



Original Product Report - October 24, 1994

Product Tested: SuperTherm®

Project Description: Perform the "Hot Box" insulation test method to determine the effectiveness of using SuperTherm® as a single insulation material as opposed to a system or hybrid approach.

Method Of Test: Applied SuperTherm® (T - 3) as a single insulation material to the interior as compared to a (T - 1) control box with no applied insulation and (T - 2) a box wrapped in R-19 Fiberglass Batt insulation.

"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 3/8" sheetrock using standard sheetrock nails. Each box had a hole 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 T - 1 was the control box without any insulation.

Box T - 2 was covered with R 19 rated Fiberglas insulation batting.

Box T - 3 was coated with SuperTherm® at 85 sq. ft./ gallon alone as the insulation.

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 were 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 i.e. Heating Climate.

Results & 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 SuperTherm® 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 Fiberglas box was 74.8. Within the first 5 minutes, the SuperTherm® coated box held the interior heat, allowing its heat to rise 26% faster than the control box and 24% faster than the Fiberglas 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.

For more information on SPI Products, please send us an email at info@ecosolv.com.
SPI products are manufactured by SPI in the USA in Shawnee, Kansas.