



WILLARD A. SELLE, Inc.

Insulation Contractors & Distributors

215 POPLAR ST. • EL PASO, TEXAS 79901 • TELEPHONE 542-1877

June 18, 1969

PLAINTIFF'S EXHIBIT

ASA-900

Mr. Carl Glaser, Engineering Dept.
American Smelting & Refining Co.
P.O. Box 1111
El Paso, Texas 79946

Re: Insulation for Two 55 - Foot Stacks

Dear Mr. Glaser:

In accordance with our telephone conversation of June 16, 1969, we are sending you some insulation manufacturer's product data sheets.

These sheets outline the properties of both calcium silicate and glass fiber insulating material. Either of these products would be excellent for the stacks you mentioned. Both, of course, would have to be weatherproofed.

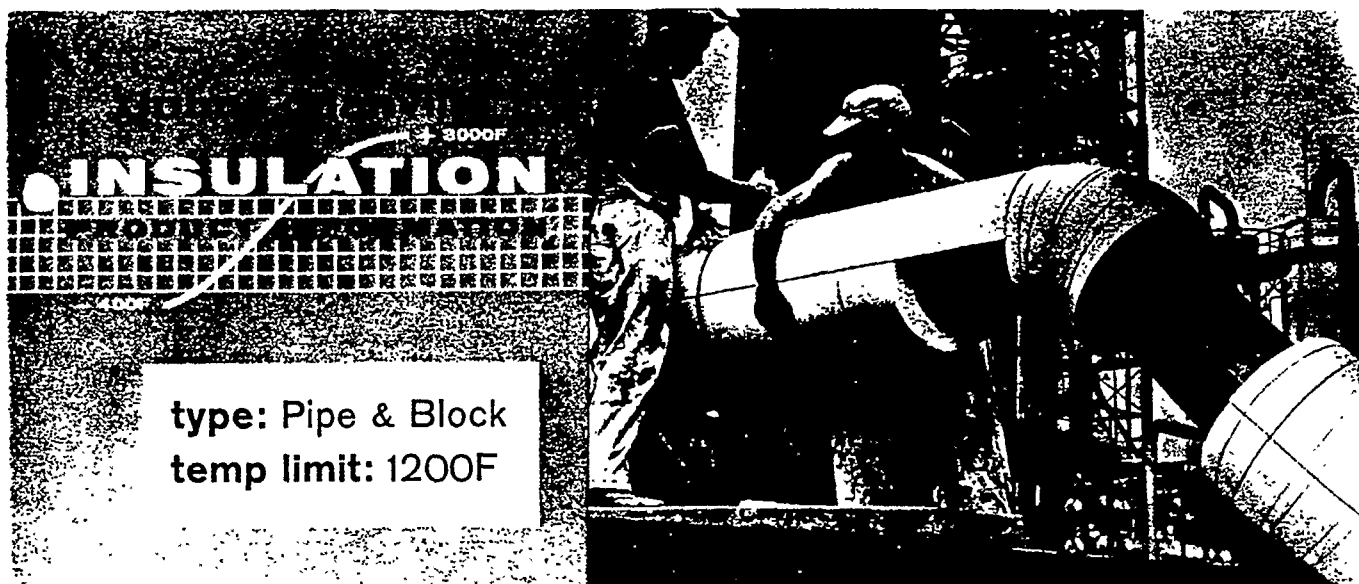
We will be happy to provide you with any additional information we have. Please call on us if we may be of service to you.

Yours very truly,

WILLARD A. SELLE, INC.

Bob Crockett

BC/p
Enc.



type: Pipe & Block
temp limit: 1200F

J-M THERMOBESTOS® pipe and block insulation

■ **DESCRIPTION:** A molded, high temperature pipe and block insulation, J-M Thermobestos is composed of hydrous calcium silicate bonded with asbestos fibers. It is a completely inorganic insulating material which, because of its light weight, low thermal conductivity, great structural strength and insolubility in water, is ideal for high temperature piping and equipment.

■ **AVAILABLE FORMS:** Thermobestos is furnished in both sectional pipe insulation and block form. The pipe insulation comes in a complete selection of sizes up to 24" x 4" half sections. 25" through 33" pipe sizes are available in quad segments. Scored blocks 12" x 36" in thicknesses from 1 1/2" to 3 1/2" are available for application on curved surfaces representing a diameter range from 34" through 180". Scored blocks are furnished with three equally spaced scores. Beveled blocks are also available in widths of 6", 12", and 18", by 36" lengths, in a full range of thicknesses.

■ **USES:** Especially recommended for use in the power generation and process industries on indoor and outdoor piping and equipment operating at temperatures to 1200F, Thermobestos is light enough for easy handling and fast application. Repeated wettings have no permanent effect on it which makes it ideal for installations subjected to weather, or for insulating underground steam lines. Because it will not burn or carry flame, it may also be advantageously specified for use in the presence of inflammable gases and liquids.

■ ADVANTAGES

Exceptional Strength

Similar in chemistry and composition to a very fine concrete, Thermobestos will withstand unusual operating abuse without appreciable damage.

Extreme Lightness

Thermobestos is as light as many insulating materials possessing a fraction of its strength and durability.

Chemically Stable

100% inorganic, will neither burn nor rot.

Not Damaged by Water

Can be soaked in water without damage. After drying, conductivity will be as good as new.

Easy Application

Thermobestos is purposely made in large blocks and half-sections to facilitate handling and reduce number of joints.

Low Conductivity

Thermobestos offers the lowest *k* factor of all insulations in general use throughout the power generation and process industries.

WILLARD A. SELLE, INC.
215 POPLAR
EL PASO, TEXAS 79901
PHONE: AREA CODE 915 - 542-1877

THERMOBESTOS

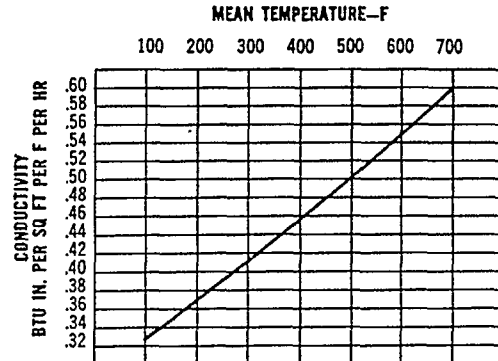
Specification Data

PHYSICAL PROPERTIES

Density (dry)	11 lbs per cu ft
Transverse Strength (modulus of rupture)	95 psi
Compressive Strength (based on 2" thickness of block)	165 psi to produce 5% compression
Linear Shrinkage	1.5% after 24-hr soaking period at 1200F
Maximum Service Temperature	1200F

*The figures given in this table are average values obtained in accordance with accepted test methods.

THERMAL CONDUCTIVITY



Pipe Insulation

Block Insulation

STANDARD SIZES

Length, inches	Simplified thicknesses, inches	For copper tubing
36	Nominal 1 (from 1/2" up to & including 6" pipe size only), 1 1/2, 2, 2 1/2, 3, 3 1/2 & 4	To fit straight runs of copper tubing with nom. diameter 3/4 to 3"

STANDARD SIZES

Length, inches	Width, inches	Thickness, inches
36	6 and 12	1, 1 1/2, 2, 2 1/2, 3, 3 1/2 and 4

RECOMMENDED THICKNESSES

Complete pipe and block thickness recommendations are available for steam generation, process industry, commercial full year and commercial seasonal operation applications. See Thermobestos brochure IN-169A, or J-M Insulation Product Information catalog IN-244A.

COMPLIANCE WITH GOVERNMENT SPECS

Pipe Insulation:
MIL-I-2781 D
Grade I, class b, to 500F
Grade II, class d, to 750F
Grade III, class e, type I and II to 1050F
FEDERAL HH-I-523 A Class 2, to 1200F

Block Insulation:
MIL-I-002819 D
Class a, to 500F
Class b, to 1000F
FEDERAL HH-I-523 A Class
Class I, to 1200F

COMPLIANCE WITH ASTM STANDARDS

Pipe Insulation:
C345-54T, to 1200F
Block Insulation:
C344-54T, to 1200F

Johns-Manville

General Headquarters: 22 East 40th Street, New York, N. Y. 10016

Offices in all large cities

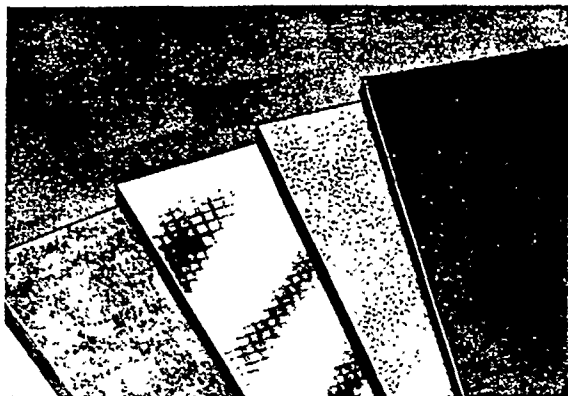
IN-268 A 3-68

LITHO IN U.S.A.

OWENS CORNING
FIBERGLAS

plumbing systems 1.5
mechanical equipment 3.2
air handling systems 4.4
power & process equipment 6.1
vessels & tanks 7.2
boilers & chimneys 8.5
December, 1967

Equipment Insulation



Industrial Insulation 700 Series

*a highly versatile group of Fiberglas
insulating boards designed to insulate
ductwork and equipment operating
at temperatures up to 450F.*

uses

The 700 Series boards have been designed primarily to insulate heating and air conditioning ducts, ovens, tanks, boilers, hot water generators and other hot equipment.

type 700 — a low cost flexible material suitable for insulating factory-fabricated metal panels and for packing into irregular spaces

type 701 — A lightweight resilient insulation, in board form, used on vessels having irregular surfaces where the exterior finish is supported by welded studs, pins or other mechanical attachments

type 702 — More rigid than 701 and is recommended for use on equipment and ductwork subject to minimum maintenance and construction abuse

type 703 — A semi-rigid board recommended for use on equipment, vessels and air conditioning ductwork.

description

Fiberglas * 700 Series Industrial Insulations are made of inorganic glass fibers pre-formed into semi-rigid to rigid rectangular boards of varying densities. The series consists of Type 700, 701, 702, 703, 704 and 705. Each type has specific thermal and physical characteristics which makes it suitable for the uses described. Type 703, 704 and 705 are available with a variety of factory-applied vapor-barrier facings to prevent condensation on cold surfaces and to provide a neat finished appearance. Fire Retardant Facings are available.

type 704 — A rigid board recommended for use on heating and air conditioning ductwork in exposed areas where sharp, true corners and smooth surfaces are desired.

type 705 — A rigid board with very high strength characteristics for use on chillers, hot and cold equipment, heating and air conditioning ductwork where greater abuse resistance and good appearance is required.

benefits

lower operating costs — the exceptional thermal efficiency of Fiberglas 700 Series Insulations lowers operating costs.

end-use tailored — a variety of densities and facings offers a selection of products to meet specific performance and economic requirements.

continuous in-place performance — 700 Series resists

damage, maintains structural integrity and efficiency. Thickness stays uniform.

neat, finished appearance — the boardlike characteristics of the heavier density 703, 704 and 705 products provide neat square corners. The factory-applied facings present an attractive finished appearance.

fire safe — Fiberglas is inherently fire safe. The unfaced boards and the Aluminum Foil Faced 703, 704 and 705 have UL Flame Spread ratings of less than 25.

*T. M. Reg. OCF Corp.

performance characteristics

sound absorption coefficients (2" thick #6 mounting)

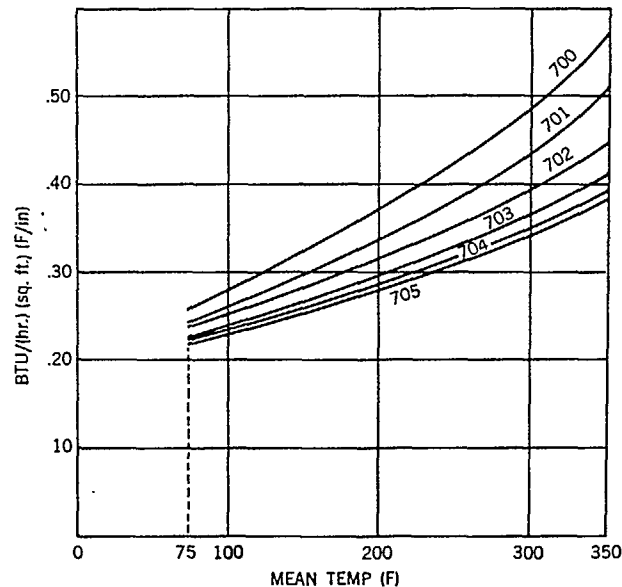
TYPE	125	250	500	1000	2000	4000	NRC
701	.34	.70	.96	.97	.86	.83	.87
702	.28	.77	.96	.98	.87	.87	.89
703	.32	.74	.97	.98	.87	.85	.89
704	.27	.79	.98	.99	.88	.86	.91
705	.48	.82	.97	.99	.90	.86	.92

size and density

Type	Density (pcf)	Thickness (in 1/2" increments)	Compressive Strength (psf at 10% deformation)	Standard Size	Therm. Cond. (@ 75F Mean Temp.)
700	1.08	1"-4"	3†	24" x 48"	0.260
701	1.58	1"-4"	4.5†		0.242
702	2.25	1"-3"	9.5†		0.235
703	3.00	1"-2"	100		0.230
704	4.20	1"-2"	200		0.230
705	6.00	1"-2"	350		0.220

*For special applications, boards up to 48" x 96" are available. †After compression packaged.

thermal conductivity



moisture absorption.....less than 0.2% by volume
 bacteria and fungus resistance.....does not breed nor promote
 odor.....odorless
 humidity and temperature effect.....cycling conditions will not cause spalling or crumbling
 corrosion.....does not accelerate corrosion of copper, steel or aluminum.

facings

Type 703, 704 and 705 are also available with the following factory applied vapor barrier facings:

- FF — .0025 aluminum foil (UL Rated)
- FRK — Foil-reinforced kraft
- SF — Duplex Laminated kraft

fire hazard classification

	unfaced (700, 701, 702)	(703, 704, 705)	foil-faced (703, 704, 705)
flame spread	10-20	15	15-20
fuel contributed	10-15	15	20-35
smoke developed	0-20	0	0

(compared to untreated Red Oak as 100)

application recommendations

Type 700, 701, 702 — Lightweight unfaced flexible insulations in board form for use on vessels having irregular surfaces where the exterior is supported by welded studs or stiffeners and not by the insulation itself. The products are self-supporting but are generally secured with mechanical fasteners and protected by sheet metal.

Type 703, 704, 705 — These board insulations are normally impaled on welded pins on flat surfaces. They are cut in segments and banded in place on irregular surfaces. Unfaced boards are normally finished with reinforced insulating cement or weatherproof mastic. Faced boards, with joints taped to provide a continuous vapor barrier, may be left unfinished or may be canvas jacketed.

recommended thickness — heated equipment

(80F ambient air)

Surface Temp.	Type 701			Type 703			Type 704		
	RT	HL	ST	RT	HL	ST	RT	HL	ST
150	1½	11	87	1½	10	86	1½	10	86
250	2	24	95	2	21	93	2	20	92
350	3	29	98	2½	31	99	2½	30	98
450	3½	40	105	3	40	105	3	39	104

- RT — recommended economic thickness, inches.
- HL — heat loss (Btu/ft²-hr.).
- ST — surface temperature (F).

thickness to prevent condensation

cold ducts and equipment

The following chart indicates the recommended thickness of Type 703, 704, 705 Faced Duct Insulation for installation on cold air ducts at various temperature differences (duct to air). Also shown are values for heat gain and approximate maximum relative humidity allowable.

Temperature Differences	Recommended Thickness (Inches)	Heat Gain Btu/ft ² -hr	Permissible Relative Humidity
20	¼	5.1	90%
25	¼	6.4	87%
30	1	6.1	89%
35	1	7.1	88%
40	1½	5.7	90%
45	1½	6.3	89%
50	2	5.4	90%

specification compliance

HH-I-542, Type I	700
HH-I-542, Type II	701, 702, 703
HH-I-558a, Form A, Class 1.	702, 703**, 704, 705
HH-I-558a, Form A, Class 2.	703**, 704, 705
HH-I-558a, Form B, Type I, Class 7.	700, 701, 702
HH-I-562, Type I, Class 2.	703**, 704, 705
HH-I-563, Type II, Class D. (500F***)	701, 702, 703
HH-I-564, Form I & II, Class A.	703**, 704, 705
Navy Bureau of Yards and Docks, 16Yf	703**, 704, 705
Corps of Engineers, C.E.—301.08, .11 thru .17	703**, 704, 705

**Type 703 G is specially produced for contracts where certification of compliance to the above Federal Specification is required. Available plain or faced for use on hot or cold equipment and for air conditioning ductwork.

***Waiver required on upper temperature limit.

limitations

Industrial insulation 700 series, plain, should not be used on surfaces operating at temperatures above 450F. Types 703, 704, 705 faced products should not be used on surfaces operating at temperatures greater than 250F.



OWENS-CORNING FIBERGLAS CORPORATION

Industrial and Commercial Construction Materials Division, 717 Fifth Avenue, New York, New York 10022
General Offices, Toledo, Ohio 43601

Pub. No. 1-IN-2873-I

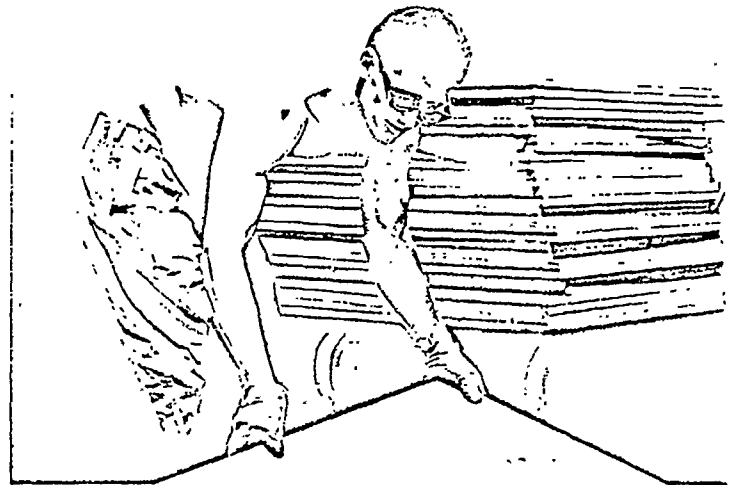
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ASARCO ELP 0006097

Johns-Manville

PRODUCT INFORMATION

type: Rigid Board
temp limit: 400F



J-M TANK TOP INSUL*

rigid board insulation

DESCRIPTION: J-M Tank Top Insul is a rigid insulating material of mineral composition processed to form a lightweight, moisture-resistant board suitable for use to 400F. A top coating provides a tough, hard surface which reduces bitumen penetration and facilitates weatherproofing.

AVAILABLE FORMS: Tank Top Insul is furnished in one size, 24" wide by 48" long. Thicknesses — 1" to 3" in 1/2" increments. Supplied in tube-type Kraft paper wrap package.

USES: Tank Top Insul is ideal for insulating all flat top surfaces of heated tanks and vessels such as in petroleum, chemical, and industrial installations.

ADVANTAGES:

Permanent

Chemically inert and basically inorganic. It is sturdy, rigid and dimensionally stable.

Easy Application

Lightweight, easy to handle, easy to cut and shape on the job.

Incombustible

Because of its mineral composition, J-M Tank Top Insul will not burn.

Resists Compression

Not damaged by heavy equipment and foot traffic during construction and maintenance. Tank Top Insul retains its compressive strength when heated.

Thermally Efficient

Tank Top Insul has a thermal conductivity of 0.38 Btu in. per sq ft hr per F at 100F mean.

Moisture Resistance

Tank Top Insul has no capillarity and low water absorption.

Low Bitumen Absorption

Tank Top Insul can be weatherproofed with either built-up roofing or sheet metal. It resists excessive bitumen absorption insuring good adhesion of weatherproofing.

* Johns-Manville Trade Mark

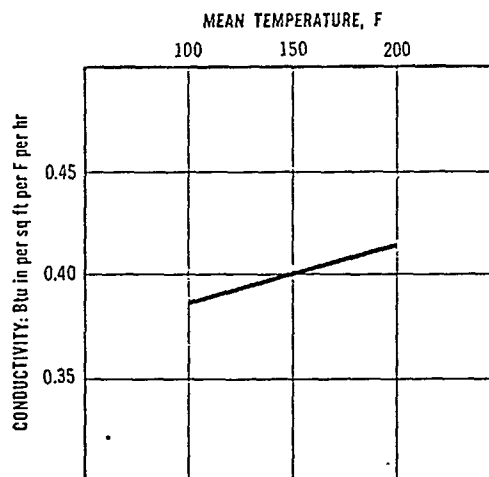
TANK TOP INSUL

Specification Data

PHYSICAL PROPERTIES

Density, pcf	11
Compressive Strength	
Consolidation	5% at 26 psi load
	10% at 44 psi load
	50% at 175 psi load
Capillarity	0
Water Absorption submerged — 24 hrs — 5.0 percent by volume	
Temperature Limit	400F

THERMAL CONDUCTIVITY: BTU IN. PER SQ FT PER F PER HR.



John-Marville

General Headquarters: 22 East 40th Street, New York, N.Y. 10016

Offices in principal cities

IN-584A 5-66

Litho in U.S.A.

ASARCO ELP 0006099