (HS) then laid a 6" width polyester mesh into the BASE to provide strength and secure the edging. Then the SUPER BASE (HS) was applied over the roof to seal the silver coating that was cracking and dried out. The SUPER BASE (HS) allows itself to be absorbed and stabilize the roof surface. This base coat does not have ceramics. It is used to fill and seal the cracks and stabilize The Cap Sheet material leached resin into the BASE material without harm to its function

b. The following day, the SUPER THERM was applied to provide the ceramic insulation. Upon inspection the next day, we noticed that the dew buildup had yellow pools which was the smog settling into the water This was not resin leach but acid rain residue that will deteriorate roofing materials, car finishes, etc. and create shorter life spans for the roofing system.

c. We decided to apply the ENAMO GRIP W/B top finish coat which is a urethane blend to give toughness and resist acid rain pools and smog pollution over the life of the system. This seal coat does not have ceramics. Johnson Controls, an energy performance company, uses this product to top off their roofing systems. The ENAMO GRIP W/B gives the finished system a non-slip, gloss surface that easily rain washes itself to extend the service life of the roof coating system.

Observations:

We spent from Friday morning until Monday morning making sure the system was applied correctly and the roof received the appropriate system for its condition. During this time, we did not see any representatives from either of the other invited companies appear on the job site to check for quality assurances or job performance.

Initial Testing:

Monday - April 16th

We went to Paramount before leaving for the airport to make some final readings of all the coatings to see what kind of performance could be measured after all the systems were down

Tint: 9:30am
Ambient Temperature: 76.3 degrees F

The coating was penetrated to insert a probe to test the temperature directly under the coating film as it lay on top of the cap sheet substrate.

Machine: Fluke 5411 Thermometer - dual probe unit

Directly under the SUPER THERM, the reading was: 56.9 degrees F

Directly under the China Coat, the reading was: 65.6 degrees F
Mark Bauserman of Paramount came onto the China Coat roof while we were reading the gauge. After making the readings, Mark and us went to the office to read the computer readings. Even though the readings were fluctuating back and forth, the readings on the underside of the SUPER THERM coating read identical to our physical reading 10 minutes before. This verified the accuracy of the reading.

A reading was not taken on the Acrylic coating because we had tested this coating on the roof of the other building and made a 40% variation in calculated energy savings over this coating. This produced a 6-7 degree less temperature reading on the interior of the box itself which relates to a 39%-40% savings in energy consumption as reported by Con Edition.

Additional Note:

SUPER THERM will not completely cure for 10-14 days. When it does fully cure, the performance will increase from the initial readings. This was the case in the North Carolina sound testing and other sound testing performed. Once the moisture is completely out, the ceramics settle into a tightly packed plating that completes its efficiency factor.