

National Aeronautics and
Space Administration

George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



Reply to Attn of:

LA20

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

JUN 28 1995

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

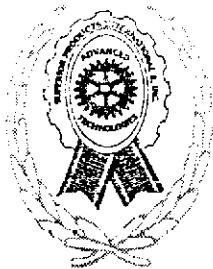
MCTTC/Bret Cornwell

ASTA/Jim Benham

Superior Products/David Williams (w/enclosures)

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SUPERIOR PRODUCTS INTERNATIONAL II, INC.

INSULATION COATING
CORROSION PROTECTION

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

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

Reply to Attn of: EH42 (95-0138)

MAY 03 1995

TO: EH43/Dennis Griffin

FROM: EH01/C. F. Key

SUBJECT: **Flammability Testing of Super Therm Water-Based Paint**

The subject material has been tested for **flammability** by the procedures outlined in NHB 8060.1B/C, Test 1.

The material, parameters and results are as follows:

Material:	Super Therm Water-Based Paint		
Manufacturer:	Superior Products International II, Inc.		
Composition:	Acrylic and Polyurethane with Ceramic Filler		
Submitted by:	EH43/D. Griffin		
Material Code:	02181		
Cure:	2 Coats applied per test sample:		
	(1).	2 hours, 75F, 14.7 psia	
	(2).	336 hours, 75F, 14.7 psia	
Sample Size:	2.5" x 12"		
Substrate:	0.020" Aluminum		
Test Number:	M103903-A	M103903-B	M103903-C
Thickness:	0.0080"	0.0076"	0.0079"
Environment:	30% Oxygen, 10.2 psia	34% Oxygen, 10.2 psia	40% Oxygen, 10.2 psia
Burn Length:	0"	0"	0"
Rating:	A	A	A

The subject material met the acceptance criteria of NHB 8060.1B/C Test 1. The overall rating was determined by an analysis of all available data.

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

C.F.K.

C. F. Key
 Deputy Director
 Materials & Processes Laboratory

cc: see page 2

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George C. Marshall Space Flight Center
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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

TOXICITY RATING FOR MATERIAL USED IN ISSA MODULE

MATERIAL CODE: 02181
 MATERIAL: SUPER THERM WATER-BASED PAINT
 TEST NO.: M103903-D
 WEIGHT: 18.81 GRAMS; .0414 lbs

OFFGASSED AMOUNT UNITS: MICROGRAMS/GRAM

CODE	GAS NAME	MAC VALUE mg/m3	MICROGRAM PER GRAM	SS_TC
011600	BUTYL ALCOHOL	120.73	.408	.001299
016400	ISOPROPYL ALCOHOL	150	.005	1.3E-05
021500	BUTYRALDEHYDE	117.93	.005	1.6E-05
023000	3-METHYL BUTANAL	106.92	.097	.000349
074000	FREON 113	400	.005	4.8E-06
091950	CYCLOPENTANE	171.67	.005	1.1E-05
110500	ACETONE	52	.005	3.7E-05
121000	CARBON DISULFIDE	3.1	.005	.000002
098981	C9 SATURATED ALIPHATIC HYDROCARBON	5	.005	.000005
XXX346	N(1-METHYLETHYL)-1-BUTANAMINE	.1	.005	.019225

T100: .02196
 MAX LIMIT WEIGHT: 2276.87 LBS

RATING: K