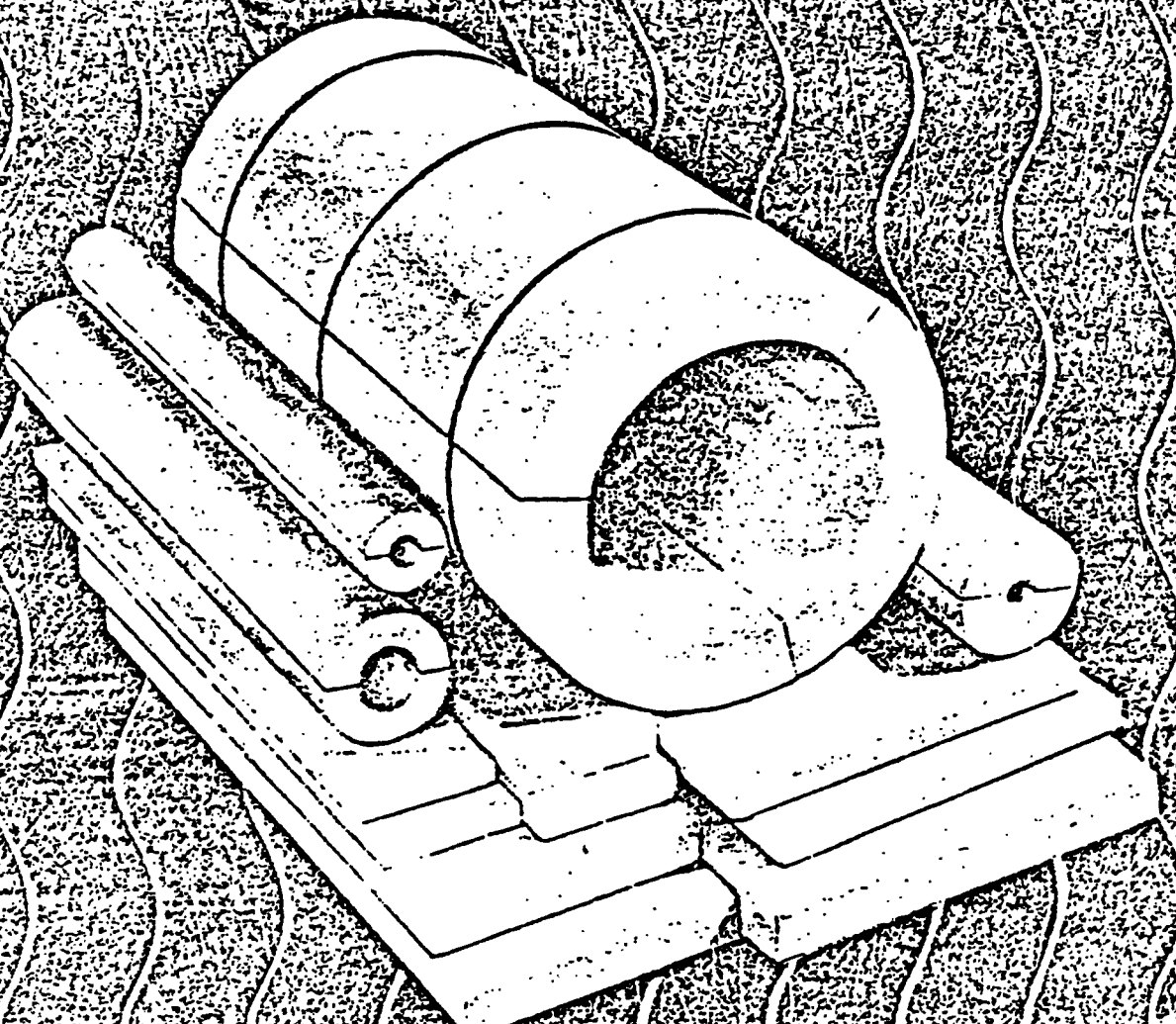
for temperatures up to 1200°F.



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FIBERGLAS

OWENS-CORNING FIBERGLAS CORPORATION

General Offices and General Products Division, Toledo, Ohio
Pacific Coast Division, P.O. Box 89, Santa Clara, California
Textile Products Division, 16 E. 56th St., New York 22, N. Y.

KAYLO

009911

HEAT INSULATI

MANUFACTURED BY OWENS-ILLINOIS GLASS COM

PRODUCED JM - 83

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PHYSICAL CHARACTERISTICS

DENSITY.....Approximately 11 lb. per cu. ft.

FLEXURAL STRENGTH.....50 lb. per sq. in.

COMPRESSIVE STRENGTH (at 5% deformation)

Before heating.....150 lb. per sq. in.
After heating for 24 hours
- at 750° F.....144 lb. per sq. in.
- at 1000° F.....123 lb. per sq. in.
- at 1200° F.....117 lb. per sq. in.

After boiling for 24 hours (while wet).....74 lb. per sq. in.

LOSS IN WEIGHT

After heating for 24 hours
- at 750° F.....5.5%
- at 1000° F.....7.9%
- at 1200° F.....9.8%

After boiling for 24 hours (after drying)..0.2%

RESISTANCE TO ABRASION

(Conventional tumbling test-loss in weight after 10 minutes)
Before heating.....2.2%
After heating for 24 hours
- at 750° F.....3.7%
- at 1000° F.....5.7%
- at 1200° F.....6.9%

DIMENSIONAL STABILITY

Linear shrinkage after heating for 24 hours
- at 750° F.....0.8%
- at 1000° F.....0.9%
- at 1200° F.....1.5%

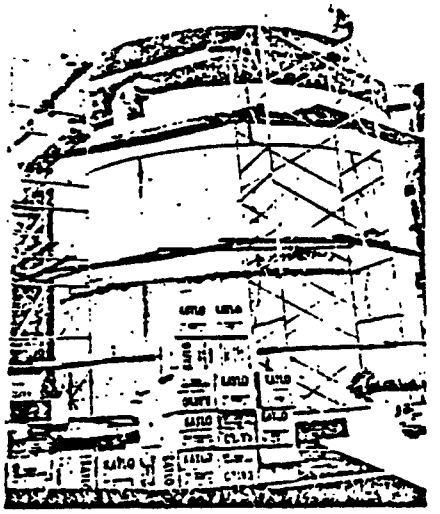
Elongation after saturation (max.).....0.04%

MOISTURE ADSORPTION (volume)

After 6 hours exposure in atmosphere of 120° F. and 90% Relative Humidity...0.9%

CONDUCTIVITY (K)

At 100° F. mean temperature.....0.38
At 500° F. mean temperature.....0.54

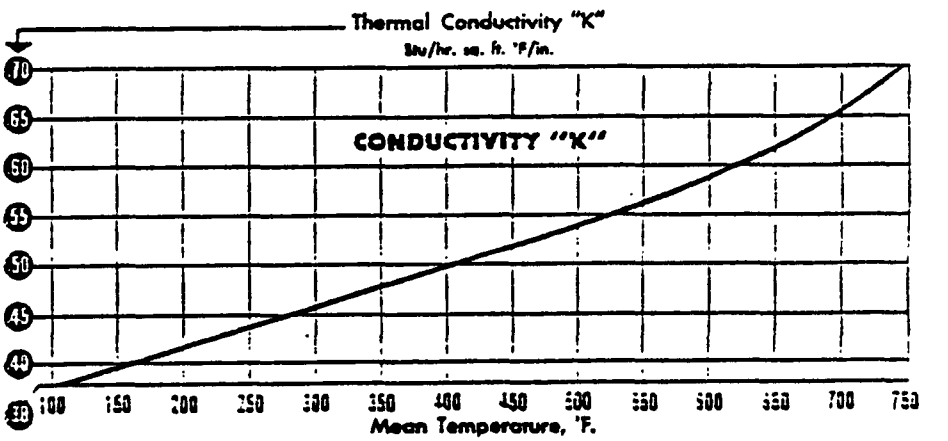


Applicators like its light weight and good "handleability".

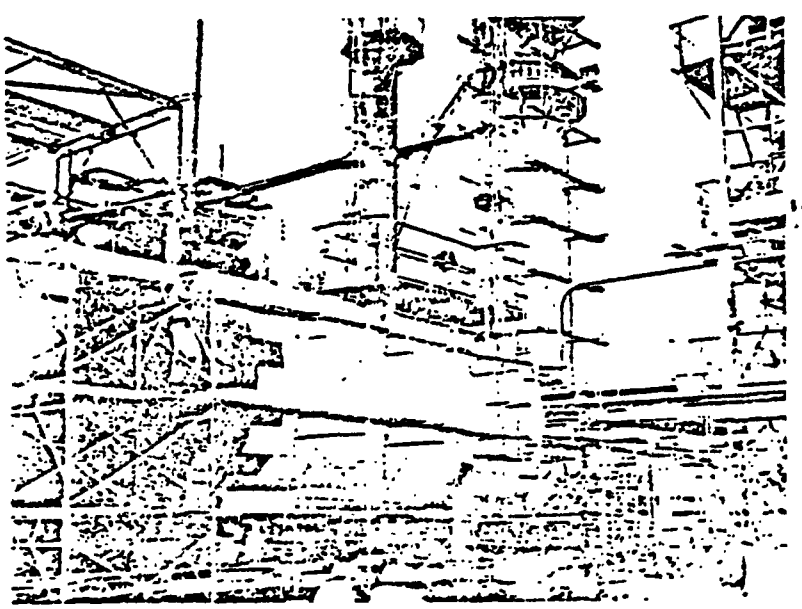
TYPICAL APPLICATIONS

Inside or outside, for temperatures up to 1200°F., Kaylo Heat Insulation is used for such equipment as:

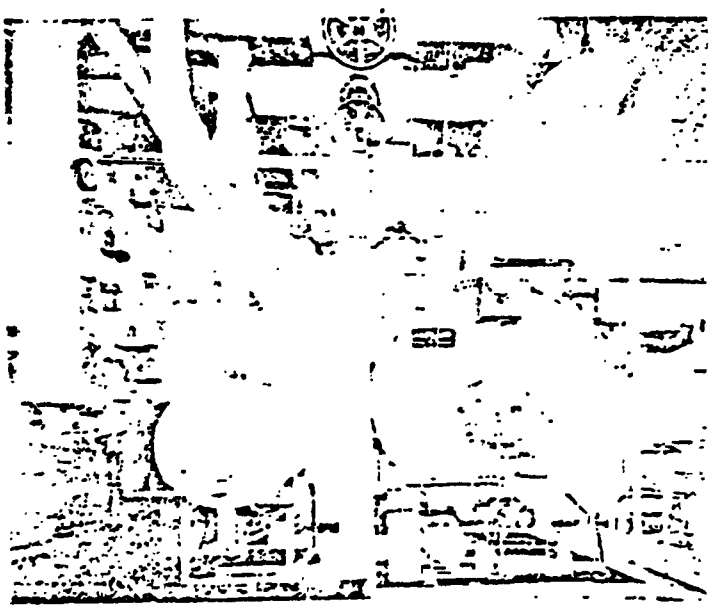
Autoclaves	Kilns
Boilers	Lehrs
Breechings	Locomotives
Chilling Pits	Ovens
Condensers	Precipitators
Dryers	Process Equipment
Evaporators	Steam Lines
Furnaces	Tanks
Heat Exchangers	Towers
Hot Air Ducts	Turbines
	Vessels



Strength of material and large units mean more economical application, less waste.



The smooth surfaces and straight edges of the material help make a neat finished job.



009913

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Standard sizes, thicknesses and forms:

Kaylo Pipe Insulation is available as a standard item in sectional and tri-segmental forms and in thicknesses through 3".

Red lines below show equal O. for selection of nesting size conformance with *Simplified Dimensional Standards.*

NOMINAL PIPE SIZE	PIPE O.D.	NOMINAL THICKNESS OF INSULATION																		FORM
		1		1½		2		2½		3		3½		4		4½		5		
		Actual	O.D.	Actual	O.D.	Actual	O.D.	Actual	O.D.	Actual	O.D.	Actual	O.D.	Actual	O.D.	Actual	O.D.	Actual	O.D.	
½	.84	1.00	2.88	1.56	4.00	2.06	5.00	2.35	5.56	2.88	6.63									SECTIONAL
¾	1.05	.90	2.88	1.46	4.00	1.96	5.00	2.24	5.56	2.77	6.63									
1	1.32	1.08	3.50	1.58	4.50	2.11	5.56	2.64	6.63	3.14	7.63									
1¼	1.66	.99	3.50	1.60	4.50	1.94	5.56	2.47	6.63	2.97	7.63									
1½	1.90	1.03	4.00	1.53	5.00	1.82	5.56	2.35	6.63	2.85	7.63									
2	2.38	1.03	4.50	1.56	5.56	2.06	6.63	2.59	7.63	3.09	8.63	3.59	9.63	4.16	10.75	4.66	11.75	5.16	12.75	
2½	2.88	1.00	5.00	1.31	5.56	1.84	6.63	2.34	7.63	2.84	8.63	3.34	9.63	3.91	10.75	4.41	11.75	4.91	12.75	
3	3.50	1.00	5.56	1.53	6.63	2.03	7.63	2.53	8.63	3.03	9.63	3.59	10.75	4.09	11.75	4.59	12.75	5.22	14.00	
3½	4.00	.75	5.56	1.28	6.63	1.78	7.63	2.28	8.63	2.78	9.63	3.34	10.75	3.84	11.75	4.34	12.75	4.97	14.00	
4	4.50	1.03	6.63	1.53	7.63	2.03	8.63	2.53	9.63	3.03	10.75	3.59	11.75	4.09	12.75	4.72	14.00	5.22	15.00	
4½	5.00	.78	6.63	1.28	7.63	1.78	8.63	2.28	9.63	2.84	10.75	3.34	11.75	3.84	12.75	4.47	14.00	4.97	15.00	
5	5.56	1.00	7.63	1.50	8.63	2.00	9.63	2.66	10.75	3.05	11.75	3.66	12.75	4.19	14.00	4.69	15.00	5.19	16.00	
6	6.63	.94	8.63	1.44	9.63	2.00	10.75	2.50	11.75	3.00	12.75	3.53	14.00	4.13	15.00	4.53	16.00	5.13	17.00	TRI-SEGMENTAL
7	7.63			1.50	10.75	2.00	11.75	2.50	12.75	3.13	14.00	3.63	15.00	4.13	16.00	4.63	17.00	5.13	18.00	
8	8.63			1.50	11.75	2.00	12.75	2.63	14.00	3.13	15.00	3.63	16.00	4.13	17.00	4.63	18.00	5.13	19.00	
9	9.63			1.50	12.75	2.13	14.00	2.63	15.00	3.13	16.00	3.63	17.00	4.13	18.00	4.63	19.00	5.13	20.00	
10	10.75			1.56	14.00	2.06	15.00	2.56	16.00	3.06	17.00	3.56	18.00	4.06	19.00	4.56	20.00	5.06	21.00	
11	11.75			1.56	15.00	2.06	16.00	2.56	17.00	3.06	18.00	3.56	19.00	4.06	20.00	4.56	21.00	5.06	22.00	
12	12.75			1.63	16.00	2.06	17.00	2.63	18.00	3.06	19.00	3.63	20.00	4.13	21.00	4.63	22.00	5.13	23.00	
14	14.00			1.42	17.00	1.92	18.00	2.42	19.00	2.92	20.00	3.42	21.00	3.92	22.00	4.42	23.00	4.92	24.00	
15	15.00			1.42	18.00	1.92	19.00	2.42	20.00	2.92	21.00	3.42	22.00	3.92	23.00	4.42	24.00	4.92	25.00	
16	16.00			1.41	19.00	1.91	20.00	2.41	21.00	2.91	22.00	3.41	23.00	3.91	24.00	4.41	25.00	4.91	26.00	
17	17.00			1.41	20.00	1.91	21.00	2.41	22.00	2.91	23.00	3.41	24.00	3.91	25.00	4.41	26.00			
18	18.00			1.41	21.00	1.91	22.00	2.41	23.00	2.91	24.00	3.41	25.00	3.91	26.00					
19	19.00			1.41	22.00	1.91	23.00	2.41	24.00	2.91	25.00	3.41	26.00							
20	20.00			1.41	23.00	1.91	24.00	2.41	25.00	2.91	26.00									
21	21.00			1.41	24.00	1.91	25.00	2.41	26.00											
22	22.00			1.41	25.00	1.91	26.00													
23	23.00			1.41	26.00															

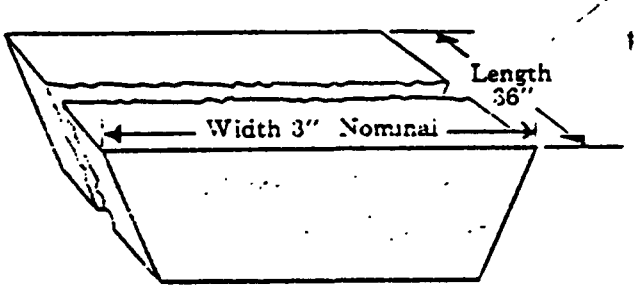
SINGLE LAYER ONLY

SINGLE OR DOUBLE LAYER

MULTIPLE LAYER ONLY

TRI-SEGMENTAL

KAYLO BEVELED LAGS



For pipe sizes greater than those indicated above, Kaylo Beveled Lags may be used. These lags are blocks of Kaylo insulation, nominally 3" wide, beveled to fit snugly on standard sizes of heated piping. Lags beveled to fit pipes from 21" to 36" in diameter are available in thicknesses of 1½", 2", 2½" and 3". Lags are 36" long.

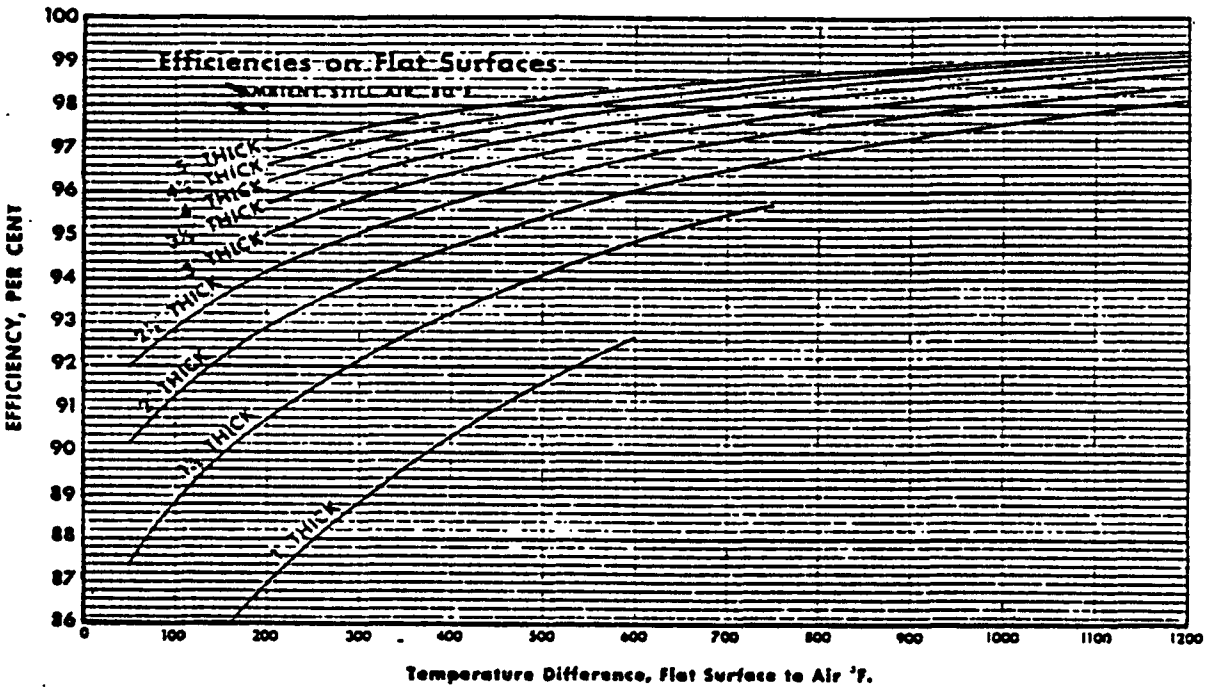
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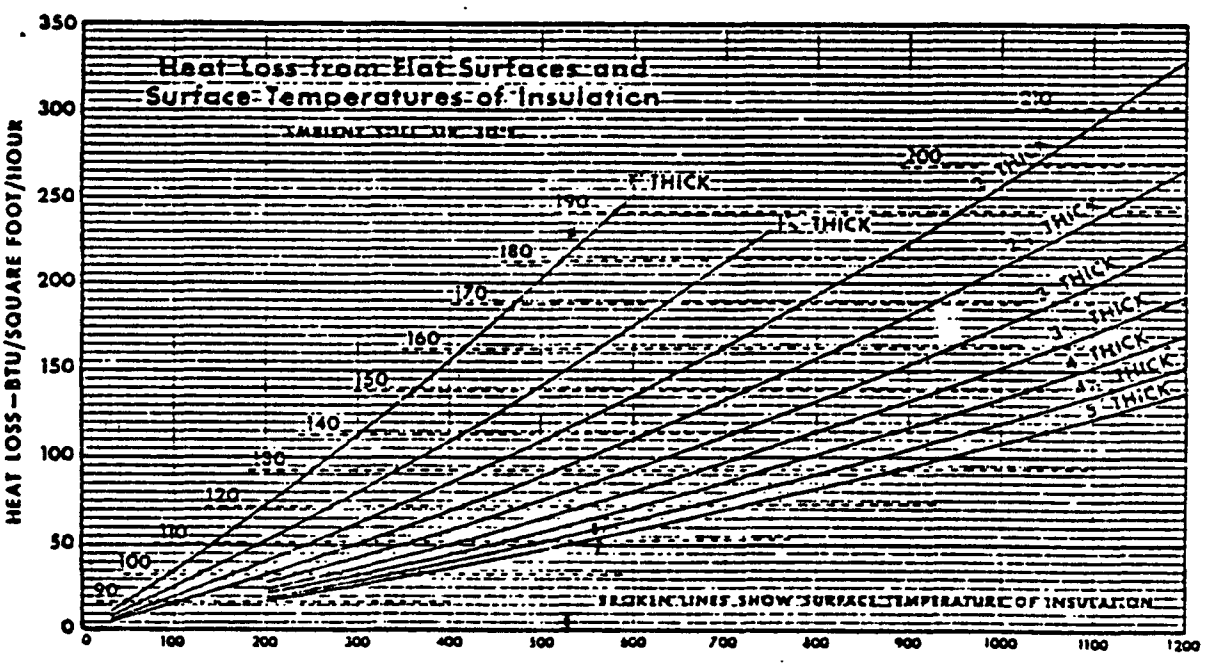
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KAYLO HEAT INSULATING BLOCK

Heat Loss, Surface Temperatures, and Efficiencies





OWENS-CORNING FIBERGLAS CORPORATION

TOLEDO 1, OHIO *For additional information write:*

009916

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IM - 22

Kaylo block insulation



Kaylo* Block Insulation is an off-white, rigid hydrous calcium silicate heat insulation manufactured by Owens-Corning Fiberglas Corp., that effectively insulates indoor and outdoor equipment up to 1200° F.

A chemically reacted material, it contains asbestos fibers for reinforcement. Its insulating effectiveness results from countless tiny entrapped air pockets.

Kaylo's light weight, superior flexural strength and resistance to abrasion, are far above the normal requirements for heat insulation.

It comes in 3", 6", 12" and 18" widths and lengths from 18" to 36". Manufactured thicknesses are 1", 1½", 2", 2½", 3", 3½", and 4".

*Trademark Owens-Corning Fiberglas Corp.

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long-lasting,
high performance insulation
for heated equipment
up to 1800 F.

KAYLO BLOCK INSULATIONS



EXCELLENT THERMAL EFFICIENCY—Low "k" factors make Fiberglas Kaylo Block insulations the best performers in their temperature ranges.

HIGH STRENGTH CUTS DAMAGE LOSS—Asbestos fibers reinforce Kaylo Block and give strength characteristics far above [illegible] heat insulations. Minimization of shipping and installation breakage reduces job costs. High temperatures have no effect on strength, so breakdown in service is prevented. Abrasion resistance provides further assurance against service damage.

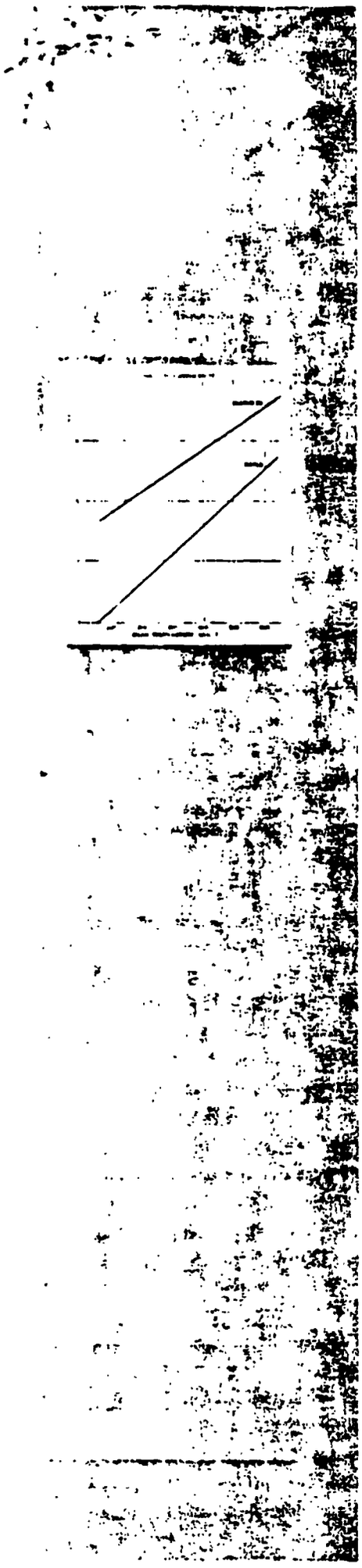
LIGHT WEIGHT SPEEDS UP THE JOB—Porous Kaylo Blocks offer weight factors of only 11 to 12 lbs. per square foot to speed and ease handling and installation.

MOISTURE RESISTANCE—Unusual resistance to moisture damage permits specification for a wide range of service conditions with confidence. For underground use, moisture and vapor barriers are required.

BROAD TEMPERATURE RANGE—Kaylo and Kaylo 20 Block cover temperature ranges to 1800 F, eliminating need for dissimilar insulations for extreme temperature ranges.

LESS DUSTING—Kaylo [illegible] cleaner and easier to fabricate because there is much less dusting with Kaylo than any other type.

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FIBERGLAS

KAYLO BLOCK INSULATIONS

lasting performance for indoor and outdoor equipment

Kaylo Block insulations are calcium silicate reinforced with asbestos fibers. Countless entrapped air pockets in the hydrous calcium silicate block provide effective barrier to heat passage. Kaylo Block, off-white in color, serves up to 1200 F. Kaylo 20 Block, slightly pink in color for identification, extends temperature tolerance to 1800 F. Applied to heated equipment with wire, pins and washers or steel bands to retain heat and reduce surface temperature to safe level of 150 F. Available as flat block in wide range of thickness and sizes or as beveled lag block for use on very large sizes of pipe.

PUB. NO. 5-IN-2439

LITHO IN U.S.A. 4/63

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KAYLO

HEAT INSULATING BLOCK

- Effective at temperatures up to 1200°F.
- Low coefficient of conductivity
- Water does not break it down
- Light, easy to handle, easy to fabricate
- For insulating industrial equipment

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® KAYLO (Reg.U.S.Pat.Off.) is a trademark of O-I Glass Co.

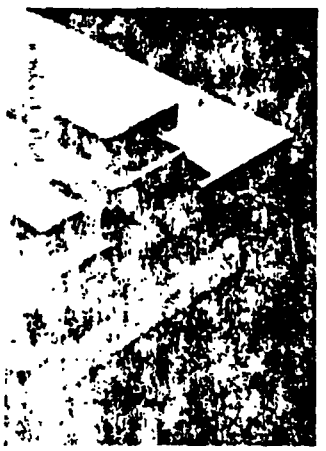
SAMPLE
KAYLO
1 in U.S.A.
19-IH-481

HEAT INSULATING BLOCK

power & process equipment 6.7
vessels & tanks 7.8
July, 1968

OWENS/CORNING
BERGLAS

Equipment Insulation





Kaylo 10 STS Block Insulation

rigid calcium silicate insulations for all types of stainless steel heated equipment operating at temperatures up to 1200°F.

The problem of stress corrosion cracking of stainless steel and subsequent equipment failure has been attributed to a combination of fabrication or pressure stresses, coupled with, or accelerated by, chlorides carried to the vessel surface by water leaking through the weather proof finishes. Papers written on this subject also indicated that the problem occurs in a certain temperature range.*

There is no proof that these soluble chlorides are the only cause of this phenomenon, but laboratory tests over extended periods of time indicate that cracking occurs much more readily when soluble chlorides are present. This is why Owens-Corning Fiberglas has developed Kaylo 10 STS Block Insulation using special inhibitors which will help slow down the reaction of the chlorides on stainless steel, reducing the hazard of stress corrosion cracking until the source of the leak or chlorides can be repaired. Please note that Kaylo 10 STS Block Insulation should not be used as a means of preventing stress corrosion cracking. *It will not serve as a substitute for proper initial system design and proper maintenance.*

*"Another Look At The Stress Corrosion Cracking Of Stainless Steel Under Thermal Insulation." W. G. Ashbaugh. Paper presented at 20th Anniversary Conference, National Association of Corrosion Engineers, March, 1964, Chicago.

uses

Kaylo 10 STS Block Insulation is for use on hot Type 304 austenitic stainless steel indoor or outdoor equipment operating at temperatures up to 1200°F. Kaylo 10 STS Block Insulation is ideally suited for use on stainless steel vessels and equipment as it helps inhibit stress corrosion cracking.

description

Kaylo 10 STS Block Insulation is a gray rigid hydrous calcium silicate high temperature equipment insulation. It contains special inhibitors which help retard the stress corrosion cracking of stainless steel resulting from chloride contamination. The insulation blocks are marked with a 1" wide black stripe across the 18" width in the center of the block.

benefits

lower operating costs—Kaylo 10 STS Block Insulation has good thermal efficiency. The low k factor of .40, (at 200°F. mean temperature,) means lower operating cost, better temperature control for process operations.

rugged—Kaylo 10 STS Block Insulation is tough and rigid and will resist most mechanical abuse in shipping, handling and in service.

does not contribute to stress corrosion cracking—Kaylo 10 STS material itself will not contribute to stress corrosion cracking of stainless steel because it contains an inhibitor, and has less than 200 ppm residual soluble chlorides. It will not crack when subjected to the 6 day Dana Stress Corrosion Cracking Test.

unaffected by moisture—Kaylo can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out. However, long periods of exposure to moisture may reduce the effectiveness of the inhibitors.

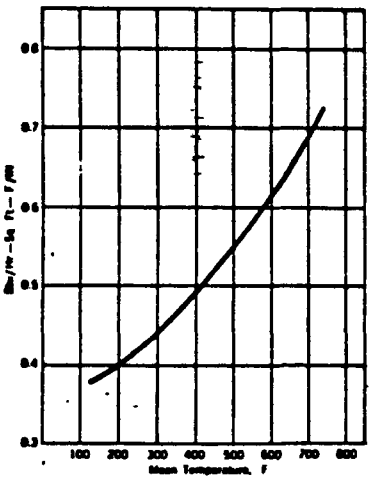
clean, neat installation—Kaylo cuts cleanly leaving a sharp square edge for a neat appearance.

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JM - 3

*Kaylo is a registered trademark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corp.

performance characteristics

density: approximately	11 pcf.
flexural strength: (ASTM C-203)	50 psi.
compressive strength: (ASTM C-165) at 5% deformation	80 psi.
thermal conductivity: 0.40 at 200 F mean temp.	
alkalinity:	ph 10
shrinkage (24 hrs. at 1200 F)	
% Loss in weight	10
% Linear shrinkage (max.)	1.6
weight loss by tumbling	
% Loss in weight after 10 min. (max.)	20
% Loss in weight after 20 min. (max.)	45
specific heat	0.22 btu/lb. F.
stress corrosion: (1500 ppm chloride method)	stainless steel will not crack when subjected to 6 day Dana Stress Corrosion Cracking Test



heat transfer data* — Kaylo 10 STS to 1200° F — ambient still temperature 80° F.

Operating Temp.	500°F.		600°F.		700°F.		800°F.		900°F.		1000°F.		1100°F.		1200°F.	
Thickness: Chemical Process	1½		1½		2		2½		3		3½		4		4½	
	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP	HEAT LOSS	SURF TEMP
2	83	131	108	146												
2½	68	121	88	134	111	148										
3	57	115	75	125	94	137	115	150								
3½	49	110	65	119	81	130	100	141	120	153						
4	44	107	57	115	72	124	88	134	106	145	126	157				
4½	39	104	51	111	64	119	78	128	95	138	113	149				
5	35	102	46	108	58	115	71	123	86	132	102	142	120	153		
5½	32	100	42	106	53	112	65	119	78	128	93	137	109	147	127	158
6	30	98	39	104	48	110	59	116	72	124	85	132	100	141	117	151

*calculated

sizes

thickness—1", 1½", 2", 2½", 3", 3½" and 4"
width—3", 6", 12" and 18"
length—18" to 36"
form—block

specification compliance

FHA-SS-[illegible]c Insulation Block and Pipe Covering, Thermal, (Calcium Silicate for temperatures up to 1200°F). Type 1.

MIL-I-[illegible]E Insulation Block, Thermal. Class 1 & 2.

MIL-I-24244 (ships) Insulating Materials, Thermal, with Special Corrosion and Chloride Requirements, Type 3A, 3B.

ASTM C533-67.

application recommendations

Kaylo 10 STS Block Insulations are held in place by mechanically fastening with bands, welded rods or studs. The insulation may be finished with a trowel coat of insulating cement, canvassed and painted. Outdoor installations require weatherproofing with mastics or metal jacketing. Proper attention should be paid to the selection of accessory materials such as cements, adhesives, etc, to avoid chloride contamination from these sources.

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

No. 1-IN-4274

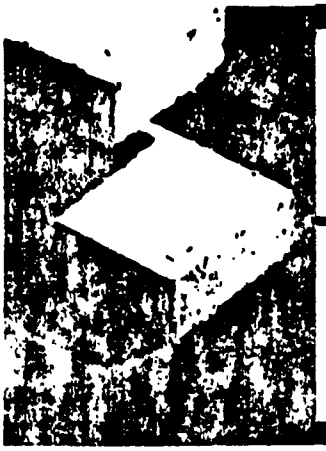
July 1968 — Litho in USA

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plumbing systems 2.8
mechanical equipment 3.8
power & process equipment 6.8
vessels & tanks 7.7
boilers & chimneys 8.8
January, 1968

Equipment Insulation





Kaylo & Kaylo 20 Block Insulation

rigid calcium silicate insulations for all types of heated equipment operating at temperatures up to 1800F.

uses

Kaylo® Block is for use on indoor or outdoor equipment operating at temperatures up to 1200F. Kaylo Block is ideally suited for use on stainless steel vessels and equipment as it inhibits stress corrosion cracking. Typical applications are for boilers, breeching, tanks, vessels.

Kaylo 20® with its high temperature limit of 1800F extends its use to include refractory wall backing for furnaces and boilers and fireproofing of equipment and vessel skirts.

description

Kaylo and Kaylo 20 Block Insulations are rigid hydrous calcium silicate heat insulations reinforced with asbestos fibers. They are strong, efficient and are highly resistant to abrasion and moisture damage. Kaylo 20 has a slightly pink color to distinguish it from Kaylo.

benefits

high thermal efficiency—both Kaylo and Kaylo 20 offer excellent thermal efficiency coupled with high strength. A low k of .37 for Kaylo and .43 for Kaylo 20 at 200F mean temperature proves that Kaylo will provide significant savings in operating costs over the life of the equipment.

resistant to abuse—resists mechanical damage because of hard, tough, reinforced structure.

strong—less breakage in shipment and handling. High temperatures have little effect on strength characteristics.

will not cause stress corrosion cracking—Kaylo will not cause stress corrosion cracking of stainless steel because Kaylo contains less than 200 ppm soluble chlorides as well as an inhibitor which prevents trace quantities of chlorides from the atmosphere or other sources from causing cracking and possible failure of piping and equipment.

resistant to moisture damage—unlike many other insulations, Kaylo is not affected appreciably from moisture damage. It regains thermal efficiency and strength after drying out. Outdoor installations must be weatherproofed, however, for long continuous service.

dimensionally stable—Kaylo does not shrink appreciably in service, even at elevated temperatures. This means less heat leakage at the joints. And Kaylo will not warp or crack in service.

fabricates easily—ordinary insulators tools are all that is required to fabricate Kaylo. It cuts with a clean true edge for tighter fit at the joints. Fittings are neater, faster.

*T.M. REG. OCF CORP.

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physical properties

	Standard Kaylo	Kaylo 20
density:	11 psf approx.	12 psf approx.
flexural strength:	over 50 lb/sq. in. (ASTM C-203)	90 lb/sq. in.

compressive strength: (at 5% deformation) (ASTM C-165) Kaylo 20: before heating, 130 lbs. per square inch.

Standard Kaylo: before heating, 150 lb/sq. in.; 144 lb/sq. in. at 750°F. 123 lb/sq. in. at 1000°F; 117 lb/sq. in. at 1200°F; after boiling for 24 hr., 74 lb/sq. in. (while wet).

resistance to abrasion: (conventional tumbling test—loss in weight after 10 min.)

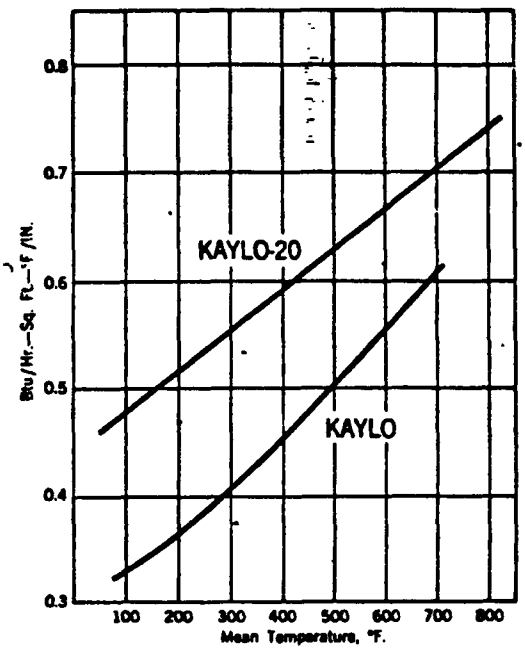
	standard Kaylo	Kaylo 20
before heating	9%	3%
after heating for 24 hr.		
750°F	5%	
1000°F	4%	
1200°F	3%	5%
1800°F		20%

alkalinity: ph 10

dimensional stability: linear shrinkage after heating for 24 hours in muffle

standard Kaylo		Kaylo 20
750°F	0.8%	
1000°F	0.9%	
1200°F	1.4%	0.7%
1800°		1.6%

thermal conductivity



key

ET—recommended thickness (inches)
HL—heat loss . . . Btu/hr/lineal foot
ST—surface temperature

economic thicknesses

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

for hot piping, the tabulated thicknesses are optimum thicknesses calculated on an "Economic" * basis for heat conservation under average operating conditions and assure adequate temperature control. Other conditions may warrant the use of other thicknesses.

**From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.*

Kaylo Block to 1200F—ambient temperature 80F

Operating Temp.	Commercial ET	Commercial HL	Commercial ST	Power ET	Power HL	Power ST	Process ET	Process HL	Process ST
[illegible]	1	36	103	1	36	103	1	36	103
[illegible]	1½	50	110	1	69	119	1	69	119
400	2½	48	108	1½	74	122	1	106	138
500	3½	47	108	2	82	126	1½	104	136
600	4½	48	108	2½	85	128	1½	133	148
700				3	89	129	2	127	145
800				4	80	124	2½	125	144
900				4½	86	127	3	124	144
1000				5½	80	125	3½	125	144
1100				6	84	126	4	125	143
1200				6½	90	127	4½	127	143

Kaylo 20 Block to 1800F—ambient temperature 80F

Operating Temp. F	Power ET	Power HL	Power ST	Process ET	Process HL	Process ST
1300	7½	111	136	6	135	148
1400	8	117	139	6½	143	152
1500	8	123	142	7	151	155
1600	8½	129	145	7	158	159
1700	9	135	148	7½	165	163
1800	9½	141	151	7½	172	166

sizes

thickness—1", 1½", 2", 2½", 3", 3½" and 4"
width—3", 6", 12" and 18"
length—8" to 36"
shape—Block

beveled lags

For pipe sizes greater than those for which Kaylo and Kaylo 20 insulation sizes are available, Kaylo and Kaylo 20 beveled lags may be used to insulate piping. Lags beveled to fit pipes from 18" to 36" in diameter are available in thickness 1½", 2", 2½", 3". Lags are 36" long and 3" wide.

federal specifications

HH-I-523b Insulation Block, Pipe Covering, and Cement, Thermal, Calcium Silicate. Type I.

MIL-I-2819D Insulation Block, Thermal: Class 1, 2, & 3. ASTM C533-64T: Kaylo—Class 1 & 2; Kaylo [illegible]—Class 1, 2, 3.

application recommendations

Kaylo and Kaylo 20 Block insulations are held in place by mechanically fastening with bands, welded rods or studs. The insulation may be finished with a trowel coat of insulating cement, canvassed and painted. Outdoor installations require weatherproofing with mastics or metal jacketing.

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OWENS-CORNING FIBERGLAS CORPORATION
Industrial and Commercial Construction Materials Division, 717 Fifth Avenue, New York, New York 10022
General Offices, Toledo, Ohio 43601 • Pacific Coast Division, Santa Clara, California 95052

Pub. No. 1-IN-3379
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FIBERGLAS

Kaylo 20 block insulation



This new calcium silicate block insulation manufactured by OCF extends the use of Kaylo* Equipment Insulation to include temperatures up to 1800° F.

It is slightly pink in color to be distinguished from standard Kaylo. Its characteristics are virtually the same as standard Kaylo except that it has a higher temperature range.

It is suitable for all high temperature applications including refractory wall backing for furnaces and boilers and fireproofing of equipment and vessel skirts.

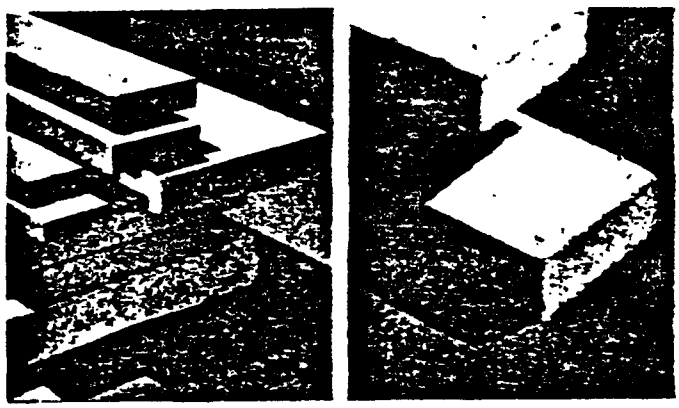
It is made in thicknesses of 1", 1½", 2", 3", 3½", and 4", and widths of 3", 6", 12" and 18". Two lengths of 18" and 36". Curved block is available on special order.

*Trademark Owens-Corning Fiberglas Corp.

Pub. No. 15-IN-1331 Litho in U.S.A., October, 1959

OWENS-CORNING FIBERGLAS

Kaylo & Kaylo 20 Block Insulation



for high temperature insulation of heated equipment up to 1800° F

Kaylo* and Kaylo 20 Block Insulations are rigid hydrous calcium silicate heat insulations reinforced with asbestos fibers. They are manufactured by Owens-Corning Fiberglas Corporation. Kaylo is used to insulate indoor and outdoor heated equipment up to 1200°F, Kaylo 20 up to 1800°F. Kaylo 20 has a slightly pink color to distinguish it from regular Kaylo.

Both of these widely used heat insulations offer excellent thermal efficiency, high strength, and unusual resistance to moisture damage. They combine the most desirable physical characteristics of heat insulations. This is why they are selected over most other materials on the market.

Low K factors place Kaylo Block Insulations among the most efficient insulations in their temperature ranges. Standard Kaylo covers a broad temperature range to 1200°F. This eliminates the need for using two dissimilar insulations for temperatures from 600 to 1200°F. Kaylo 20 may be used as a single layer insulation for flat surfaces up to 700°F. and in double layers from this temperature to 1800°F, or, may be used as a first layer with standard Kaylo or Fiberglas Block.

Kaylo Insulations exhibit lightweight, superior flexural strength and resistance to abrasion to a degree far above normal requirements for heat insulation. High strength minimizes breakage in shipping and installation, and high temperatures have no effect on strength characteristics. Kaylo 20 high temperature limit extends its use to include refractory wall backing for furnaces and boilers and fireproofing of equipment and vessel skirts.

sizes

thickness—1", 1½", 2", 2½", 3", 3½" and 4"

width—3", 6", 12" and 18"

length—18" to 36"

form—Block (curved block available on special order)

limitations

Kaylo block insulations should not be used above their maximum temperature range—Kaylo up to 1200°F—Kaylo 20 to 1800°F. Outdoor installations require a weatherproof finish. If used underground, special moisture and vapor barriers are required.

*T. M. Owens-Corning Fiberglas Corp.

physical properties

	Standard Kaylo	Kaylo 20
density:	11 psf approx.	12 psf approx.
flexural strength:	over 50 lb/sq. in. (ASTM C-203)	90 lb/sq. in.

compressive strength: (at 5% deformation) (ASTM C-165)
Kaylo 20: before heating, 130 lbs. per square inch.
Standard Kaylo: before heating, 150 lb./sq. in.; 144 lb./sq. in. at 759°F. 123 lb./sq. in. at 1000°F; 117 lb./sq. in. at 1200°F; after boiling for 24 hr., 74 lb./sq. in. (while wet).

resistance to abrasion: (conventional tumbling test—loss in weight after 10 min.)

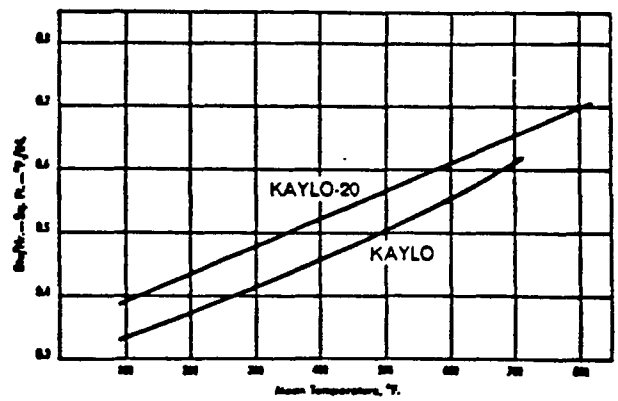
	Standard Kaylo	Kaylo 20
before heating	9%	3%
after heating for 24 hr.		
750°F	5%	
1000°F	4%	
1200°F	3%	5%
1800°F		20%

alkalinity: ph 10

dimensional stability: linear shrinkage after heating for 24 hours in muffle

	Standard Kaylo	Kaylo 20
750°F	0.8%	
1000°F	0.9%	
1200°F	1.4%	0.7%
1800°		1.6%

thermal conductivity



beveled lags

For pipe sizes greater than those for which Kaylo and Kaylo 20 Insulation sizes are available, Kaylo and Kaylo 20 beveled lags may be used to insulate piping. Lags beveled to fit pipes from 18" to 36" in diameter are available in thicknesses of 1½", 2", 2½", 3". Lags are 36" long.

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KAYLO & KAYLO 20 BLOCK INSULATION

OWENS-CORNING FIBERGLAS

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design data for Kaylo Insulations

This table presents reference data for information on the actual thicknesses according to the simplified Dimensional Standard system.

The following data are presented to aid in the design of Kaylo Pipe Insulation modified to meet specific needs. Recommendations are generalized and should be modified to meet local conditions and job requirements.

Importance of calculating economic thickness

Selection of insulation thicknesses for any specific application should take into consideration at least the following criteria.

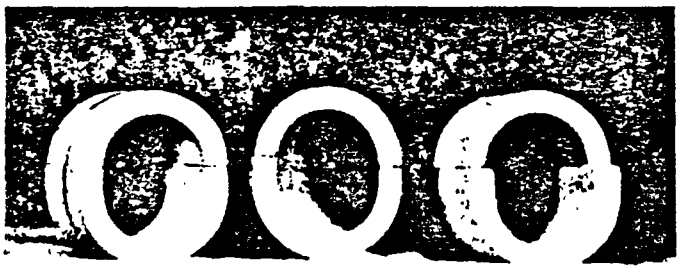
1. Cost of insulation applied
2. Cost of heat energy
3. Cost of capital
4. Depreciation period—plant and insulation
5. Capital investment in heat production equipment
6. Temperature differential
7. Size of the pipe or surface
8. Conductivity of insulation

To assist the engineer, Owens-Corning Fiberglas has taken the figures provided by the National Insulation Manufacturers Association in their manual, "How to Determine Economic Thickness of Insulation" and, by pre-calculating many of the equations on a computer, has created a quick, simple system for resolving economic thickness. To obtain your copy of this Dividend Engineering "Economic Thickness Manual," contact your local Fiberglas branch office. Your local Fiberglas representative will be glad to explain this quick, practical method for computing economical thickness under all normal operating conditions.

applications—Kaylo and Kaylo-Klad



Off-site yard steam insulated with Kaylo Pipe Insulation for efficiency and controlled temperatures at distant points.



New Kaylo Trace Line pipe insulation and Kaylo Klad Trace Line Pipe Insulation (jacketed with .016 embossed aluminum or .010 stainless steel) provide great economy in the insulation of trace lines.

These pre-molded trace line insulations are designed for insulating piping 2" IPS x 1" thick up to 8" IPS x 2" thick together with a 1" trace line.

Advantages of this Kaylo molded insulation include higher strength, more rigid construction and, in the case of Kaylo Klad, single application of both insulation and weather proofing. Application and maintenance costs are both reduced. Where a trace line is greater than one inch, an extended leg insulation can be fabricated to special order; contact your local OCF Branch Office.







Kaylo-Klad aluminum jacket "locks out" the weather. The longitudinal seam joint and end joint band, with integral mastic, provide positive weather protection.

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recommended thicknesses—Kaylo†

(ambient still air at 80 F)

	pipe temp.	250 F				400 F				600 F			
	temp. diff.	200 F				400 F				600 F			
	pipe size	RT	HL	E	ST	RT	HL	E	ST	RT	HL	E	ST
C	½	1	28.6	79.0	100	1½	52.5	86.7	107	2	77.0	90.6	110
	¾	1	34.2	79.5	104	1½	60.0	87.6	110	2½	74.4	92.7	103
	1	1	35.9	82.6	101	1½	65.3	89.0	109	2½	85.9	93.1	106
	1¼	1	45.8	82.0	108	1½	73.2	90.1	110	2½	98.3	93.7	109
	1½	1	46.3	84.0	104	2	65.8	92.2	103	3	89.0	95.0	102
	2	1	53.5	84.9	105	2	80.3	92.8	107	3	108	95.1	108
	2½	1	61.5	85.5	106	2	83.7	93.3	105	3	115	96.1	107
	3	1	72.7	85.7	108	2½	90.8	93.9	104	3½	124	96.1	107
	4	1	86.4	86.5	108	2½	107	94.4	105	3½	146	96.4	108
	5	1	106	86.5	110	2½	126	94.6	107	3½	164	96.7	110
	6	1½	94.2	90.0	103	2½	143	94.8	109	4	170	97.1	107
	7	1½	102	90.3	103	2½	162	94.8	109	4	190	97.2	108
	8	1½	114	90.4	104	2½	174	95.0	110	4	210	97.2	109
	9	1½	125	90.4	104	2½	188	95.2	110	4	222	97.4	110
	10	1½	133	90.8	104	3	179	95.9	106	4½	226	97.6	108
	12	1½	153	91.0	104	3	210	95.9	107	4½	250	97.7	109
	14	1½	178	90.4	106	3	235	95.8	108	4½	275	97.7	109
	16	1½	201	90.4	107	3	255	95.9	109	5	286	97.9	108
	18	1½	223	90.5	108	3	285	96.0	110	5	320	97.9	109
	20	1½	246	90.5	108	3½	272	96.5	106	5	353	97.9	110
	24	1½	291	90.5	108	3½	319	96.6	107	5½	364	98.2	108

†True economic thickness can now be calculated quickly and easily by following the system provided in the new Fiberglas Dividend Engineering "Economic Thickness Manual". This is available from your local Fiberglas branch office.

KEY

RT = Recommended Thickness.

HL = Heat Loss Btu/Lin. ft./hr.

E = Insulation Efficiency.

ST = Surface Temperature.*

C = Commercial and Industrial

U = Power and Utility

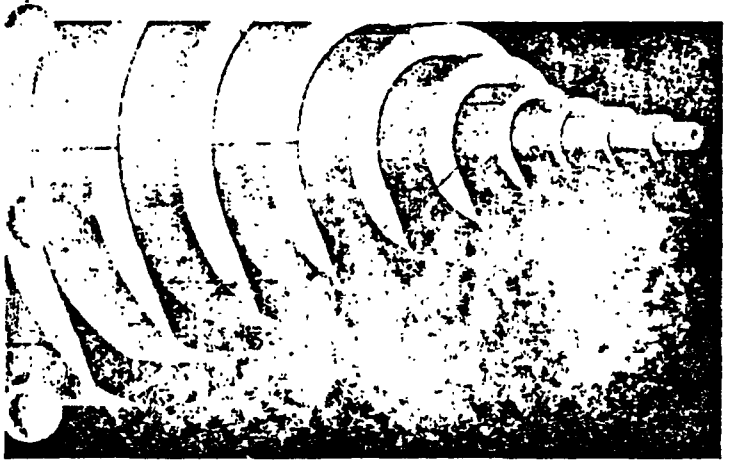
P = Process Industries

	pipe temp	250 F				400 F				600 F				800 F				1000 F				1200 F			
	temp. diff.	200 F				400 F				600 F				800 F				1000 F				1120 F			
	pipe size	RT	HL	E	ST	RT	HL	E	ST	RT	HL	E	ST	RT	HL	E	ST	RT	HL	E	ST	RT	HL	E	ST
U	½	1	28.6	79.0	100	1	63.0	84.0	120	1½	86.0	89.5	119	2	112	92.4	124	2½	128	94.8	118	3	145	95.3	120
	¾	1	34.2	79.5	104	1	75.2	84.4	128	1½	98.3	90.3	126	2	125	93.2	128	2½	144	95.3	122	3	162	95.8	127
	1	1	35.9	82.6	101	1	79.2	86.7	123	1½	107	91.4	125	2	136	94.0	127	3	151	96	120	3	184	96.2	133
	1¼	1	45.8	82.0	108	1½	73.2	90.1	110	1½	120	92.3	127	2½	143	95	123	3	175	96.3	125	3½	200	97.1	128
	1½	1	46.3	84.0	104	1½	182.1	90.2	114	2	108	93.9	113	2½	146	95.5	119	3	177	96.8	122	3½	199	97.6	127
	2	1	53.5	84.9	105	1½	93.5	91.0	114	2	132	94.	121	2½	170	95.8	126	3	208	96.9	130	4	215	97.5	126
	2½	1	61.5	85.5	106	1½	96.1	92.3	111	2	137	94.8	117	2½	181	96.3	124	3	206	97.5	129	4	231	97.8	125
	3	1	72.7	85.7	108	1½	126	91.5	120	2	164	94.9	128	3	197	96.6	124	3½	236	97.6	126	4	267	97.9	130
	4	1	86.4	86.5	108	1½	154	91.9	123	2	202	95.0	128	3	222	97	124	3½	274	97.8	130	4½	286	98.2	127
	5	1	106	86.5	110	1½	177	92.4	123	2½	206	95.9	122	3	266	97.1	128	4	292	98.1	125	4½	326	98.3	130
	6	1	137	85.1	116	1½	207	92.4	126	2½	239	95.9	125	3½	268	97.5	122	4	332	98.5	129	5	344	98.5	128
	7	1½	102	90.3	102	1½	224	92.8	125	2½	270	96	127	3½	297	97.6	125	4½	333	98.5	124	5	377	98.6	129
	8	1½	114	90.4	103	1½	249	92.9	127	2½	287	95.2	127	3½	326	97.7	126	4½	366	98.5	125	5½	389	98.7	126
	9	1½	125	90.4	108	1½	273	93.0	128	2½	313	96.3	128	3½	353	97.7	127	4½	400	98.5	128	5½	436	98 9	128
	10	1½	133	90.8	103	1½	292	93.2	127	2½	348	96.3	129	3½	392	97.7	129	4½	440	98.5	130	6	452	98 9	127
	12	1½	153	91.0	108	1½	338	93.7	128	2½	395	96.4	130	4	410	98	125	5	460	98.8	127	6	510	99.0	129
	14	1½	178	90.4	106	2	325	94.1	123	3	385	96.8	125	4	447	98	128	5	500	98.7	129	6	556	99.0	131
	16	1½	201	90.4	107	2	375	94.0	124	3	428	96.9	126	4	495	98.1	128	5	563	98.7	130	6	621	99.0	132
	18	1½	223	90.5	108	2	410	94.2	125	3	480	96.9	127	4	540	98.1	129	5½	545	98.8	127	6	679	99.0	134
	20	1½	246	90.5	108	2	460	98 4	126	3	535	96.9	128	4	594	98.1	130	5½	605	98.9	128	6	733	99.1	136
	24	1½	291	90.5	108	2	525	94.3	126	3	610	97	128	4½	618	98.4	126	5½	685	98.9	129	6	841	99.1	137
P	½	1	28.6	79.0	100	1	63.0	84.0	120	1	108	86.8	147	1½	124	91.6	136	2	146	94.1	134	2	179	94 2	149
	¾	1	34.2	79.5	104	1	75.2	84 4	128	1½	98.3	90.3	126	1½	145	92.1	145	2	166	94.6	141	2½	175	95 5	134
	1	1	35.9	82.6	101	1	79.2	86.7	123	1½	107	91.4	125	2	136	94.0	127	2½	174	95.4	134	2½	198	95 9	141
	1¼	1	45.8	82.0	108	1	102	86.3	134	1½	120	92.3	127	2	160	94.4	135	2½	188	96.1	135	3	211	96.5	137
	1½	1	46.3	84.0	104	1	102	87 8	129	1½	135	92.4	132	2	156	95.2	126	2½	207	96.2	142	3	212	96.9	134
	2	1	53.5	84.9	105	1	118	88.6	131	1½	154	93.0	134	2	189	95.3	135	2½	223	96.7	138	3	250	97.1	140
	2½	1	61.5	85.5	106	1	135	89.1	134	1½	158	94.0	127	2	200	96.4	132	2½	237	97.1	134	3	266	97.4	139
	3	1	72.7	85.7	108	1	160	89.3	137	1½	202	93.7	140	2	250	95.7	145	2½	292	97.0	147	3	316	97.5	147
	4	1	86.4	86.5	108	1	191	89.9	138	1½	249	92.7	147	2	293	96.1	148	3	299	97.6	137	3½	335	97.9	140
	5	1	106	86.5	110	1	240	89.6	144	1½	297	94.0	149	2½	294	96.8	137	3	347	97.8	140	3½	386	98 0	145
	6	1	137	85.1	116	1½	207	92.4	126	2	270	95.4	133	2½	337	96.9	139	3	403	98	147	3½	430	98.2	147
	7	1½	102	90.3	102	1½	224	92 8	125	2	302	95.5	134	2½	375	97.0	141	3½	386	98.3	135	3½	471	98.2	148
	8	1½	114	90.4	103	1½	249	92.9	127	2	333	95.6	135	2½	399	97.2	140	3½	422	98.2	137	4	474	98.4	142
	9	1½	125	90.4	104	1½	273	93.0	128	2	349	95.9	134	2½	435	97.2	142	3½	458	98.3	138	4	513	98.5	143
	10	1½	133	90.8	103	1½	292	93.2	127	2	391	95.8	137	2½	442	97.2	146	3½	504	98.3	140	4	563	98.5	146
	12	1½	153	91.0	104	1½	338	93 7	128	2	451	95.9	138	2½	563	97.3	148	3½	576	98.3	143	4	642	98.5	148
	14	1½	178	90 4	106	1½	391	93 0	132	2	515	95 7	143	3	541	97.6	140	3½	642	98.3	147	4½	647	98.7	144
	16	1½	201	90.4	107	1½	441	93 0	133	2	579	95 8	144	3	606	97.6	141	4	642	98.5	140	4½	719	98.7	145
	18	1½	223	90 5	108	1½	492	93 0	134	2	640	95 9	147	3	671	97.7	142	4	707	98.6	142	5	723	98.8	140
	20	1½	246	90 5	108	1½	541	93 1	134	2½	589	96 5	135	3	735	97.7	144	4	777	98.6	142	5	840	98.9	143
	24	1½	291	90.5	108	1½	642	93.1	135	2½	690	97.0	136	3	870	97.7	147	4	903	98.6	144	5	922	98.9	143

*Surface temperatures for Kaylo-Klad will be higher due to the emissivity of the aluminum jacket. This will vary with ambient temperature thickness of insulation used. However, the thermal efficiency of the application will be improved slightly by the aluminum jacket.

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KAYLO-20 pipe insulation *for indoor and outdoor piping up to 1800 F operating temperature*



Kaylo*-20 Insulation, colored pink for identification, a high-temperature calcium silicate heat insulation manufactured by Owens-Corning Fiberglas extends the range of Kaylo Heat Insulation to include temperatures up to 1800 F with all the properties of moisture resistance and high strength of standard Kaylo material. It also may be used with outer layers of Fiberglas Pipe Insulation to provide ultimate balance of cost and efficiency.

Kaylo-20 Insulation is highly dimensionally stable at the temperatures for which it is designed. Resistance of this insulation to high temperatures makes it extremely useful for protecting fluids in the pipe in case of fire.

sizes

thickness—Kaylo-20 Pipe Insulation is available in thicknesses from 1" to 3" depending upon pipe size. Kaylo-20 Tube Insulation is available in thicknesses of 1" and 1½".

pipe sizes—Kaylo-20 Pipe Insulation is available to fit pipe from ½" to 39" in diameter. Kaylo-20 Tube Insulation in copper tubing sizes will fit tubing from ½" to 3⅛".

forms—Kaylo-20 Pipe Insulation is available in sectional or multi-segmental form depending upon pipe size. All insulation is furnished in 3' sections.

jackets

canvas—Standard canvas jackets are provided at no additional charge with Kaylo-20 Sectional Pipe and Tube Insulation on thicknesses up to and including 2½". Standard canvas is available for segmental forms at a slight additional cost. Bands are available for use with this product at a small additional charge and will be shipped only on request.

6 oz. and 8 oz. canvas jackets are available on all types, sizes and thicknesses of Kaylo-20 Pipe Insulation at additional charge. These jackets are factory applied on sectional pipe and tube insulation. On multi-segmental insulation, they are furnished but not adhered.

Kaylo Klad locks out the weather, protects the insulation and provides a maintenance free line and attractive finished appearance. Factory applied jackets of .016 embossed aluminum and .010 stainless steel have longitudinal interlocking seams and joint bands with integral mastic permitting application of insulation and weather proofing at the same time and reducing application costs.

limitations

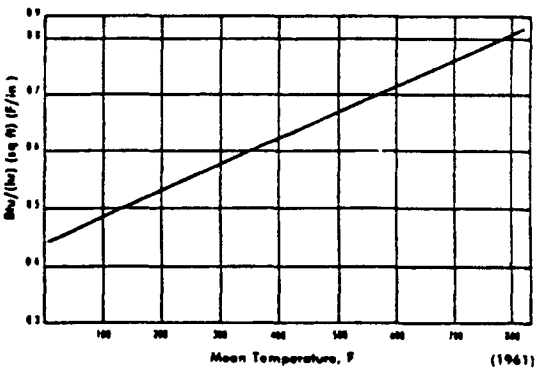
Kaylo-20 material is designed for temperatures up to 1800 F. It should not be used when operating temperatures of piping exceed this limit.

*T. M. Owens-Corning Fiberglas Corp.

physical properties

density:
approximately 12 lbs. per cu. ft.
flexural strength: (ASTM C-203)
90 lbs. per sq. in.
compressive strength: (ASTM C-165)
130 lbs. per sq. in. at 5% deformation
dimensional stability:
linear shrinkage after heating for 24 hours in muffle
at 1200 F.....0.7%
at 1800 F.....1.6%
resistance to abrasion:
(conventional tumbling test—loss in weight after 10 min.)
before heating 3%
after heating for 24 hours
at 1200 F 5%
at 1800 F 20%
alkalinity: ph 10
working temperature: up to 1800 F
physical properties
specific heat: 0.22 Btu/1 lbs. F.
thermal diffusivity: 0.016 sq. ft. per hr. at 200 F mean temperature.

thermal conductivity



recommended thicknesses†

These are average figures and may be adjusted to meet special conditions encountered on specific jobs. Kaylo heat loss data is available for use where plant operating economics and other conditions demand greater insulation thicknesses. Design surface temperatures are approx. 150 F.

nom. pipe size	Temperature Difference F							
	1100	1200	1300	1400	1500	1600	1700	1800
½	2½	2½	3	3	3½	3½	4	4
¾	2½	2½	3	3	3½	3½	4	4
1	2½	3	3	3	3½	3½	4	4½
1¼	2½	3	3	3½	3½	4	4½	4½
1½	3	3	3½	3½	3½	4	4½	5
2	3	3	3½	3½	4	4	4½	5
2½	3	3½	3½	4	4	4½	5	5½
3	3½	3½	3½	4	4	4½	5	5½
3½	3½	3½	4	4	4½	5	5½	6
4	3½	3½	4	4	4½	5	5½	6
6	4	4	4½	4½	5	5½	6	6½
8	4	4	4½	4½	5	5½	6	6½
10	4	4½	4½	5	5½	6	6½	7
12	4½	4½	5	5	5½	6	6½	7
14	4½	5	5	5½	6	6½	7	7½
16	4½	5	5½	6	6½	7	7½	8
18	5	5	5½	6	6½	7	7½	8
20	5	5½	6	6½	7	7½	8	8½
24-72	5	5½	6	6½	7	7½	8	8½

† For true economic thickness, request O-C "Economic Thickness Manual"

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Kaylo Block and Pipe Insulation Product Literature, Owens-Illinois and Owens-Corning Fiberglas (1951–1970) Published by AsbestosClaims.Law
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insulation thickness standards— Kaylo and Kaylo-20

CT

nom. tube size	O. D. of tube (nom.)	single layer nom. 1" actual	nom. 1" O.D.	nom. 1½" actual	nom. 1½" O.D.
⅜"	½"	1.18	2.88	1.48	3.50
½"	⅝"	1.11	2.88	1.42	3.50
⅝"	¾"	1.05	2.88	1.61	4.00
¾"	⅞"	.99	2.88	1.55	4.00
1"	1⅛"	1.17	3.50	1.42	4.00
1¼"	1⅜"	1.05	3.50	1.55	4.00
1½"	1⅝"	1.17	4.00	1.42	4.50
2"	2⅛"	.91	4.00	1.41	5.00
2½"	2⅝"	.96	4.50	1.45	5.56
3"	3⅛"	.91	5.00	1.73	6.66

Federal Specification Compliance

HH-I-523a Insulation Block Pipe Covering and Cement, Thermal, Calcium Silicate (For Temperatures up to 1200 F) class 11 (pipe covering).

MIL-I-2781C Insulation Pipe Covering, Thermal, Grade I Class B, Grade II Class D, Grade III Class E.

For Applicable Specifications refer to Page 2.

note:

Insulations for tubing sizes other than standard sizes shown are available only as cut-downs from next larger size tube or pipe and will be *slightly elliptical in shape.*

KEY

IP = iron pipe sizes

CT = copper tubing

IL = Inner Layer

OL = Outer Layer

IP

nom. pipe size	O.D. of pipe	single layer only nom. 1" actual	nom. 1" O.D.	nom. 1½" actual	nom. 1½" O.D.	single or double layer nom. 2" actual	nom. 2" O.D.	nom. 2½" actual	nom. 2½" O.D.	nom. 3" actual	nom. 3" O.D.	multiple layer—recommended combinations 2" IL / OL	2½" IL / OL	3" IL / OL	3½" IL / OL	4" IL / OL	4½" IL / OL	5" IL / OL	6" IL / OL
⅛"	.84	1.00	2.88	1.56	4.00	2.06	5.00	2.89	6.66	3.38	7.66	⅛x1 / 2½x1	⅛x1 / 2½x1½	⅛x ⅛ / 3½x1½	⅛x1½ / 3½x2	⅛x2 / 4½x2	⅛x2 / 4½x2½	⅛x2½ / 6 x2½	⅛x3 / 7 x3
¾"	1.05	.90	2.88	1.46	4.00	1.96	5.00	2.79	6.66	3.28	7.66	¾x1 / 2½x1	¾x1 / 2½x1½	¾x1 / 3½x1½	¾x1½ / 3½x2	¾x2 / 4½x2	¾x2 / 4½x2½	¾x2½ / 6 x2½	¾x3 / 7 x3
1"	1.32	1.08	3.50	1.58	4.50	2.11	5.56	2.66	6.66	3.16	7.66	1 x1 / 3 x1½	1 x1 / 4 x1½	1 x1½ / 4 x2	1 x1½ / 5 x2	1 x2 / 5 x2½	1 x2½ / 6 x2½	1 x2½ / 7 x2½	1 x3 / 7 x3
1¼"	1.66	.90	3.50	1.66	5.00	1.94	5.56	2.48	6.66	2.98	7.66	1¼x1 / 3 x1½	1¼x1 / 4½x1½	1¼x1½ / 4½x2	1¼x2 / 5 x2	1¼x2 / 5 x2½	1¼x2½ / 6 x2½	1¼x2½ / 7 x2½	1¼x3 / 7 x3
1½"	1.90	1.03	4.00	1.53	5.00	2.36	6.66	2.86	7.66	3.36	8.66	1½x1 / 3½x1½	1½x1 / 4½x1½	1½x1½ / 4½x2	1½x2 / 5 x2	1½x2 / 6 x2	1½x2½ / 6 x2½	1½x2½ / 7 x2½	1½x3 / 8 x3
2"	2.38	1.04	4.50	1.57	5.56	2.12	6.66	2.62	7.66	3.12	8.66	2 x1 / 4 x1½	2 x1 / 5 x1½	2 x1½ / 5 x2	2 x2 / 6 x2	2 x2 / 6 x2½	2 x2½ / 7 x2½	2 x2½ / 8 x2½	2 x3 / 8 x3
2½"	2.88	1.04	5.00	1.87	6.66	2.37	7.66	2.87	8.66	3.37	9.66	2½x1 / 4½x1½	2½x1 / 6 x1½	2½x1½ / 6 x2	2½x2 / 7 x2	2½x2 / 7 x2½	2½x2½ / 8 x2½	2½x2½ / 9 x2½	2½x3 / 9 x3
3"	3.50	1.00	5.56	1.55	6.66	2.05	7.66	2.55	8.66	3.05	9.66	3 x1 / 5 x1½	3 x1 / 6 x1½	3 x1½ / 6 x2	3 x2 / 7 x2	3 x2 / 7 x2½	3 x2½ / 8 x2½	3 x2½ / 9 x2½	3 x3 / 9 x3
3½"	4.00	1.30	6.66	1.80	7.66	2.30	8.66	2.80	9.66	3.30	10.78	3½x1 / 6 x1½	3½x1 / 7 x1½	3½x1½ / 7 x2	3½x2 / 8 x2	3½x2 / 8 x2½	3½x2½ / 9 x2½	3½x2½ / 10 x2½	3½x3 / 10 x3
4"	4.50	1.05	6.66	1.55	7.66	2.05	8.66	2.55	9.66	3.11	10.78	4 x1 / 6 x1½	4 x1 / 7 x1½	4 x1½ / 7 x2	4 x2 / 8 x2	4 x2 / 8 x2½	4 x2½ / 9 x2½	4 x2½ / 10 x2½	4 x3 / 10 x3
4½"	5.00	1.30	7.66	1.80	8.66	2.30	9.66	2.86	10.78	3.36	11.78		4½x1 / 7 x1½	4½x1½ / 8 x1½	4½x2 / 8 x2	4½x2 / 9 x2½	4½x2 / 9 x2½	4½x2½ / 10 x2½	4½x3 / 11 x3
5"	5.56	1.62	7.66	1.52	8.66	2.02	9.66	2.58	10.78	3.08	11.78		5 x1 / 7 x1½	5 x1½ / 8 x1½	5 x2 / 8 x2	5 x2 / 9 x2½	5 x2 / 9 x2½	5 x2½ / 10 x2½	5 x3 / 11 x3
6"	6.63	.95	8.66	1.45	9.66	2.02	10.78	2.52	11.78	3.03	12.81		6 x1 / 8 x1½	6 x1½ / 9 x1½	6 x2 / 9 x2	6 x2 / 10 x2	6 x2 / 10 x2½	6 x2½ / 11 x2½	6 x3 / 12 x3
7"	7.63			1.52	10.78	2.02	11.78	2.53	12.81	3.16	14.06		7 x1 / 9 x1½	7 x1½ / 10 x2	7 x2 / 10 x2	7 x2 / 11 x2	7 x2 / 11 x2½	7 x2½ / 12 x2½	7 x3 / 14 x3
8"	8.63			1.52	11.78	2.03	12.81	2.66	14.06	3.16	15.06		8 x1 / 10 x1½	8 x1½ / 11 x2	8 x2 / 12 x2	8 x2 / 12 x2½	8 x2 / 13 x2½	8 x2½ / 14 x2½	8 x3 / 15 x3
9"	9.63			1.53	12.81	2.16	14.06	2.66	15.06	3.17	16.09			9 x1 / 12 x1½	9 x1½ / 12 x2	9 x2 / 14 x2	9 x2 / 14 x2½	9 x2½ / 15 x2½	9 x3 / 16 x3
10"	10.75			1.59	14.06	2.09	15.06	2.61	16.09	3.06	17.00			10 x1 / 14 x1½	10 x1½ / 14 x2	10 x2 / 15 x2	10 x2 / 15 x2½	10 x2½ / 16 x2½	10 x3 / 17 x3
11"	11.75			1.58	15.06	2.09	16.09	2.55	17.00	3.05	18.00			11 x1 / 15 x1½	11 x1½ / 15 x2	11 x2 / 16 x2	11 x2 / 16 x2½	11 x2½ / 17 x2½	11 x3 / 18 x3
12"	12.75			1.59	16.09	2.05	17.00	2.55	18.00	3.05	19.00			12 x1 / 16 x1½	12 x1½ / 16 x2	12 x2 / 17 x2	12 x2 / 17 x2½	12 x2½ / 18 x2½	12 x3 / 19 x3
14"	14.00			1.42	17.00	1.92	18.00	2.42	19.00	2.92	20.00			14 x1 / 17 x1½	14 x1½ / 17 x2	14 x2 / 18 x2	14 x2 / 18 x2½	14 x2½ / 19 x2½	14 x3 / 20 x3
15"	15.00			1.42	18.00	1.92	19.00	2.41	20.00	2.92	21.00			15 x1 / 18 x1½	15 x1½ / 18 x2	15 x2 / 19 x2	15 x2 / 19 x2½	15 x2½ / 20 x2½	15 x3 / 21 x3
16"	16.00			1.41	19.00	1.91	20.00	2.41	21.00	2.91	22.00			16 x1 / 19 x1½	16 x1½ / 19 x2	16 x2 / 20 x2	16 x2 / 20 x2½	16 x2½ / 21 x2½	16 x3 / 22 x3
17"	17.00			1.41	20.00	1.91	21.00	2.41	22.00	2.91	23.00			17 x1 / 20 x1½	17 x1½ / 20 x2	17 x2 / 21 x2	17 x2 / 21 x2½	17 x2½ / 22 x2½	17 x3 / 23 x3
18"	18.00			1.41	21.00	1.91	22.00	2.41	23.00	2.91	24.00			18 x1 / 21 x1½	18 x1½ / 21 x2	18 x2 / 22 x2	18 x2 / 22 x2½	18 x2½ / 23 x2½	18 x3 / 24 x3
19"	19.00			1.41	22.00	1.91	23.00	2.41	24.00	2.91	25.00			19 x1 / 22 x1½	19 x1½ / 22 x2	19 x2 / 23 x2	19 x2 / 23 x2½	19 x2½ / 24 x2½	19 x3 / 25 x3A
20"	20.00			1.41	23.00	1.91	24.00	2.41	25.00	2.91	26.00			20 x1 / 23 x1½	20 x1½ / 23 x2	20 x2 / 24 x2	20 x2 / 24 x2½	20 x2½ / 25 x2½A	20 x3 / 26 x3A
21"	21.00			1.41	24.00	1.91	25.00	2.41	26.00	2.91	27.00			21 x1 / 24 x1½	21 x1½ / 24 x2	21 x2 / 25 x2A	21 x2 / 25 x2A	21 x2½ / 26 x2½A	21 x3 / 27 x3A
22"	22.00			1.41	25.00	1.91	26.00	2.41	27.00	2.91	28.00			22 x1 / 25 x1½A	22 x1½ / 25 x2A	22 x2 / 26 x2A	22 x2 / 26 x2½A	22 x2½ / 27 x2½A	22 x3 / 28 x3A
23"	23.00			1.41	26.00	1.91	27.00	2.41	28.00	2.91	29.00			23 x1 / 26 x1½A	23 x1½ / 26 x2A	23 x2 / 27 x2A	23 x2 / 27 x2½A	23 x2½ / 28 x2½A	23 x3 / 29 x3A
Quad. Seg. 24"	24.00			1.41	27.00	1.91	28.00	2.41	29.00	2.91	30.00			24 x1 / 27 x1½A	24 x1½ / 27 x2A	24 x2 / 28 x2A	24 x2 / 28 x2½A	24 x2½ / 29 x2½A	24 x3 / 30 x3A
25"	25.00			1.46	28.00	1.98	29.00	2.50	30.00	3.02	31.00			25 x1½A / 28 x1½B	25 x1½A / 28 x2B	25 x2A / 29 x2B	25 x2 A / 29 x2½B	25 x2½A / 30 x2½B	25 x / 31 x
26"	26.00			1.46	29.00	1.98	30.00	2.50	31.00	3.02	32.00			26 x1½A / 29 x1½B	26 x2 B / 30 x2B	26 x2A / 30 x2B	26 x2 A / 30 x2½B	26 x2½A / 31 x2½B	26 x3A / 32 x3B
27"	27.00			1.46	30.00	1.98	31.00	2.50	32.00	3.02	33.00			27 x1½A / 30 x1½B	27 x2 B / 31 x2B	27 x2A / 31 x2B	27 x2 A / 31 x2½B	27 x2½A / 32 x2½B	27 x3A / 33 x3B
28"	28.00			1.46	31.00	1.98	32.00	2.50	33.00	3.02	34.00			28 x1½A / 31 x1½B	28 x2 B / 32 x2B	28 x2A / 32 x2B	28 x2 A / 32 x2½B	28 x2½A / 33 x2½B	28 x3A / 34 x3B
29"	29.00			1.46	32.00	1.98	33.00	2.50	34.00	3.02	35.00			29 x1½A / 32 x1½B	29 x2 B / 33 x2B	29 x2A / 33 x2B	29 x2 A / 33 x2½B	29 x2½A / 34 x2½B	29 x3A / 35 x3B
30"	30.00			1.46	33.00	1.98	34.00	2.50	35.00	3.02	36.00			30 x1½B / 33 x1½C	30 x2 B / 34 x2C	30 x2B / 34 x2C	30 x2 B / 34 x2½C	30 x2½B / 35 x2½C	30 x3B / 36 x3C
31"	31.00			1.46	34.00	1.98	35.00	2.50	36.00	3.02	37.00			31 x1½B / 34 x1½C	31 x2 B / 35 x2C	31 x2B / 35 x2C	31 x2 B / 35 x2½C	31 x2½B / 36 x2½C	31 x3B / 37 x3C
32"	32.00			1.46	35.00	1.98	36.00	2.50	37.00	3.02	38.00			32 x1½B / 35 x1½C	32 x2 B / 36 x2C	32 x2B / 36 x2C	32 x2 B / 36 x2½C	32 x2½B / 37 x2½C	32 x3 / 38 x3C
33"	33.00			1.46	36.00	1.98	37.00	2.50	38.00	3.02	39.00			33 x1½B / 36 x1½C	33 x2 B / 37 x2C	33 x2B / 37 x2C	33 x2 B / 37 x2½C	33 x2½B / 38 x2½C	33 x3B / 39 x3C
34"	34.00			1.46	37.00	1.98	38.00	2.50	39.00	3.02	40.00			34 x1½B / 37 x1½C	34 x2 B / 38 x2C	34 x2B / 38 x2C	34 x2 B / 38 x2½C	34 x2½B / 39 x2½C	34 x3B / 40 x3C
35"	35.00			1.46	38.00	1.98	39.00	2.50	40.00	3.02	41.00								
36"	36.00			1.46	39.00	1.98	40.00	2.50	41.00	3.02	42.00								
37"	37.00			1.46	40.00	1.98	41.00	2.50	42.00	3.02	43.00								
38"	38.00			1.46	41.00	1.98	42.00	2.50	43.00	3.02	44.00								
39"	39.00			1.46	42.00	1.98	43.00	2.50	44.00	3.02	45.00								

Sectional | Tri-Segmental | K-Segmental

Insulation for the nominal pipe sizes range of 25" 39" is furnished in three K Segmental contour sizes. Approximately six to eight segments are required to enclose pipes in this size range. The last segment applied must be cut to fit accurately. Letter designates machine K Segmental size for proper nesting.

K-Segmental Dimensions:

Letter	Inn. Dia.	O Dia.	Approx Outer Arc
A			
B			
C			

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Kaylo Block and Pipe Insulation Product Literature, Owens-Illinois and Owens-Corning Fiberglas (1951–1970) Published by AsbestosClaims.Law
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Where to buy

Available from authorized distributors located in principal cities. Consult the yellow pages of your classified directory for their location or call your nearest Fiberglas Branch Office listed below.

Albuquerque, New Mexico		243-4583
Anchorage, Alaska	BR	5-8344
Atlanta, Georgia		799-6821
Baltimore, Maryland	SA	7-0234
Birmingham, Alabama	TR	1-2723
Boise, Idaho		2-3102
Boston, Massachusetts	CE	5-7540
Buffalo, New York	TL	3-4123
Charleston, West Virginia	DI	3-7094
Charlotte, North Carolina	ED	4-6864
Chicago, Illinois	RA	6-0102
Cincinnati, Ohio	AV	1-1173
Cleveland, Ohio	MA	1-6451
Columbus, Ohio	HU	6-9418
Dallas, Texas	RI	1-3982
Dayton, Ohio	AX	3-3155
Denver, Colorado	AC	2-3126
Des Moines, Iowa	AT	8-4273
Detroit, Michigan	LI	7-8000
Evansville, Indiana	HA	5-5124
Fort Wayne, Indiana	EA	4635
Fresno, California	AD	3-7227
Grand Rapids, Michigan	CH	3-3697
Greenville, South Carolina	CE	9-4279
Hartford, Connecticut	CH	7-1301
Honolulu, Hawaii		99-5689
Houston, Texas	JA	6-1851
Indianapolis, Indiana	CL	5-4147
Jacksonville, Florida	EL	5-4188
Kansas City, Missouri	PL	3-7725
Los Angeles, California	RA	3-9781
Louisville, Kentucky	ME	7-2588
Memphis, Tennessee	FA	7-6116
Miami, Florida	OX	6-3451
Milwaukee, Wisconsin	DI	4-3811
Minneapolis, Minnesota	FR	7-1730
Mobile, Alabama	HE	2-4411
Nashville, Tennessee	AL	4-9210
New Orleans, Louisiana		523-2821
New York, New York	PL	9-3810
Oklahoma City, Oklahoma	JA	8-4468
Omaha, Nebraska		553-3291
Peoria, Illinois	PE	4-3232
Philadelphia, Pennsylvania	LO	4-3133
Phoenix, Arizona	AL	8-4541
Pittsburgh, Pennsylvania	AT	1-7191
Portland, Oregon	CA	6-3505
Richmond, Virginia	EL	5-5703
Rochester, New York	BR	1-1888
Rock Island, Illinois		788-1190
North Sacramento, California	WA	2-5467
St. Louis, Missouri	MA	1-6822
Salt Lake City, Utah	EL	9-5247
San Antonio, Texas	CA	4-7673
San Bernardino, California	TU	8-3496
San Diego, California	CY	7-3751
San Francisco, California	UN	1-4721
San Jose, California	CY	7-9520
Seattle, Washington	MA	2-4335
Spokane, Washington	KE	5-3575
Syracuse, New York	GR	4-4646
Tampa, Florida		253-0183
Toledo, Ohio		248-6741
Washington, D. C.	NA	8-0724

INTERNATIONAL S.A., GENERAL OFFICE:
Panama, Republic de Panama,
Apartado 6718, Phone: 5-1650

INTERNATIONAL S.A., BRANCH OFFICES:
New York 22, New York, 717 Fifth Ave.
PL 9-3810
San Francisco 7, Calif., 1200 17th St.
UN 1-4721
San Juan, P. R., First Fed. Savings Cond.
Santurce, Puerto Rico, 723-8444

OWENS-CORNING FIBERGLAS CORPORATION

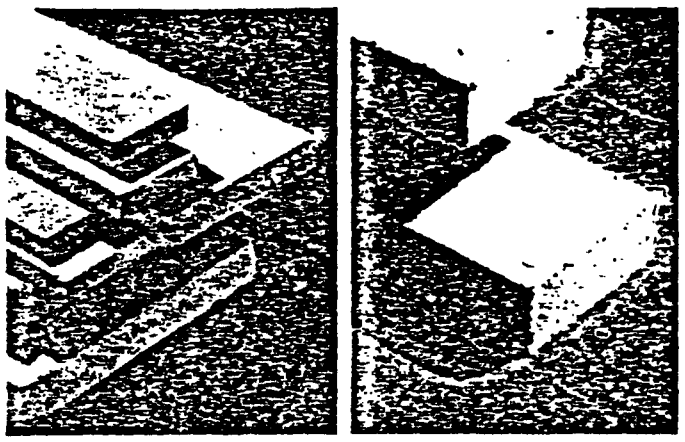
Industrial and Commercial Construction Materials Division, 717 Fifth Avenue, New York 22, N. Y.

General Offices, Toledo 1, Ohio. Pacific Coast Division, Santa Clara, Calif.

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Kaylo 10 & Kaylo 20 Block Insulation

rigid calcium silicate insulations for all types of heated equipment operating at temperatures up to 1800F.



uses

Kaylo 10* Block is for use on indoor or outdoor equipment operating at temperatures up to 1200F. Kaylo block is ideally suited for use on stainless steel vessels and equipment as it helps inhibit stress corrosion cracking. Typical applications are for boilers, breeching, tanks, vessels. Kaylo 10 Block is white in color.

Kaylo 20* with its high temperature limit of 1800F extends its use to include refractory wall backing for furnaces and boilers and fireproofing of equipment and vessel skirts.

description

Kaylo 10 and Kaylo 20 Block Insulations are rigid hydrous calcium silicate heat insulations reinforced with asbestos fibers. They are strong, efficient and are highly resistant to abrasion and moisture damage. Kaylo 20 has a slightly pink color to distinguish it from Kaylo 10.

benefits

high thermal efficiency — both Kaylo 10 and Kaylo 20 offer excellent thermal efficiency coupled with high strength. A low k of .40 for Kaylo 10 and .52 for Kaylo 20 at 200 F mean temperature proves that Kaylo will provide significant savings in operating costs over the life of the equipment.

resistant to abuse — resists mechanical damage because of hard, tough, reinforced structure.

strong — less breakage in shipment and handling. High temperatures have little effect on strength characteristics.

will not cause stress corrosion cracking — Kaylo 10 will not cause stress corrosion cracking of stainless steel because it contains sodium silicate as an inhibitor, and has a very low chloride content.

resistant to moisture damage — unlike many other insulations, Kaylo is not affected appreciably from moisture damage. It regains thermal efficiency and strength after drying out. Outdoor installations must be weatherproofed, however, for long continuous service.

dimensionally stable — Kaylo does not shrink appreciably in service, even at elevated temperatures. This means less heat leakage at the joints. And Kaylo will not warp or crack in service.

fabricates easily — ordinary insulators tools are all that is required to fabricate Kaylo. It cuts with a clean true edge for tighter fit at the joints. Fittings are neater and faster.

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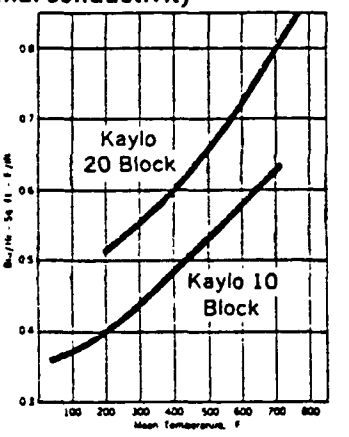
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performance characteristics

	KAYLO 10	KAYLO 20
density:	11 pcf approx.	12 pcf. approx.
flexural strength: (ASTM C-203)	60 psi average	65 lb./sq. in.
compressive strength: (ASTM C-165) at 5% deformation	115 psi	110 psi
resistance to abrasion: (ASTM C-421)	after 10 minutes, 20% max. after 20 minutes, 45% max.	
dimensional stability: (ASTM C-356)	linear shrinkage after heating for 24 hours in muffle at 1200F.—1.4% (Kaylo 10) for 24 hours in muffle at 1800F.—2.0% (Kaylo 20)	
fire hazard classification (ASTM E-84)		
flame spread	0	0
smoke developed	0	0
fuel contributed	0	0
hardness: (ASTM C-569	.60	.70

thermal conductivity



economic thickness*

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.

economic thickness— Kaylo 10 block to 1200 F—ambient still air 80 F

ET—economic thickness ST—surface temperature HL—heat loss Btu/hr sq. foot

THICK	200 F		300 F		400 F		500 F		600 F		700 F		800 F		900 F		1000 F		1100 F		1200 F	
	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.
1.000	38	103	72	124	109	147																
1.500	27	96	51	111	78	127	107	145														
2.000	21	93	40	104	60	117	83	130	107	145												
2.500	17	90	33	100	49	110	68	121	87	133	109	146										
3.000	14	89	28	97	42	105	57	115	74	125	92	136	112	148								
3.500	13	88	24	95	36	102	49	110	64	119	80	129	97	139	116	150						
4 000	11	87	21	93	32	99	44	107	56	114	70	123	85	132	102	142	120	153				
4 500	10	86	19	91	28	97	39	104	50	111	63	118	76	127	91	136	107	145	125	156		
5.000	9	85	17	90	26	96	35	101	46	108	57	115	69	122	82	130	97	139	113	149	130	159
5 500	8	85	16	89	23	94	32	100	42	105	52	112	63	118	75	126	88	134	103	143	118	152
6 000	7	85	14	89	22	93	30	98	38	103	48	109	58	115	69	122	81	130	94	138	109	146

*calculated

Kaylo 20 Block to 1800 F—ambient still air 80 F

Operating Temp. F	Power ET	Power HL	Power ST	Process ET	Process HL	Process ST
1300	7½	111	136	6	135	148
1400	8	117	139	6½	143	152
1500	8	123	142	7	151	155
1600	8½	129	145	7	158	159
1700	9	135	148	7½	165	163
1800	9½	141	151	7½	172	166

specification compliance

HH-I-523c Insulation Block, Pipe Covering, Thermal, (Calcium Silicate for temperatures up to 1200°F). Type 1.

MIL-I-2819E Insulation Block, Thermal. Class 1, 2, and 3.

ASTM C533-67.

MIL 1-24244 (Amend. 3) (Ships) Insulating Materials, Thermal, with Special Corrosion and Chloride Requirements (Kaylo 10 only), Type 3A, 3B.

sizes

thickness—1", 1½", 2", 2½", 3", 3½" and 4"
width—3", 6", 12" and 18"
length—18" to 36"
form—Block

beveled lags

For pipe sizes greater than those for which Kaylo 10 and Kaylo 20 Pipe Insulation sizes are available, Kaylo 10 and Kaylo 20 beveled lags may be used to insulate piping. Lags beveled to fit pipes from 18" to 72" in diameter are available in thickness of 1½," 2", 2½", 3". Lags are 36" long and 3" wide.

application recommendations

Kaylo 10 & 20 Block Insulations are held in place by mechanically fastening with bands, welded rods or studs. The insulation may be finished with a trowel coat of insulating cement, canvassed and painted. Outdoor installations require weatherproofing with mastic or metal jacketing.

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Kaylo Block and Pipe Insulation Product Literature, Owens-Illinois and Owens-Corning Fiberglas (1951–1970) Published by AsbestosClaims.Law
ACL Doc 24543 · Page 21 of 51 asbestosclaims.law/library/24543/21

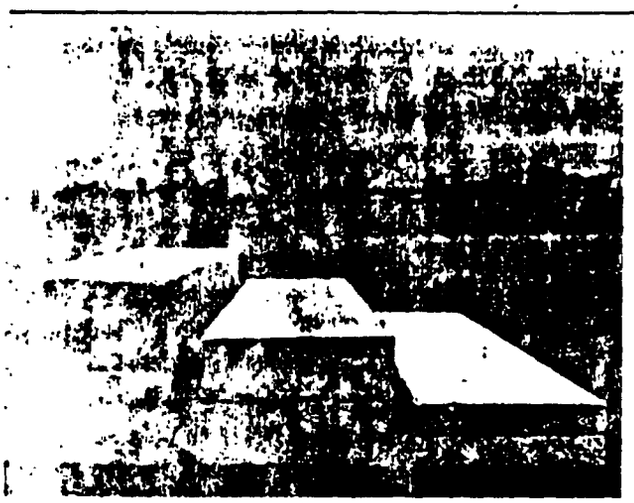
OWENS/CORNING FIBERGLAS

USN USCG

MIL-1-24244 (Ships) Int. Amend. 2, Type 3A & 3B
Mil-1-2819E Classes 1 & 2 Kaylo
20 MIL-1-2819E Class 3 Kaylo
164.009/64/1 Kaylo 10; 164.009/65/1 Kaylo 20
Marine D.12

Kaylo 10 & Kaylo 20 Block Insulation

rigid calcium silicate insulations for all types of heated equipment operating at temperatures up to 1800F.



uses

Kaylo 10* Block is for use on indoor or outdoor equipment operating at temperatures up to 1200F. Kaylo block is ideally suited for use on stainless steel vessels and equipment as it helps inhibit stress corrosion cracking. Typical applications are for boilers, breeching, tanks, vessels. Kaylo 10 Block is white in color.

Kaylo 20* with its high temperature limit of 1800F extends its use to include refractory wall backing for furnaces and boilers and fireproofing of equipment and vessel skirts.

description

Kaylo 10 and Kaylo 20 Block insulations are rigid hydrous calcium silicate heat insulations reinforced with asbestos fibers. They are strong, efficient and are highly resistant to abrasion and moisture damage. Kaylo 20 has a slightly pink color to distinguish it from Kaylo 10.

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benefits

high thermal efficiency—both Kaylo 10 and Kaylo 20 offer excellent thermal efficiency coupled with high strength. A low k of .40 for Kaylo 10 and .52 for Kaylo 20 at 200F mean temperature proves that Kaylo will provide significant savings in operating costs over the life of the equipment.

resistant to abrasion—Kaylo resists mechanical damage because of hard, tough, reinforced structure.

strong—less breakage in shipment and handling. High temperatures have little effect on strength characteristics.

will not cause stress corrosion cracking—Kaylo 10 will not cause stress corrosion cracking of stainless steel because Kaylo 10 contains less than 75 ppm soluble chlorides as well as an inhibitor which prevents trace quantities of chlorides from the atmosphere or other sources from causing cracking and possible failure of piping and equipment.

resistant to moisture damage—unlike many other insulations, Kaylo is not affected appreciably from moisture damage. It regains thermal efficiency and strength after drying out. Outdoor installations must be weatherproofed, however, for long continuous service.

dimensionally stable—Kaylo does not shrink appreciably in service, even at elevated temperatures. This means less heat leakage at the joints. And Kaylo will not warp or crack in service.

fabricates easily—ordinary insulators tools are all that is required to fabricate Kaylo. It cuts with a clean true edge for tighter fit at the joints. Fittings are neater, faster.

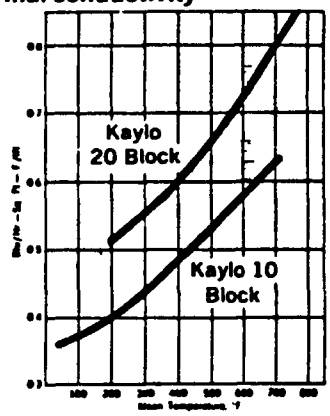
*Trademark Registered Owens-Corning Fiberglas Corporation

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Performance characteristics

	KAYLO 10	KAYLO 20
density:	11 pcf approx.	12 pcf. approx.
flexural strength: (ASTM C-203)	60 psi average	65 lb./sq. in.
compressive strength: (ASTM C 165) at 5% deformation	115 psi	110 psi
resistance to abrasion: (ASTM C-421)	after 10 minutes, 20% max.	
	after 20 minutes, 45% max.	
dimensional stability: (ASTM C-356)	linear shrinkage after heating for 24 hours in muffle at 1200F.—1.4% (Kaylo 10) for 24 hours in muffle at 1800F.—2.0% (Kaylo 20)	
hardness: (ASTM C-569	.60	.70

thermal conductivity



economic thickness*

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.

economic thickness— Kaylo 10 block to 1200 F—ambient still air 80 F

ET—economic thickness HL—heat loss
ST—surface temperature Btu/hr/lin/foot

THICK	200 F		300 F		400 F		500 F		600 F		700 F		800 F		900 F		1000 F		1100 F		1200 F	
	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.	HEAT LOSS	SURF. TEMP.
1.000	38	103	72	124	109	147																
1.500	27	96	51	111	78	127	107	145														
2.000	21	93	40	104	60	117	83	130	107	145												
2.500	17	90	33	100	49	110	68	121	87	133	109	146										
3.000	14	89	28	97	42	105	57	115	74	125	92	136	112	148								
3.500	13	88	24	95	36	102	49	110	64	119	80	129	97	139	116	150						
4.000	11	87	21	93	32	99	44	107	56	114	70	123	85	132	102	142	120	153				
4.500	10	86	19	91	28	97	39	104	50	111	63	118	76	127	91	136	107	145	125	156		
5.000	9	85	17	90	26	96	35	101	46	108	57	115	69	122	82	130	97	139	113	149	130	159
5.500	8	85	16	89	23	94	32	100	42	105	52	112	63	118	75	126	88	134	103	143	118	152
6.000	7	85	14	89	22	93	30	98	38	103	48	109	58	115	69	122	81	130	94	138	109	146

*calculated

Kaylo 20 Block to 1800 F—ambient still air 80 F

Operating Temp. F	Power ET	Power HL	Power ST	Process ET	Process HL	Process ST
1300	7½	111	136	6	135	148
1400	8	117	139	6½	143	152
1500	8	123	142	7	151	155
1600	8½	129	145	7	158	159
1700	9	135	148	7½	165	163
1800	9½	141	151	7½	172	166

sizes

thickness—1", 1½", 2", 2½", 3", 3½" and 4"
width—3", 6", 12" and 18"
length—18" to 36"
form—Block

beveled lags

For pipe sizes greater than those for which Kaylo 10 and Kaylo 20 Pipe Insulation sizes are available, Kaylo 10 and Kaylo 20 beveled lags may be used to insulate piping. Lags beveled to fit pipes from 18" to 72" in diameter are available in thickness of 1½," 2", 2½", 3". Lags are 36" long and 3" wide.

application recommendations

Kaylo 10 & 20 Block Insulations are held in place by mechanically fastening with bands, welded rods or studs. The insulation may be finished with a trowel coat of insulating cement, canvassed and painted. Outdoor installations require weatherproofing with mastic or metal jacketing.

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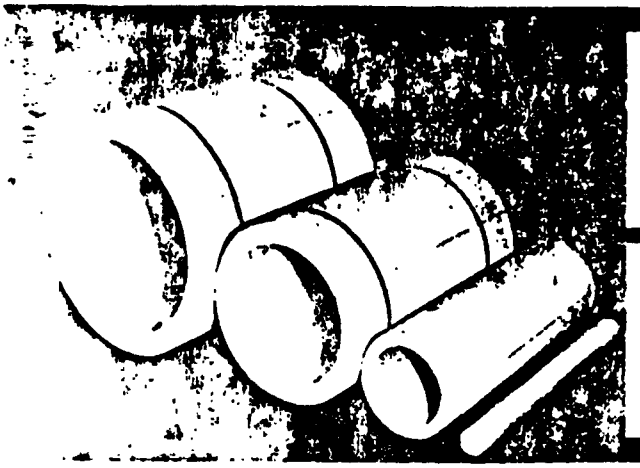
OWENS-CORNING FIBERGLAS CORPORATION
Industrial and Commercial Construction Materials Division
Fiberglas Tower, Toledo, Ohio 43601

Pub. No. 1-IN-4441 Litho in U.S.A. May, 1970

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CORNING FIBERGLAS

Pipe Insulation



Kaylo Pipe Insulation

for hot water heating, high temperature hot water, steam condensate piping systems and all heated lines to 1200F

uses

Kaylo is particularly suitable for use on high temperature piping systems where high performance and extended temperature range are required. Kaylo is widely used on hot piping where a great degree of physical abuse resistance is required, such as boiler and equipments rooms.

description

Kaylo Pipe Insulation is a rigid white hydrous calcium silicate insulation molded in sections for all types of indoor and outdoor piping that requires an abuse resistant, durable, efficient insulation, for temperatures up to 1200F.

benefits

rugged—Kaylo Pipe Insulation is a strong and rigid material that resists mechanical damage during shipping, installation and service. It is well suited for riser piping in exposed locations.

versatile—Kaylo's extended temperature range offers wider use for all hot piping to 1200F.

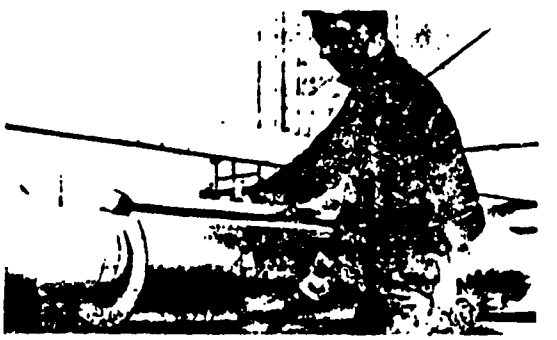
will not cause stress corrosion cracking—Kaylo will not cause stress corrosion cracking of stainless steel because Kaylo contains an inhibitor and has less than 200 ppm soluable chlorides.

unaffected by moisture—Kaylo can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out.



Kaylo Pipe Insulation cuts cleanly with straight square edges. The final result is well insulated piping with a neat finished appearance. Mitered fittings are finished with insulating cement and covered with canvas.

*T.M. REG. OCF CORP.



Kaylo Klad Pipe Insulation combines weatherproofing and insulation in one application. Attractive, maintenance-free factory-applied jackets of stainless steel and aluminum are complete with longitudinal locking seams and end joint butt strips.

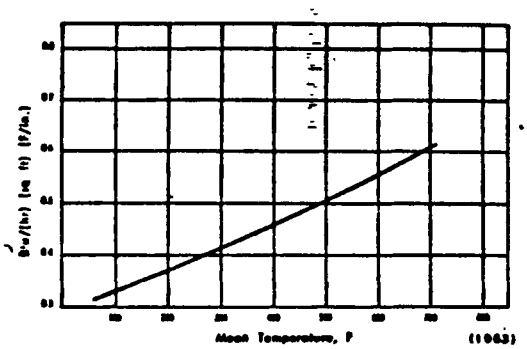
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physical properties

density.....approximately 11 lbs. per cu. ft.
flexural strength (ASTM C-203) over 50 lb. per sq. in.
resistance to abrasion
(conventional tumbling test-loss in weight after 10 min.)
before heating.....9%
after heating for 24 hours
at 750 F.....5%
at 1000 F.....4%
at 1200 F.....3%
alkalinity .....ph 10
dimensional stability
linear shrinkage after heating for 24 hours in muffle
at 750 F 0.8%
at 1000 F.....0.9%
at 1200 F.....1.4%
specific heat .....0.22 Btu/lb.F.

thermal conductivity



specification compliance

HH-I-00523b Insulation Block, Pipe Covering and Cement, Thermal, Calcium silicate (For temperatures up to 1200F) Type II (Pipe covering) Classes A thru E.

MIL-I-2781D Insulation Pipe Covering, Thermal, Grade 1, Class B; Grade 2, Class D; Grade 3, Class E, Type 1 and 2.

economic thickness—ambient air at 80F

Pipe Temp. / Temp. Diff. / IPS	200 / 120 ET	HL	ST	400 / 320 ET	HL	ST	600 / 520 ET	HL	ST
½	1	17	95	1½	40	106	2	63	113
¾	1	19	97	1½	47	110	2	71	117
1	1	20	95	1½	50	109	2½	70	107
1¼	1	26	99	2	52	104	2½	81	111
1½	1	27	98	2	55	104	2½	84	112
2	1	32	98	2	61	104	2½	96	112
2½	1½	26	90	2	64	103	3	94	105
3	1½	33	93	2	79	104	3	111	110
3½	1½	33	91	2½	72	99	3	115	108
4	1½	40	94	2½	83	107	3½	118	106
4½	1½	36	93	2½	82	102	3½	120	107
5	1½	43	95	2½	94	105	3½	137	110
6	2	46	91	3	98	100	4	140	104
7	2	47	92	3	104	103	4	155	107
8	2	55	91	3	115	100	4	169	106
9	2	56	92	3	123	102	4	182	110
10	2	65	91	3½	124	98	4	200	107
11	2	73	92	3½	133	98	4	205	107
12	2	81	92	3½	142	98	4½	210	105
14	2½	72	90	3½	157	99	5	213	103
16	3	70	88	4	159	97	6	207	99
18	3	78	88	5	147	92	6½	212	97
20	3	85	88	5	151	93	6½	229	98
24	3	100	89	5	176	93	6½	266	99

economic thickness

table key
ET—economic thickness (inches)
HL—heat loss (Btu/eff. hr)
ST—surface temperature (F)

importance of specifying economic thickness

Selection of insulation thicknesses for any specific application should take into consideration at least the following criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature difference. 7. Size of the pipe or surface. 8. Conductivity of insulation.

For hot piping, the tabulated thicknesses are optimum thicknesses calculated on an "Economic"* basis for heat conservation under average operating conditions and assure adequate temperature control. Special conditions may warrant the use of greater thicknesses.

*From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.
Economic thickness—Heated Piping to 1200F (80F ambient

sizes

Thickness—Kaylo Pipe Insulation is available in single layer thicknesses from 1" to 3" depending upon pipe size. Kaylo Copper Tubing Insulation is available in single layer thicknesses of ½ and 1½".

pipe sizes—Kaylo Pipe Insulation is available to fit nominal pipe sizes from ½" to 39" in diameter, and nominal copper tubing sizes from ⅜" to 3" in diameter. It is manufactured to Dimensional Standards Sizes to permit nesting in multiple-layer applications.

forms—Kaylo Pipe Insulation is available in sectional or multisegmental form depending upon pipe size. All insulation is furnished in 3 ft. sections.

jackets

Jackets are factory-applied on Sectional Pipe and Tube Insulation. On Multisegmental forms they are furnished but not adhered.

canvas—Kaylo Sectional Pipe Insulation includes standard canvas jackets, at no additional charge, on thicknesses up to and including 3" depending on pipe size.

6 oz. and 8 oz. canvas jackets are available for all types, sizes and thicknesses of Kaylo Pipe and Tube Insulation at an additional charge.

smooth and embossed aluminum—Kaylo is also available with smooth or embossed aluminum jacketing .016" thick; or stainless steel .010". These weatherproof jackets provide greater resistance to mechanical damage and present a neat finished appearance to outdoor pipe lines. The longitudinal seam has a self-locking joint. Butt sealing strips are furnished with an integral weatherproof mastic for sealing end joints. For additional information refer to Data Sheet on Kaylo Klad Pipe Insulation.

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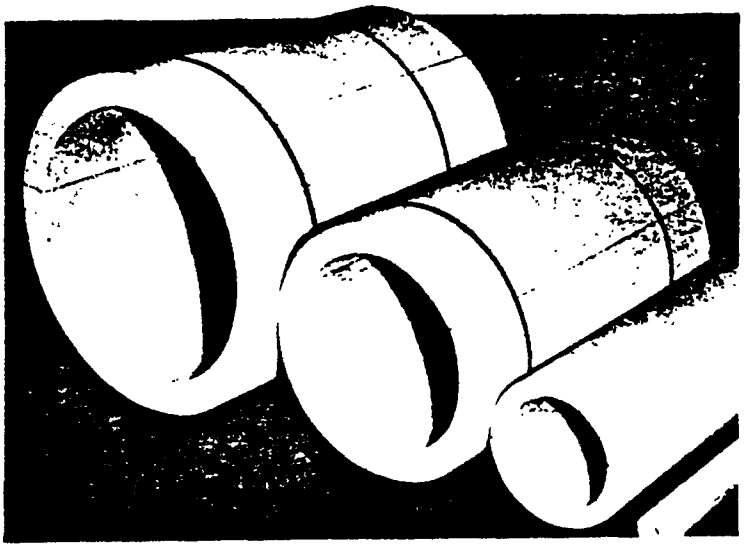
OWENS-CORNING FIBERGLAS CORPORATION
Industrial and Commercial Construction Materials Division, 717 Fifth Avenue, New York, New York 10022
General Offices, Toledo, Ohio 43601 • Pacific Coast Division, Santa Clara, California 95052

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OWENS-CORNING
FIBERGLAS

Kaylo pipe insulation



Designed for indoor or outdoor piping up to 1200° F. It is made of hydrous calcium silicate by Owens-Corning Fiberglas and contains no added binder. A small amount of asbestos fiber is added at time of manufacture for mechanical effects.

This thoroughly tested and field-proven material contains the physical properties most desired for efficient, durable insulation work. Kaylo* is moisture resistant and retains an appreciable amount of strength even after complete saturation in water. Its original efficiency returning after drying.

It is made to fit pipes up to 39" and copper tubing to 3⅛" diameter. All insulation is furnished in 3' sections. This insulation is available in thicknesses from 1" to 3" depending upon pipe size, and for tubing in a thickness of 1" and 1½". Check thickness standard data sheet for exact sizing.

JACKETS

CANVAS—Standard canvas jackets at no additional charge on thickness up to and including 2½". 6 oz. and 8 oz. canvas jackets are available on all types, sizes and thicknesses at additional charge.

*Trademark Owens-Corning Fiberglas Corp.

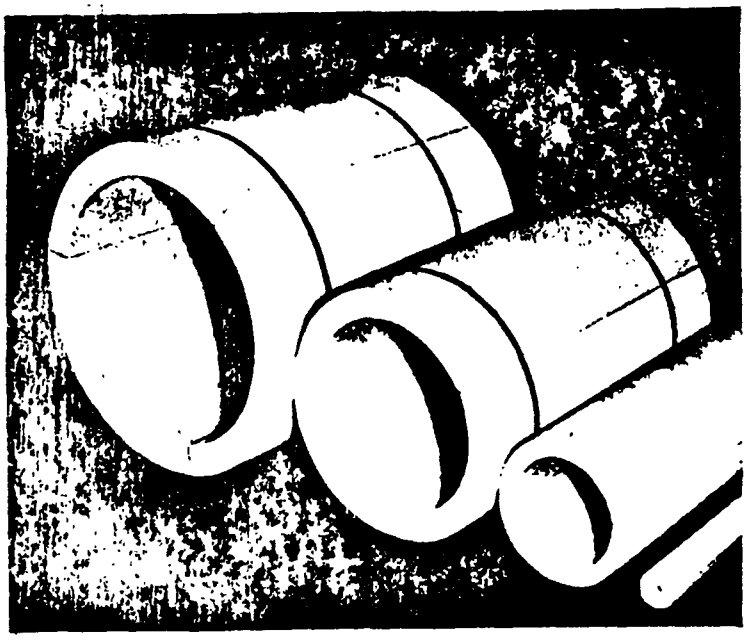
Pub. No. 15-IN-1318 Litho in U.S.A., October, 1959

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Kaylo pipe insulation

note:

high temperature insulation for indoor or outdoor piping up to 1200° F. operating temperature



(for temperatures ranging from 1200°F. to 1800°F., see Kaylo-20, page 26)

Kaylo® pipe insulation, a white, rigid hydrous calcium silicate heat insulation, manufactured by Owens-Illinois Glass Company and distributed nationally by Owens-Corning Fiberglas Corporation, effectively insulates indoor and outdoor piping to 1200°F. A chemically reacted material, Kaylo pipe insulation contains no added binder. For mechanical effects, a small amount of asbestos fiber is included at the time of manufacture.

This thoroughly tested and field-proven material contains the physical properties most desired for efficient, durable insulation work. It retains an appreciable percentage of its strength even after complete saturation in water, original efficiency returning after drying. The effectiveness, high strength and moisture resistance are unattained by most other insulating materials.

sizes

thickness—Kaylo Pipe Insulation is available in thicknesses from 1" to 3" depending upon pipe size. Kaylo Tube Insulation is available in thicknesses of 1" and 1½".

pipe sizes—Kaylo Pipe Insulation is available to fit pipe from ½" to 39" in diameter. Kaylo Tube Insulation will fit copper tubing from ½" to 3⅛" in diameter.

forms—Kaylo Pipe Insulation is available in sectional or multisegmental form depending upon pipe size. All insulation is furnished in 3' sections.



Kaylo Pipe Insulation presents a superior final appearance when applied to a variety of irregularly-shaped high temperature vessels.

jackets

canvas—Kaylo Sectional Pipe Insulation includes standard canvas jackets, at no additional charge, on thicknesses up to and including 2½". Standard canvas is available on segmental forms at a slight additional cost. Bands are available for use with this product at slight additional charge and will be furnished on request.

6 oz. and 8 oz. canvas jackets are available for all types, sizes and thicknesses of Kaylo Pipe and Tube Insulation at an additional charge. These jackets are factory applied on Sectional Pipe and Tube Insulation. On Multisegmental forms, they are furnished but not adhered.

limitations

Kaylo Pipe Insulation is designed for temperatures up to 1200°F. and is not recommended when operating temperatures of piping exceed this limit.

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insulation thickness standards—Kaylo and Kaylo-20

IRON PIPE SIZES

	nom. pipe size	O.D. of pipe	single layer only				single or double layer						multiple layer only							
			nom. 1"		nom. 1½"		nom. 2"		nom. 2½"		nom. 3"		nom. 3½"		nom. 4"		nom. 4½		nom. 5"	
			actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.
	½"	.84	1.00	2.88	1.56	4.00	2.06	5.00	2.89	6.66	3.39	7.66								
	¾"	1.05	.90	2.88	1.46	4.00	1.96	5.00	2.79	6.66	3.29	7.66								
	1"	1.32	1.08	3.50	1.58	4.50	2.11	5.56	2.66	6.66	3.16	7.66								
	1¼"	1.66	.90	3.50	1.66	5.00	1.94	5.56	2.48	6.66	2.98	7.66								
	1½"	1.90	1.03	4.00	1.53	5.00	2.36	6.66	2.86	7.66	3.36	8.86								
	2"	2.38	1.04	4.50	1.57	5.56	2.12	6.66	2.62	7.66	3.12	8.66	3.62	9.66	4.18	10.78	4.68	11.78	5.20	12.81
	2½"	2.88	1.04	5.00	1.87	6.66	2.37	7.66	2.87	8.66	3.37	9.66	3.93	10.78	4.43	11.78	4.95	12.81	5.57	14.06
	3"	3.50	1.00	5.56	1.55	6.66	2.05	7.66	2.55	8.66	3.05	9.66	3.61	10.78	4.11	11.78	4.63	12.81	5.25	14.06
Segmental	3½"	4.00	1.30	6.66	1.80	7.66	2.30	8.66	2.80	9.66	3.36	10.78	3.86	11.78	4.38	12.81	5.00	14.06	5.50	15.06
	4"	4.50	1.05	6.66	1.55	7.66	2.05	8.66	2.55	9.66	3.11	10.78	3.61	11.78	4.13	12.81	4.75	14.06	5.25	15.06
	4½"	5.00	1.30	7.66	1.80	8.66	2.30	9.66	2.86	10.78	3.36	11.78	3.88	12.81	4.50	14.06	5.00	15.06	5.51	16.09
	5"	5.56	1.02	7.66	1.52	8.66	2.02	9.66	2.58	10.78	3.08	11.78	3.59	12.81	4.22	14.06	4.72	15.06	5.23	16.09
	6"	6.63	.95	8.66	1.45	9.66	2.02	10.78	2.52	11.78	3.03	12.81	3.66	14.06	4.16	15.06	4.68	16.09	5.13	17.00
	7"	7.63			1.52	10.78	2.02	11.78	2.53	12.81	3.16	14.06	3.66	15.06	4.17	16.09	4.63	17.00	5.13	18.00
	8"	8.63			1.52	11.78	2.03	12.81	2.66	14.06	3.16	15.06	3.67	16.09	4.13	17.00	4.63	18.00	5.13	19.00
	9"	9.63			1.53	12.81	2.16	14.06	2.66	15.06	3.17	16.09	3.63	17.00	4.13	18.00	4.63	19.00	5.13	20.00
	10"	10.75			1.59	14.06	2.09	15.06	2.61	16.09	3.06	17.00	3.56	18.00	4.06	19.00	4.56	20.00	5.06	21.00
	11"	11.75			1.58	15.06	2.09	16.09	2.55	17.00	3.05	18.00	3.55	19.00	4.05	20.00	4.54	21.00	4.55	22.00
	12"	12.75			1.59	16.09	2.05	17.00	2.55	18.00	3.05	19.00	3.55	20.00	4.05	21.00	4.54	22.00	4.55	23.00
	14"	14.00			1.42	17.00	1.92	18.00	2.42	19.00	2.92	20.00	3.42	21.00	3.92	22.00	4.42	23.00	4.92	24.00
	15"	15.00			1.42	18.00	1.92	19.00	2.41	20.00	2.92	21.00	3.42	22.00	3.92	23.00	4.41	24.00	4.92	25.00
	16"	16.00			1.41	19.00	1.91	20.00	2.41	21.00	2.91	22.00	3.41	23.00	3.91	24.00	4.41	25.00	4.91	26.00
	17"	17.00			1.41	20.00	1.91	21.00	2.41	22.00	2.91	23.00	3.41	24.00	3.91	25.00	4.41	26.00	4.91	27.00
	18"	18.00			1.41	21.00	1.91	22.00	2.41	23.00	2.91	24.00	3.41	25.00	3.91	26.00	4.41	27.00	4.91	28.00
Tri-Segmental	19"	19.00			1.41	22.00	1.91	23.00	2.41	24.00	2.91	25.00	3.41	26.00	3.91	27.00	4.41	28.00	4.91	29.00
	20"	20.00			1.41	23.00	1.91	24.00	2.41	25.00	2.91	26.00	3.41	27.00	3.91	28.00	4.41	29.00	4.91	30.00
	21"	21.00			1.41	24.00	1.91	25.00	2.41	26.00	2.91	27.00	3.41	28.00	3.89	29.00	4.41	30.00	4.91	31.00
	22"	22.00			1.41	25.00	1.91	26.00	2.41	27.00	2.91	28.00	3.39	29.00	3.89	30.00	4.41	31.00	4.91	32.00
	23"	23.00			1.41	26.00	1.91	27.00	2.41	28.00	2.91	29.00	3.39	30.00	3.89	31.00	4.41	32.00	4.91	33.00
ad. Seg.	24"	24.00			1.41	27.00	1.91	28.00	2.41	29.00	2.91	30.00	3.39	31.00	3.89	32.00	4.41	33.00	5.00	34.00
	25"	25.00			1.46	28.00	1.98	29.00	2.50	30.00	3.02	31.00	3.44	32.00	3.96	33.00	4.48	34.00	5.00	35.00
	26"	26.00			1.46	29.00	1.98	30.00	2.50	31.00	3.02	32.00	3.44	33.00	3.96	34.00	4.48	35.00	5.00	36.00
	27"	27.00			1.46	30.00	1.98	31.00	2.50	32.00	3.02	33.00	3.44	34.00	3.96	35.00	4.48	36.00	5.00	37.00
	28"	28.00			1.46	31.00	1.98	32.00	2.50	33.00	3.02	34.00	3.44	35.00	3.96	36.00	4.48	37.00	5.00	38.00
	29"	29.00			1.46	32.00	1.98	33.00	2.50	34.00	3.02	35.00	3.44	36.00	3.96	37.00	4.48	38.00	5.00	39.00
	30"	30.00			1.46	33.00	1.98	34.00	2.50	35.00	3.02	36.00	3.44	37.00	3.96	38.00	4.48	39.00	5.00	40.00
	31"	31.00			1.46	34.00	1.98	35.00	2.50	36.00	3.02	37.00	3.44	38.00	3.96	39.00	4.48	40.00	5.00	41.00
	32"	32.00			1.46	35.00	1.98	36.00	2.50	37.00	3.02	38.00	3.44	39.00	3.98	40.00	4.48	41.00	5.00	42.00
	33"	33.00			1.46	36.00	1.98	37.00	2.50	38.00	3.02	39.00	3.48	40.00	3.98	41.00	4.48	42.00	5.00	43.00
K-Segmental	34"	34.00			1.46	37.00	1.98	38.00	2.50	39.00	3.02	40.00	3.48	41.00	3.98	42.00	4.48	43.00	5.00	44.00
	35"	35.00			1.46	38.00	1.98	39.00	2.50	40.00	3.02	41.00	3.48	42.00	3.98	43.00	4.48	44.00	5.00	45.00
	36"	36.00			1.46	39.00	1.98	40.00	2.50	41.00	3.02	42.00	3.48	43.00	3.98	44.00	4.48	45.00	5.00	46.00
	37"	37.00			1.46	40.00	1.98	41.00	2.50	42.00	3.02	43.00	3.48	44.00	3.98	45.00	4.48	46.00	5.00	47.00
	38"	38.00			1.46	41.00	1.98	42.00	2.50	43.00	3.02	44.00	3.48	45.00	3.98	46.00	4.48	47.00	5.00	48.00
	39"	39.00			1.46	42.00	1.98	43.00	2.50	44.00	3.02	45.00	3.48	46.00	3.98	47.00	4.48	48.00	5.00	49.00

Note: Sizes above 3" available in multiple layers.

Insulation for the nominal pipe size range of 25"-39" is furnished to fit a range of 5 pipe sizes. The last segment applied must be cut to fit accurately.

COPPER TUBING

nom. tube size	O. D. of tube (nom.)	single layer			
		nom. 1"		nom. 1½"	
		actual	O.D.	actual	O.D.
⅜"	½"	1.18	2.88	1.49	3.50
½"	⅝"	1.11	2.88	1.42	3.50
⅝"	¾"	1.05	2.88	1.61	4.00
¾"	⅞"	.99	2.88	1.55	4.00
1"	1⅛"	1.17	3.50	1.42	4.00
1¼"	1⅜"	1.05	3.50	1.55	4.50
1½"	1⅝"	1.17	4.00	1.42	4.50
2"	2⅛"	.91	4.00	1.41	5.00
2½"	2⅝"	.91	4.50	1.45	5.56
3"	3⅛"	.91	5.00	1.73	6.66

PRODUCED
JM - 83

Owens-Corning Fiberglas Corporation

GENERAL OFFICES AND GENERAL PRODUCTS, Toledo, Ohio PACIFIC COAST, Santa Clara, Calif TEXTILE PRODUCTS, New York, N.Y.

PUB. NO. 1-IN-893

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OWENS-CORNING FIBERGLAS

Customer Service Technical Report

KAYLO PIPE INSULATION

Sizes, Forms and Thicknesses
(Supplement to IN1.C5)

No. 2-IN-267
Date May 1, 1957
Customer
Requested by Houston Branch
Prepared by Industrial Insulation Division

The table below indicates the range of sizes and forms in which Kaylo Pipe Insulation is available.

nom. pipe size	O.D. of pipe	single layer only				single or double layer						multiple layer only							
		nom. 1"		nom. 1½"		nom. 2"		nom. 2½"		nom. 3"		nom. 3½"		nom. 4"		nom. 4½"		nom. 5"	
		actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.	actual	O.D.
½"	.84	1.00	2.88	1.36	4.00	2.06	5.00	2.89	6.66	3.39	7.66								
¾"	1.05	.90	2.88	1.46	4.00	1.96	5.00	2.79	6.66	3.29	7.66								
1"	1.32	1.08	3.50	1.58	4.50	2.11	5.56	2.66	6.66	3.16	7.66								
1¼"	1.66	.90	3.50	1.66	5.00	1.94	5.56	2.48	6.66	2.98	7.66								
1½"	1.90	1.03	4.00	1.53	5.00	2.36	6.66	2.86	7.66	3.36	8.86								
2"	2.38	1.04	4.50	1.57	5.56	2.12	6.66	2.62	7.66	3.12	8.66	3.62	9.66	4.18	10.78	4.68	11.78	5.20	12.81
2½"	2.88	1.04	5.00	1.87	6.66	2.37	7.66	2.87	8.66	3.37	9.66	3.93	10.78	4.43	11.78	4.95	12.81	5.57	14.06
3"	3.50	1.00	5.56	1.55	6.66	2.05	7.66	2.55	8.66	3.05	9.66	3.61	10.78	4.11	11.78	4.63	12.81	5.25	14.06
3½"	4.00	1.30	6.66	1.80	7.66	2.30	8.66	2.80	9.66	3.36	10.78	3.86	11.78	4.38	12.81	5.00	14.06	5.50	15.06
4"	4.50	1.05	6.66	1.55	7.66	2.05	8.66	2.55	9.66	3.11	10.78	3.61	11.78	4.13	12.81	4.75	14.06	5.25	15.06
4½"	5.00	1.30	7.66	1.80	8.66	2.30	9.66	2.86	10.78	3.36	11.78	3.88	12.81	4.50	14.06	5.00	15.06	5.51	16.09
5"	5.56	1.02	7.66	1.52	8.66	2.02	9.66	2.58	10.78	3.08	11.78	3.59	12.81	4.22	14.06	4.72	15.06	5.23	16.09
6"	6.63	.95	8.66	1.45	9.66	2.02	10.78	2.52	11.78	3.03	12.81	3.66	14.06	4.16	15.06	4.68	16.09	5.13	17.00
7"	7.63			1.52	10.78	2.02	11.78	2.53	12.81	3.16	14.06	3.66	15.06	4.17	16.09	4.63	17.00	5.13	18.00
8"	8.63			1.52	11.78	2.03	12.81	2.66	14.06	3.16	15.06	3.67	16.09	4.13	17.00	4.63	18.00	5.13	19.00
9"	9.63			1.53	12.81	2.16	14.06	2.66	15.06	3.17	16.09	3.63	17.00	4.13	18.00	4.63	19.00	5.13	20.00
10"	10.75			1.59	14.06	2.09	15.06	2.61	16.09	3.06	17.00	3.56	18.00	4.06	19.00	4.56	20.00	5.06	21.00
11"	11.75			1.58	15.06	2.09	16.09	2.55	17.00	3.05	18.00	3.55	19.00	4.05	20.00	4.54	21.00	4.55	22.00
12"	12.75			1.59	16.09	2.05	17.00	2.55	18.00	3.05	19.00	3.55	20.00	4.05	21.00	4.54	22.00	4.55	23.00
14"	14.00			1.42	17.00	1.92	18.00	2.42	19.00	2.92	20.00	3.42	21.00	3.92	22.00	4.42	23.00	4.92	24.00
15"	15.00			1.42	18.00	1.92	19.00	2.41	20.00	2.92	21.00	3.42	22.00	3.92	23.00	4.41	24.00	4.92	25.00
16"	16.00			1.41	19.00	1.91	20.00	2.41	21.00	2.91	22.00	3.41	23.00	3.91	24.00	4.41	25.00	4.91	26.00
17"	17.00			1.41	20.00	1.91	21.00	2.41	22.00	2.91	23.00	3.41	24.00	3.91	25.00	4.41	26.00	4.91	27.00
18"	18.00			1.41	21.00	1.91	22.00	2.41	23.00	2.91	24.00	3.41	25.00	3.91	26.00	4.41	27.00	4.91	28.00
19"	19.00			1.41	22.00	1.91	23.00	2.41	24.00	2.91	25.00	3.41	26.00	3.91	27.00	4.41	28.00	4.91	29.00
20"	20.00			1.41	23.00	1.91	24.00	2.41	25.00	2.91	26.00	3.41	27.00	3.91	28.00	4.41	29.00	4.91	30.00
21"	21.00			1.41	24.00	1.91	25.00	2.41	.0	2.91	27.00	3.41	28.00	3.89	29.00	4.41	30.00	4.91	31.00
22"	22.00			1.41	25.00	1.91	26.00	2.41	27.00	2.91	28.00	3.39	29.00	3.89	30.00	4.41	31.00	4.91	32.00
23"	23.00			1.41	26.00	1.91	27.00	2.41	28.00	2.91	29.00	3.39	30.00	3.89	31.00	4.41	32.00	4.91	33.00
24"	24.00			1.41	27.00	1.91	28.00	2.41	29.00	2.91	30.00	3.39	31.00	3.89	32.00	4.41	33.00	5.00	34.00
25"	25.00			1.46	28.00	1.98	29.00	2.50	30.00	3.02	31.00	3.44	32.00	3.96	33.00	4.48	34.00	5.00	35.00
26"	26.00			1.46	29.00	1.98	30.00	2.50	31.00	3.02	32.00	3.44	33.00	3.96	34.00	4.48	35.00	5.00	36.00
27"	27.00			1.46	30.00	1.98	31.00	2.50	32.00	3.02	33.00	3.44	34.00	3.96	35.00	4.48	36.00	5.00	37.00
28"	28.00			1.46	31.00	1.98	32.00	2.50	33.00	3.02	34.00	3.44	35.00	3.96	36.00	4.48	37.00	5.00	38.00
29"	29.00			1.46	32.00	1.98	33.00	2.50	34.00	3.02	35.00	3.44	36.00	3.96	37.00	4.48	38.00	5.00	39.00
30"	30.00			1.46	33.00	1.98	34.00	2.50	35.00	3.02	36.00	3.44	37.00	3.96	38.00	4.48	39.00	5.00	40.00
31"	31.00			1.46	34.00	1.98	35.00	2.50	36.00	3.02	37.00	3.44	38.00	3.96	39.00	4.48	40.00	5.00	41.00
32"	32.00			1.46	35.00	1.98	36.00	2.50	37.00	3.02	38.00	3.44	39.00	3.98	40.00	4.48	41.00	5.00	42.00
33"	33.00			1.46	36.00	1.98	37.00	2.50	38.00	3.02	39.00	3.48	40.00	3.98	41.00	4.48	42.00	5.00	43.00
34"	34.00			1.46	37.00	1.98	38.00	2.50	39.00	3.02	40.00	3.48	41.00	3.98	42.00	4.48	43.00	5.00	44.00
35"	35.00			1.46	38.00	1.98	39.00	2.50	40.00	3.02	41.00	3.48	42.00	3.98	43.00	4.48	44.00	5.00	45.00
36"	36.00			1.46	39.00	1.98	40.00	2.50	41.00	3.02	42.00	3.48	43.00	3.98	44.00	4.48	45.00	5.00	46.00
37"	37.00			1.46	40.00	1.98	41.00	2.50	42.00	3.02	43.00	3.48	44.00	3.98	45.00	4.48	46.00	5.00	47.00
38"	38.00			1.46	41.00	1.98	42.00	2.50	43.00	3.02	44.00	3.48	45.00	3.98	46.00	4.48	47.00	5.00	48.00
39"	39.00			1.46	42.00	1.98	43.00	2.50	44.00	3.02	45.00	3.48	46.00	3.98	47.00	4.48	48.00	5.00	49.00

Sectional
Tri-segmental
Quad-segmental
K-segmental

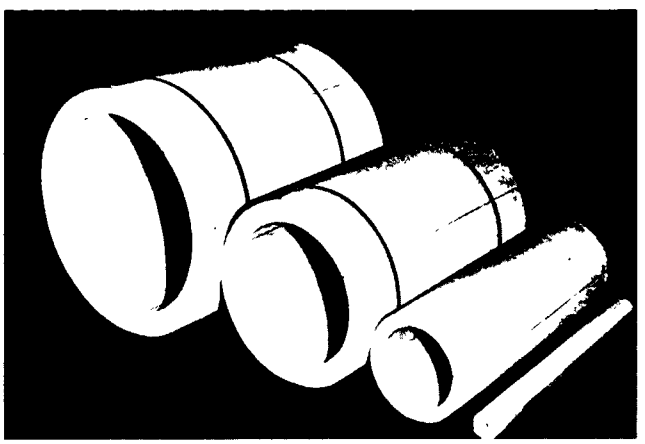
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OWENS/CORNING
FIBERGLAS
TRADEMARK

Commercial D.11
April, 1970

Kaylo 10 Pipe Insulation

For hot water heating, high temperature hot water, steam condensate piping systems and all heated lines to 1200 F.



uses

Kaylo 10* is particularly suitable for use on high temperature piping systems where high performance and extended temperature range are required. Kaylo 10 is widely used on hot piping where a great degree of physical abuse resistance is required, such as boiler and equipments rooms.

description

Kaylo 10 Pipe Insulation is a rigid white hydrous calcium silicate insulation molded in sections for all types of indoor and outdoor piping that requires an abuse resistant, durable, efficient insulation, for temperatures up to 1200F.

benefits

rugged—Kaylo 10 Pipe Insulation is a strong and rigid material that resists mechanical damage during shipping, installation and service It is well suited for riser piping in exposed locations

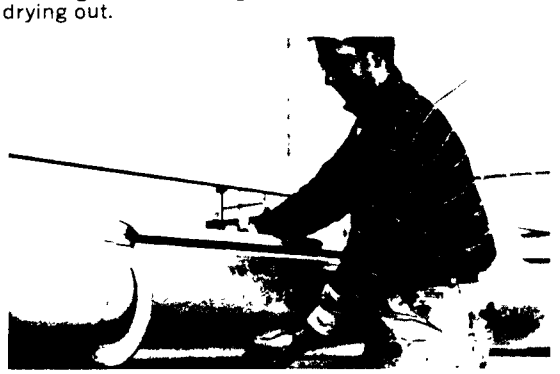
versatile Kaylo's extended temperature range offers broader use for all hot piping to 1200F.

will not cause stress corrosion cracking—Kaylo 10 will not cause stress corrosion cracking of stainless steel because Kaylo 10 contains an inhibitor and has less than 75 ppm soluble chlorides.

unaffected by moisture—Kaylo 10 can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out.



Kaylo 10 Pipe Insulation cuts cleanly with straight square edges. The final result is well insulated piping with a neat finished appearance. Mitered fittings are finished with insulating cement and covered with canvas

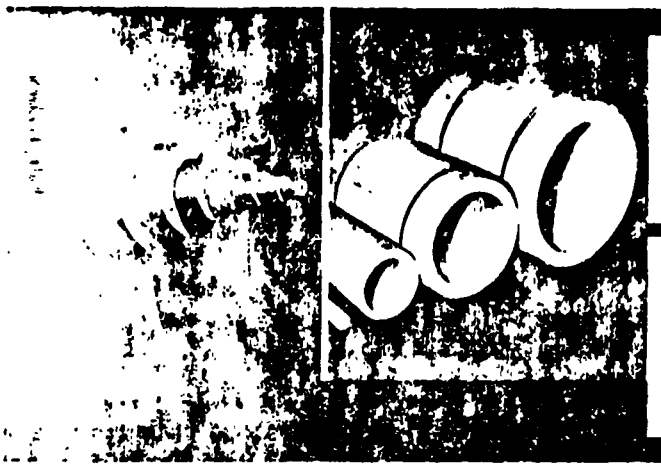


Kaylo 10 Klad Pipe Insulation combines weatherproofing and insulation in one application. Attractive, maintenance-free factory-applied jackets of stainless steel and aluminum are complete with longitudinal locking seams and end joint butt strips.

*Kaylo is a registered trademark of Owens-Corning Fiberglas Corp.

power & process piping systems 5.4
July, 1968

Pipe Insulation



Kaylo 10 STS Pipe Insulation

for hot stainless steel piping up to 1200 degree F.

hot cabu
new product

The problem of stress corrosion cracking of stainless steel and subsequent pipe failure has been attributed to a combination of fabrication on pressure stresses, coupled with, or accelerated by, chlorides deposited on the pipe surface by water leaking through the weather proof finishes. Papers* written on this subject also indicate that the problem occurs in a certain temperature range.

There is no proof that these soluble chlorides are the only cause of this phenomenon, but laboratory tests over extended periods of time indicate that cracking occurs much more readily when soluble chlorides are present. This is why Owens-Corning Fiberglas has developed Kaylo† 10 STS Pipe Insulation using special inhibitors which will help slow down the reaction of the chlorides on stainless steel, reducing the hazard of stress corrosion cracking until the source of the leak or chlorides can be repaired. Please note that Kaylo 10 STS should not be used as a means of preventing stress corrosion cracking. It will not serve as a substitute for proper initial system design and proper maintenance.

*"Another Look At The Stress Corrosion Cracking Of Stainless Steel Under Thermal Insulation." W. G. Ashbaugh. Paper presented at 20th Anniversary Conference, National Association Of Corrosion Engineers, March, 1964, Chicago.

uses

Designed for use on hot Type 304 austenitic stainless steel process piping operating at temperatures up to 1200° F., indoors or out, when protected with a weather proof jacket.

description

Kaylo 10 STS Pipe Insulation is a rigid hydrous calcium silicate high temperature insulation. It contains special inhibitors which help retard the stress corrosion cracking of stainless steel resulting from chloride contamination. The insulation sections are gray in color with a wide black longitudinal stripe on the outer surface.

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benefits

lower operating costs—Kaylo 10 STS Pipe Insulation has good thermal efficiency. The low k factor of .40 at 200°F. mean temperature means lower operating cost, better temperature control for process operations.

rugged—Kaylo 10 STS Pipe Insulation is tough and rigid and will resist most mechanical abuse in shipping, handling and in service.

does not contribute to stress corrosion cracking—the Kaylo 10 STS material itself will not contribute to stress corrosion cracking of stainless steel because it contains an inhibitor, and has less than 200 ppm residual soluble chlorides. It will not crack when subjected to the 6 day Dana Stress Corrosion Cracking Test.

unaffected by moisture—Kaylo can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out. However, long periods of exposure to moisture may reduce the effectiveness of the inhibitors.

clean, neat installation—Kaylo cuts cleanly leaving a sharp square edge for neater appearance on fittings.

variety of jackets—a variety of factory applied jackets allows a selection of product for indoor finished appearance or for weatherproofing insulation on outdoor lines. Proper attention should be paid to the selection of accessory materials such as cements, adhesives, etc., to avoid chloride contamination from these sources.

nesting sizes—Kaylo 10 STS Pipe Insulations are manufactured to Simplified Dimensional Standards to permit nesting sizes for double layer applications. Material for double layer application is nested and shipped in matched sections.

†Kaylo is a registered trademark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corp.

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economic thickness* — KAYLO 10 STS pipe insulation

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria: 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation — plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

for hot piping, the tabulated thicknesses are optimum thicknesses calculated on an "Economic"* basis for heat conservation under average operating conditions and assures adequate temperature control. Special conditions may warrant the use of other thicknesses.

**From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.*

table key

ET — economic thickness
ST — surface temperature
HL — heat loss...Btu/hr/lineal foot

power & utility piping to 1200F—(80F ambient still air)

PIPE TEMP.		200			400			600			800			1000			1200		
TEMP. DIFF.		120			320			520			720			920			1120		
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	17	94	1	48	119	1½	71	121	1½	108	143	2	139	145	2½	168	139
¾	1	20	97	1	57	127	1½	81	127	2	109	131	2	157	153	2½	187	145
1	1	21	94	1	60	120	1½	88	126	2	118	130	2½	153	134	3	196	140
1¼	1	27	98	1	76	131	1½	98	126	2	139	138	2½	177	142	3	224	148
1½	1	28	96	1	78	125	1½	111	132	2½	124	118	2½	178	134	3	227	141
2	1	32	97	1½	72	110	1½	126	133	2½	147	125	2½	210	144	3	265	151
2½	1	37	97	1½	73	106	2	113	114	2½	156	122	3	206	130	3½	262	137
3	1	44	98	1½	94	113	2	140	123	2½	189	131	3	244	139	3½	306	146
3½	1	44	94	1½	94	109	2	143	119	3	175	118	3½	232	126	4	298	134
4	1	52	98	1½	113	114	2½	145	115	3	197	123	3½	259	131	4	330	140
4½	1	49	95	1½	111	110	2½	145	111	3	202	120	3½	265	128	4	335	135
5	1	63	99	1½	135	116	2½	167	116	3	229	125	3½	298	134	4	371	142
6	1	77	101	2	128	108	2½	194	118	3	263	128	3½	333	135	4½	396	138
7	1½	62	93	2	143	108	2½	215	119	3	283	127	3½	370	137	4½	434	139
8	1½	69	94	2	157	109	2½	228	118	3½	282	121	4	370	131	4½	472	141
9	1½	75	94	2	164	107	2½	249	118	3½	306	122	4	400	132	5	476	135
10	1½	80	93	2	184	108	3	245	114	3½	336	124	4	439	134	5	519	138
11	1½	87	94	2	198	109	3	264	114	3½	362	124	4	472	135	5	556	139
12	1½	93	93	2	216	110	3	282	115	4	351	119	4½	462	129	5	590	140
14	1½	111	95	2½	206	105	3	314	117	4	386	121	4½	506	131	5½	611	137
16	1½	126	95	2½	232	106	3	353	117	4	431	122	4½	564	133	5½	677	138
18	1½	140	96	2½	257	106	3	391	118	4	475	123	4½	620	134	5½	742	140
20	1½	154	96	2½	282	106	3	428	118	4	518	123	4½	676	134	5½	807	144
24	1½	183	96	2½	332	107	3½	441	113	4½	549	119	5	723	130	6	860	136

process piping to 1200F—(80F ambient still air)

PIPE TEMP.		200			400			600			800			1000			1200		
TEMP. DIFF.		120			320			520			720			920			1120		
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	17	94	1	48	119	1	85	149	1	129	185	1	184	229	1½	211	203
¾	1	20	97	1	57	127	1	101	162	1	153	204	1	217	256	1½	242	221
1	1	21	94	1	60	120	1	106	150	1	161	187	1½	193	180	1½	263	216
1¼	1	27	98	1	76	131	1	133	169	1	203	215	1½	214	180	1½	293	217
1½	1	28	96	1	78	125	1	136	159	1½	169	159	1½	241	192	1½	329	233
2	1	32	97	1	91	127	1	159	162	1½	193	161	1½	275	195	2	321	193
2½	1	37	97	1	104	128	1½	130	125	1½	198	149	2	248	156	2	340	184
3	1	44	98	1	124	132	1½	166	138	1½	253	169	2	306	173	2½	370	180
3½	1	44	94	1	116	121	1½	166	131	1½	254	157	2	313	164	2½	382	172
4	1	52	98	1	146	131	1½	200	141	2	255	149	2	364	178	2½	436	185
4½	1	49	95	1	138	122	1½	196	133	2	256	142	2	365	168	2½	437	174
5	1	63	99	1	177	134	1½	238	144	2	301	153	2	429	183	2½	501	188
6	1	77	101	1½	161	119	1½	284	148	2	346	155	2	493	197	2½	582	195
7	1½	62	93	1½	175	118	1½	309	147	2	386	156	2½	470	186	2½	644	197
8	1½	69	94	1½	194	118	1½	342	148	2	423	157	2½	500	193	3	608	174
9	1½	75	94	1½	212	118	1½	372	148	2	443	153	2½	544	164	3	659	175
10	1½	80	93	1½	226	117	2	324	130	2½	422	141	2½	602	167	3½	661	166
11	1½	87	94	1½	246	118	2	350	131	2½	462	143	2½	660	170	3½	711	167
12	1½	93	93	1½	262	118	2	382	132	2½	494	144	2½	706	171	3½	758	168
14	1½	111	95	1½	311	123	2	434	136	2½	556	148	2½	793	177	3½	839	173
16	1½	126	95	1½	354	123	2	492	137	2½	627	150	2½	894	179	3½	940	175
18	1½	140	96	1½	394	124	2	546	138	2½	694	150	3	855	163	3½	1036	177
20	1½	154	96	1½	434	124	2	600	138	2½	761	151	3	936	164	3½	1133	178
24	1½	183	96	1½	514	124	2	708	139	2½	896	152	3	1098	165	3½	1325	180

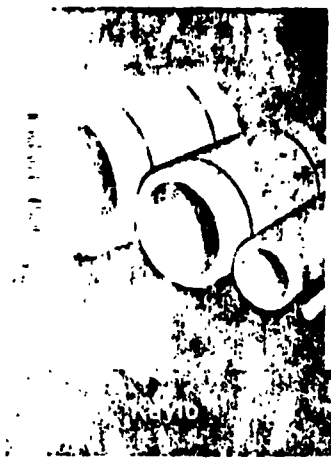
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Pipe Insulation





Kaylo & Kaylo 20 Pipe Insulations

rigid hydrous calcium silicate pipe insulations for heated piping up to 1800F.

uses

Standard Kaylo is recommended for use on heated piping operating up to 1200F and Kaylo 20 extends the temperature range to 1800F. These thoroughly field-tested insulations have the physical properties most desirable for efficient, durable work for indoor and outdoor, power and process piping. A variety of jackets are available for surface finish and weatherproofing.

description

Kaylo® & Kaylo 20® pipe insulations are rigid hydrous calcium silicate heat insulations for use on all heated piping up to 1800F — indoors and out. These products are precision molded in sections or segments from a chemical reacted material. A small amount of asbestos fiber is added to improve mechanical strength. Kaylo is white. Kaylo 20 has a slight pinkish color to distinguish it from Kaylo.

benefits

lower operating costs — Kaylo Insulations have exceptional thermal efficiency. The low k factor of .37 at 200 mean temperature means lower operating cost, better temperature control for process operations.

rugged — Kaylo Pipe Insulations are strong and rigid to resist mechanical abuse in shipping, handling and in service

versatile — Kaylo's extended temperature range covers a broad number of uses with one material. All heated piping requirements to 1800F and in sizes from ½" to 30" IPS can be met with Kaylo and Kaylo 20.

will not cause stress corrosion cracking — Kaylo will not cause stress corrosion cracking of stainless steel because Kaylo contains an inhibitor, and has a low 70F water soluble chlorides.

unaffected by moisture — Kaylo can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out.

clean, neat installation — Kaylo cuts cleanly leaving a sharp square edge for neater appearance on fittings. Rigid manufacturing tolerances assure uniform, smooth, unbroken joints.

variety of jackets — A variety of factory-applied jackets allows a selection of product for indoor finished appearance or for weatherproofing insulation on outdoor lines.

nesting sizes — Kaylo and Kaylo 20 pipe insulations are manufactured to Simplified Dimensional Standards to permit nesting sizes for double layer applications.

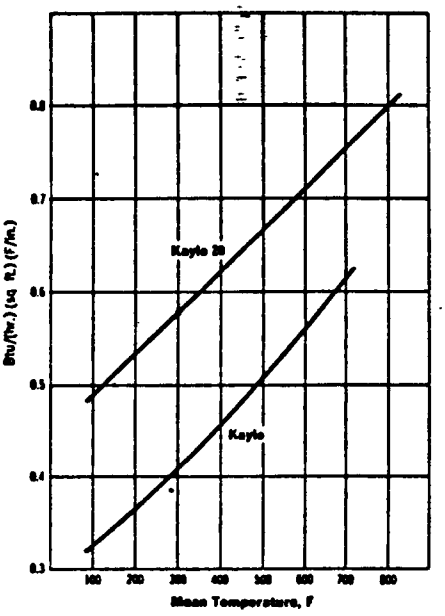
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physical properties

	Kaylo	Kaylo 20
density approximately	11 lb. pcf.	12 lb. pcf.
flexural strength (ASTM C-203)	50 lbs./sq. in.	90 lbs./sq. in.
compressive strength (ASTM C-165) at 5% deformation	120 psi	130 psi
resistance to abrasion (Conventional tumbling test-loss in weight after 10 min.) before heating	9%	3%
after heating for 24 hr. at	750° — 5%	1200F — 5%
at	1000° — 4%	1800F — 20%
at	1200° — 3%	
alkalinity	ph 10	ph 10
corrosion resistance	does not cause or accelerate corrosion of steel, aluminum or stainless steel	
dimensional stability linear shrinkage after heating for 24 hrs. in a muffle at	750° — 0.8%	1200° — 0.7%
at	1000° — 0.9%	1800° — 1.6%
at	1200° — 1.4%	
specific heat	0.22 btu/lb.F	0.22 btu/lb.F
thermal diffusivity sq. ft./hr. at 200F mean Temp.	0.012	0.016

thermal conductivity



sizes

thickness — Kaylo Pipe Insulation is available in single or double layer thicknesses from 1" to 3" depending upon pipe size. Kaylo Tube Insulation is available in single layer thicknesses of 1" and 1½".

pipe sizes — Kaylo Pipe Insulation is available to fit nominal pipe sizes from ½" to 39" in diameter. Kaylo Tube Insulation will fit nominal copper tubing sizes from ⅜" to 3" in diameter.

forms — Kaylo Pipe Insulation is available in sectional or multisegmental form depending upon pipe size. All insulation is furnished in 3 ft. sections.

jackets

canvas — Kaylo Sectional Pipe Insulation includes standard canvas jackets, at no additional charge, on thicknesses up to and including 3", depending on pipe size. Standard canvas is available for segmental forms at a slight additional cost. Bands are available for use with this product at slight additional charge and will be furnished on request.

6 oz. and 8 oz. canvas jackets are available for all types, sizes and thicknesses of Kaylo Pipe and Tube Insulation at an additional charge. These jackets are factory applied on Sectional Pipe and Tube Insulation. On Multisegmental forms, they are furnished but not adhered.

Kaylo Klad — Kaylo is also available with an embossed aluminum jacket .016" thick or .010" thick stainless steel jacket. These jackets provide greater resistance to mechanical damage and present a neat finished appearance to pipe lines. The longitudinal seam has a self-locking joint. Butt sealing strips with integral mastic and protective asbestos cover are furnished for sealing end joints. See data sheet—for complete information on Kaylo Klad.

federal specification compliance

HH-I-00323b — Insulation Block and Pipe Covering, Thermal (Calcium Silicate for Temperatures up to 1200F) Type II (pipe insulation) Class A thru E.

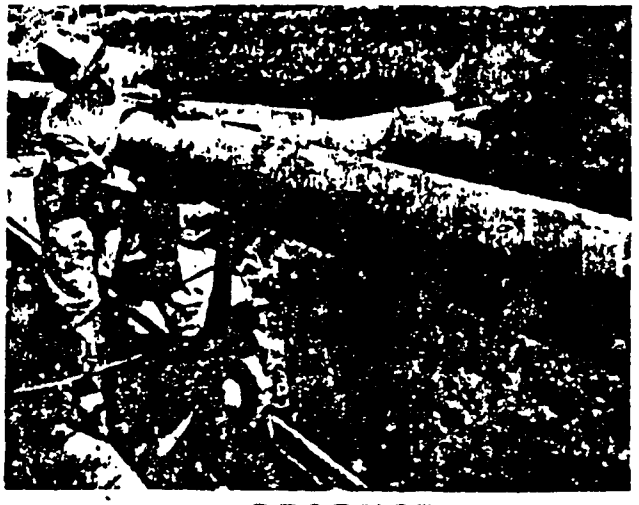
MIL-I-2781D (Int. Amend. 1) — Insulation Pipe Covering, Thermal: Grade 1, Class b; Grade II, Class d; Grade III, Class e, Type I & II.

application recommendations

outdoor lines — Kaylo Pipe Insulations are mechanically fastened by wiring in place using 16 gauge wire on 9" centers and subsequently covered with a weatherproof jacket of metal or 45 lb. roofing felt. See Application Specifications for complete details.

indoor lines — Kaylo for indoor piping work is furnished with a factory-applied canvas jacket and held in place with bands or wire. The jacket has overlapping joint flaps that are smoothly pasted in place. Canvas should be sized to provide a base for painting.

fittings — Fitting are insulated with mitered segments of Kaylo wired in place and finished with a ¼" layer of insulating cement. Flanges and valves are insulated with oversized pipe insulation. They are finished off with canvas pasted in place for indoor lines or reinforced waterproof mastic for outdoor lines.



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economic thickness

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

for hot piping, the tabulated thicknesses are optimum thicknesses calculated on an "Economic"* basis for heat conservation under average operating conditions and assures adequate temperature control. Special conditions may warrant the use of other thicknesses.

**From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.*

economic thickness — kaylo pipe insulation — power & utility piping (80F ambient air)

PIPE TEMP.		200			400			600			800			1000			1200	
TEMP. DIFF.		120			320			520			720			920			1120	
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	15	94	1	47	122	1½	71	126	1½	105	148	2	132	149	2½	151	139
¾	1	18	97	1	57	132	1½	81	133	2	106	135	2	150	158	2½	170	146
1	1	19	95	1	59	124	1½	88	131	2	116	134	2½	146	137	3	177	139
1¼	1	25	99	1	76	135	1½	98	131	2	136	143	2½	159	137	3	205	142
1½	1	25	97	1½	63	113	1½	110	137	2½	123	121	2½	171	138	3	206	142
2	1	30	97	1½	71	113	1½	126	139	2½	144	128	2½	202	148	3	238	152
2½	1	36	98	1½	73	113	2	113	118	2½	153	128	3	197	133	3½	258	136
3	1	42	99	1½	93	117	2	140	123	2½	186	135	3	235	144	3½	278	147
3½	1	42	99	1½	94	117	2	143	124	3	173	121	3½	223	129	4	270	135
4	1	50	100	1½	113	118	2½	145	119	3	197	126	3½	248	135	4	300	141
4½	1	62	101	1½	120	118	2½	160	120	3	220	129	3½	260	137	4	322	143
5	1	70	102	1½	155	122	2½	187	122	3	250	131	3½	310	138	4	360	144
6	1	74	102	2	130	111	2½	194	123	3	260	132	3½	319	139	4½	358	137
7	1½	70	97	2	145	112	2½	214	123	3	268	133	3½	332	140	4½	398	139
8	1½	66	94	2	157	112	2½	228	123	3½	274	124	4	355	134	4½	430	142
9	1½	72	94	2	168	112	2½	242	124	3½	302	126	4	384	135	5	440	137
10	1½	78	94	2	184	112	3	245	118	3½	330	128	4	421	138	5	469	138
11	1½	84	94	2	205	114	3	263	118	3½	354	130	4	440	140	5	499	139
12	1½	90	94	2	229	115	3	282	118	4	333	122	4½	442	132	5	532	140
14	1½	108	96	2½	204	108	3	314	121	4	377	124	4½	485	135	5½	542	136
16	1½	124	96	2½	229	108	3	353	122	4	422	126	4½	541	136	5½	601	137
18	1½	137	96	2½	258	109	3	391	122	4	465	126	4½	594	136	5½	659	139
20	1½	151	96	2½	281	110	3	427	123	4	507	127	4½	648	138	5½	695	140
24	1½	179	96	2½	332	110	3½	442	117	4½	538	122	5	694	133	6	777	136

economic thickness — kaylo pipe insulation — process piping (80F ambient air)

PIPE TEMP.		200			400			600			800			1000			1200	
TEMP. DIFF.		120			320			520			720			920			1120	
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½		16	95	1	48	118	1	84	146	1	125	193	1	174	238	1½	189	203
¾	1	19	97	1	57	132	1	100	170	1	147	214	1	205	265	1½	218	221
1	1	20	97	1	60	125	1	105	158	1	156	196	1½	183	186	1½	237	217
1¼	1	26	98	1	76	129	1	132	178	1	196	224	1½	204	186	1½	263	217
1½	1	26	98	1	77	129	1	135	167	1½	164	165	1½	229	199	1½	295	230
2	1	31	98	1	89	132	1	158	171	1½	188	167	1½	262	202	2	288	182
2½	1	37	99	1	101	133	1½	129	130	1½	192	155	2	237	160	2	307	184
3	1	41	99	1	122	137	1½	165	144	1½	245	176	2	293	179	2½	334	183
3½	1	43	100	1	134	124	1½	166	136	1½	280	180	2	299	170	2½	343	174
4	1	51	100	1	144	136	1½	198	147	2	248	155	2	347	184	2½	393	185
4½	1	59	101	1	149	138	1½	201	154	2	258	158	2	361	188	2½	428	172
5	1	68	102	1	170	140	1½	242	158	2	304	159	2	400	190	2½	490	181
6	1	76	103	1½	160	123	1½	281	156	2	339	161	2	474	193	2½	524	195
7	1½	62	94	1½	176	123	1½	311	154	2	388	161	2½	465	167	2½	624	186
8	1½	68	95	1½	193	123	1½	340	155	2	412	163	2½	476	168	3	548	175
9	1½	74	95	1½	208	123	1½	376	155	2	445	163	2½	540	168	3	640	175
10	1½	80	95	1½	219	123	2	324	136	2½	411	147	2½	576	173	3½	596	166
12	1½	86	95	1½	240	124	2	360	138	2½	450	149	2½	[illegible]	175	3½	633	168
12	1½	92	95	1½	261	125	2	404	141	2½	482	150	2½	[illegible]	177	3½	679	169
14	1½	110	97	1½	307	127	2	432	142	2½	542	154	2½	[illegible]	183	3½	746	172
16	1½	125	97	1½	352	128	2	490	144	2½	610	156	2½	[illegible]	185	3½	868	174
18	1½	139	97	1½	392	128	2	543	144	2½	674	156	3	[illegible]	168	3½	933	177
20	1½	153	97	1½	431	129	2	598	145	2½	743	157	3	[illegible]	169	3½	1020	178
24	1½	185	97	1½	511	129	2	707	146	2½	872	158	3	1048	171	3½	1195	180

table key (ambient still air at 80F) ET — economic thickness; ST — surface temperature; HL — heat loss . . Btu/hr/lineal foot

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economic thickness — kaylo pipe insulation — power & utility piping

(80F ambient air)

Temp. / Pipe Size	1300			1400			1500			1600			1700			1800		
	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	2½	221	157	2½	245	160	3	254	150	3	278	157	3	304	164	3½	313	156
¾	2½	243	156	3	252	148	3	278	155	3	305	162	3½	314	154	3½	342	161
1	2½	269	161	3	277	152	3	306	160	3½	316	152	3½	345	159	3½	375	166
1¼	3	279	149	3	310	157	3	342	165	3½	351	157	3½	384	164	3½	417	172
1½	3	284	153	3½	309	146	3½	362	160	3½	368	160	4	397	160	4	434	168
2	3	337	156	3½	347	150	3½	383	158	3½	421	165	4	432	159	4	469	166
2½	3	374	160	3½	385	154	3½	425	162	3½	466	170	4	476	163	4	518	171
3	3½	388	150	4	402	146	4	444	153	4½	458	150	4½	500	156	4½	545	163
3½	4	390	142	4	434	149	4	479	156	4½	494	152	4½	539	159	5	555	155
4	4	419	144	4	465	151	4½	481	148	4½	528	154	5	545	151	5	593	158
4½	4	446	145	4½	464	143	4½	512	150	5	530	147	5	579	153	5½	598	151
5	4½	445	138	4½	495	145	5	515	143	5	565	149	5½	585	147	5½	637	153
6	4½	502	141	5	523	140	5	578	146	5½	560	144	5½	655	150	6	678	149
7	4½	550	143	5	572	142	5	632	148	5½	655	147	6	679	146	6	738	151
8	5	560	137	5	622	143	5½	647	142	5½	710	149	6	735	148	6½	761	147
9	5	603	138	5½	630	138	5½	696	144	6	722	143	6	789	149	6½	817	149
10	5	653	140	5½	681	139	5½	752	146	6	779	145	6½	809	145	6½	880	150
11	5½	652	134	5½	724	140	6	754	140	6	829	146	6½	859	146	7	890	146
12	5½	693	135	5½	770	141	6	801	141	6½	834	141	6½	911	147	7	943	147
14	5½	742	136	6	776	137	6	857	143	6½	891	143	7	926	143	7	1007	148
16	6	772	132	6	858	138	6½	896	139	7	934	139	7	1020	144	7½	1058	145
18	6	844	133	6½	886	134	6½	978	140	7	1018	140	7½	1059	141	7½	1153	146
20	6	917	134	6½	960	135	6½	1060	141	7	1102	142	7½	1146	142	7½	1247	148
24	6	1060	136	6½	1108	137	7	1157	138	7½	1206	139	7½	1318	144	8	1366	145
30	6½	1195	133	7	1253	134	7½	1312	135	7½	1440	141	8	1497	142	8½	1555	143
36	6½	1620	142	7	1690	144	7½	1790	147	7½	1950	153	8	2050	155	8½	2150	158

ET—economic thickness HL—heat loss . . . Btu/hr/lineal foot ST—surface temperature

OWENS-CORNING FIBERGLAS CORPORATION

Industrial and Commercial Construction Materials Division, 717 Fifth Avenue, New York, New York 10022
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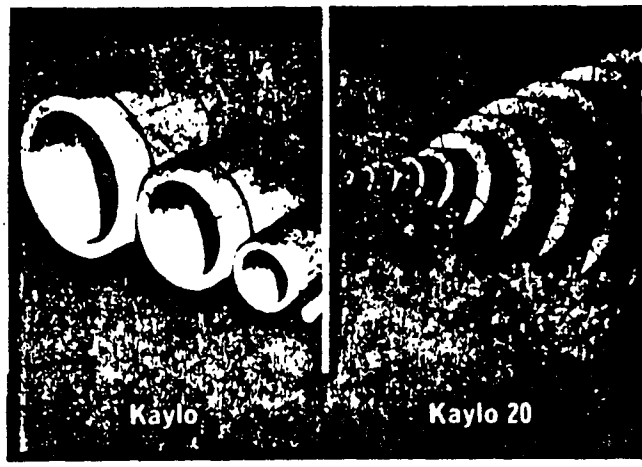
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FIBERGLAS

Pipe Insulation



Kaylo & Kaylo 20 Pipe Insulations

rigid hydrous calcium silicate pipe insulations for heated piping up to 1800F.

uses

Standard Kaylo is recommended for use on heated piping operating up to 1200F and Kaylo 20 extends the temperature range to 1800F. These thoroughly field-tested insulations have the physical properties most desirable for efficient, durable work for indoor and outdoor, power and process piping. A variety of jackets are available for surface finish and weatherproofing.

description

Kaylo® & Kaylo 20 pipe insulations are rigid hydrous calcium silicate heat insulations for [illegible] all heated piping up to 1800F — indoors and outdoors. Products are precision molded in sections or segments from a chemically reacted material. A small amount of asbestos fiber is added to improve mechanical strength. Kaylo is gray. Kaylo 20 has a slight pinkish color to distinguish it from Kaylo.

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benefits

lower operating costs — Kaylo Insulations have exceptional thermal efficiency. The low k factor of .40 at 200 mean temperature means lower operating cost, better temperature control for process operations.

rugged — Kaylo Pipe Insulations are strong and rigid to resist mechanical abuse in shipping, handling and in service

versatile — Kaylo's extended temperature range covers a broad number of uses with one material All heated piping requirements to 1800F and in sizes from ½" to 30" IPS can be met with Kaylo and Kaylo 20.

will not cause stress corrosion cracking — Kaylo will not cause stress corrosion cracking of stainless steel because Kaylo contains an inhibitor, and has less than 200 ppm soluble chlorides

unaffected by moisture — Kaylo can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out.

clean, neat installation — Kaylo cuts cleanly leaving a sharp square edge for neater appearance on fittings. Rigid manufacturing tolerances assure uniform, smooth, unbroken joints.

variety of jackets — A variety of factory-applied jackets allows a selection of product for indoor finished appearance or for weatherproofing insulation on outdoor lines.

nesting sizes — Kaylo and Kaylo 20 Pipe Insulations are manufactured to Simplified Dimensional Standards to permit nesting sizes for double layer applications

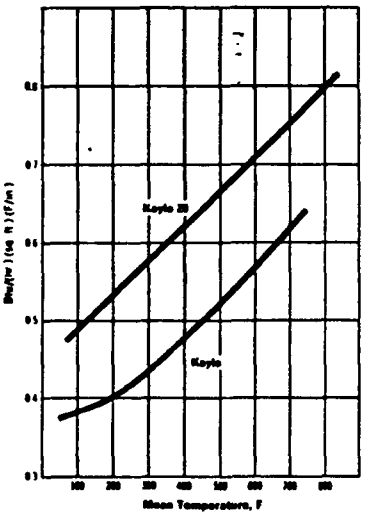
†Kaylo is a registered trademark (Reg U S. Pat. Off.) of Owens-Corning Fiberglas Corp.

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performance characteristics

	Kaylo	Kaylo 20
density (approx.)	11 lb. pcf.	12 lb. pcf.
flexural strength (ASTM C-446)	75 lbs./sq. in.	90 lbs./sq. in.
compressive strength (ASTM C-165) at 5% deformation	125 psi	130 psi
resistance to abrasion (Conventional tumbling test-loss in weight before heating)	after 10 minutes, 20%	
	after 20 minutes, 40%	
alkalinity	ph 10	ph 10
corrosion resistance	does not cause or accelerate corrosion of steel, aluminum, or stainless steel	
Specific heat	0.22 btu/lb. F	
dimensional stability linear shrinkage after heating for 24 hours in a muffle		
% length loss	1.6 (at 1200°F)	2.5 (at 1800°F)

thermal conductivity



sizes

thickness — Kaylo Pipe Insulation is available in single or double layer thicknesses from 1" to 3" depending upon pipe size. Kaylo Tube Insulation is available in single layer thicknesses of 1" and 1½".

pipe sizes — Kaylo Pipe Insulation is available to fit nominal pipe sizes from ½" to 39" in diameter. Kaylo Tube Insulation will fit nominal copper tubing sizes from ⅜" to 3" in diameter.

forms — Kaylo Pipe Insulation is available in sectional or multisegmental form depending upon pipe size. All insulation is furnished in 3 ft. sections.

jackets

canvas — Standard canvas & 8 oz. canvas jacket are available for all types, sizes and thicknesses of Kaylo Pipe and Tube Insulation at an additional charge. These jackets are factory applied on Sectional Pipe and Tube Insulation. On Multisegmental forms, they are furnished but not adhered. Bands are available for use with this product at slight additional charge and will be furnished on request.

Kaylo Klad — Kaylo is also available with an embossed aluminum jacket .016" thick or .010" thick stainless steel jacket. These jackets provide greater resistance to mechanical damage and present a neat finished appearance to pipe lines. The longitudinal seam has a self-locking joint. Butt sealing strips with integral mastic and protective asbestos cover are furnished for sealing end joints.

specification compliance

HH-I-523c — Insulation Block and Pipe Covering Thermal (Calcium Silicate for Temperatures up to 1200F). Type II, Class A through F.

MIL-I-2781D (Int. Amend. 1) — Insulation Pipe Covering, Thermal: Grade I, Class b; Grade II, Class d; Grade III, Class e, Type I and II.

MIL-I-24244 (Ships) — Insulation Materials, Thermal, with Special Corrosion and Chloride Requirements, Type 1A, 1C, 1D, 1E.

ASTM C533-67.

application recommendations

outdoor lines — Kaylo Pipe Insulations are mechanically fastened by wiring in place using 16 gauge wire on 9" centers and subsequently covered with a weatherproof jacket of metal or 45 lb. roofing felt. See Application Specifications for complete details.

indoor lines — Kaylo for indoor piping work is furnished with a factory-applied canvas jacket and held in place with bands or wire. The jacket has overlapping joint flaps that are smoothly pasted in place. Canvas should be sized to provide a base for painting.

fittings — Fitting are insulated with mitered segments of Kaylo wired in place and finished with a ¼" layer of insulating cement. Flanges and valves are insulated with oversized pipe insulation. They are finished off with canvas pasted in place for indoor lines or reinforced waterproof mastic for outdoor lines.



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economic thickness

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

for hot piping, the tabulated thicknesses are optimum thicknesses calculated on an "Economic"* basis for heat conservation under average operating conditions and assures adequate temperature control. Special conditions may warrant the use of other thicknesses.

**From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.*

economic thickness*—kaylo pipe insulation—process piping (80F ambient still air)

PIPE TEMP.	200			400			600			800			1000			1200		
TEMP. DIFF.	120			320			520			720			920			1120		
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	18	95	1	51	122	1	89	152	1	132	187	1	182	228	1½	202	198
¾	1	22	98	1	61	129	1	106	166	1	157	207	1	215	254	1½	232	215
1	1	23	95	1	64	123	1	111	154	1	165	190	1½	191	179	1½	252	211
1¼	1	29	99	1	81	143	1	140	173	1	207	218	1½	213	179	1½	281	211
1½	1	29	97	1	82	128	1	143	163	1½	173	161	1½	239	192	1½	315	227
2	1	34	98	1	96	130	1	167	166	1½	198	163	1½	273	194	2	308	188
2½	1	39	98	1	110	131	1½	136	128	1½	203	151	2	247	155	2	326	179
3	1	47	100	1	131	135	1½	174	141	1½	260	171	2	304	173	2½	355	176
3½	1	44	95	1	123	123	1½	175	133	1½	261	159	2	311	164	2½	366	168
4	1	55	99	1	155	134	1½	209	144	2	262	150	2	361	177	2½	418	181
4½	1	52	96	1	147	125	1½	206	135	2	262	143	2	363	168	2½	419	171
5	1	67	100	1	188	137	1½	250	147	2	308	154	2	426	183	2½	481	184
6	1	81	102	1½	171	121	1½	298	152	2	355	157	2	489	186	2½	558	190
7	1½	66	94	1½	187	120	1½	324	150	2	395	158	2½	467	165	2½	617	192
8	1½	73	95	1½	207	121	1½	359	151	2	434	159	2½	497	162	3	583	170
9	1½	80	95	1½	225	121	1½	391	151	2	454	155	2½	541	164	3	631	171
10	1½	85	94	1½	240	120	2	341	133	2½	433	143	2½	598	167	3½	633	162
11	1½	93	94	1½	262	121	2	368	133	2½	474	145	2½	656	170	3½	682	164
12	1½	99	94	1½	279	120	2	401	135	2½	507	146	2½	701	171	3½	727	165
14	1½	117	96	1½	331	125	2	456	139	2½	570	150	2½	787	177	3½	804	169
16	1½	134	96	1½	377	126	2	517	140	2½	643	151	2½	888	179	3½	901	171
18	1½	149	97	1½	419	126	2	574	141	2½	712	152	3	849	162	3½	993	173
20	1½	164	97	1½	462	127	2	630	141	2½	781	153	3	930	163	3½	1085	174
24	1½	194	97	1½	546	127	2	744	142	2½	919	154	3	1091	165	3½	1270	175

economic thickness—kaylo pipe insulation—power & utility piping (80F ambient still air)

PIPE TEMP.	200			400			600			800			1000			1200		
TEMP. DIFF.	120			320			520			720			920			1120		
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	18	95	1	51	122	1½	74	123	1½	111	145	2	138	144	2½	161	136
¾	1	22	98	1	61	129	1½	85	130	2	112	132	2	156	153	2½	179	143
1	1	23	95	1	64	123	1½	93	128	2	122	131	2½	152	133	3	188	137
1¼	1	29	99	1	81	134	1½	103	128	2	143	140	2½	176	142	3	215	145
1½	1	29	97	1	82	128	1½	116	134	2½	128	119	2½	177	134	3	217	139
2	1	34	98	1½	76	112	1½	133	136	2½	151	126	2½	209	144	3	254	148
2½	1	39	98	1½	78	107	2	119	116	2½	161	123	3	205	129	3½	251	134
3	1	47	100	1½	100	115	2	147	125	2½	194	132	3	243	139	3½	293	143
3½	1	44	95	1½	101	111	2	151	121	3	180	119	3½	231	126	4	286	132
4	1	55	99	1½	121	117	2½	153	117	3	203	124	3½	257	131	4	316	137
4½	1	52	96	1½	118	112	2½	153	113	3	207	121	3½	264	128	4	321	133
5	1	67	100	1½	144	119	2½	176	118	3	235	126	3½	296	134	4	356	139
6	1	81	102	2	137	110	2½	205	120	3	270	129	3½	331	135	4½	356	129
7	1½	66	94	2	152	110	2½	226	121	3	291	128	3½	367	137	4½	416	137
8	1½	73	95	2	167	110	2½	241	120	3½	290	122	4	368	130	4½	452	139
9	1½	80	95	2	175	109	2½	262	121	3½	314	123	4	398	132	5	456	133
10	1½	85	94	2	196	110	3	258	115	3½	346	125	4	437	134	5	497	135
11	1½	93	94	2	212	111	3	278	116	3½	372	126	4	469	135	5	532	136
12	1½	99	94	2	231	112	3	297	116	4	360	120	4½	459	129	5	565	137
14	1½	117	96	2½	219	107	3	331	119	4	397	122	4½	503	131	5½	579	134
16	1½	134	96	2½	248	107	3	372	119	4	443	123	4½	561	132	5½	641	135
18	1½	149	97	2½	274	108	3	411	120	4	488	124	4½	617	133	5½	703	137
20	1½	164	97	2½	301	108	3	450	120	4	533	124	4½	672	134	5½	764	137
24	1½	194	97	2½	354	108	3½	464	115	4½	565	120	5	719	129	6	824	133

table key (ambient still air at 80F)

ET—economic thickness
ST—surface temperature
HL—heat loss... Btu/hr/lineal foot

*calculated

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economic thickness—kaylo 20 pipe insulation—power & utility piping

(80F ambient still air)

Temp. Pipe Size	1300			1400			1500			1600			1700			1800		
	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	2½	221	152	2½	245	160	3	254	150	3	278	157	3	304	164	3½	313	156
¾	2½	243	156	3	252	148	3	278	155	3	305	162	3½	314	154	3½	342	161
1	2½	269	161	3	277	152	3	306	160	3½	316	152	3½	345	159	3½	375	166
1¼	3	279	149	3	310	157	3	342	165	3½	351	157	3½	384	164	3½	417	172
1½	3	284	153	3½	309	146	3½	362	160	3½	368	160	4	397	160	4	434	168
2	3	337	156	3½	347	150	3½	383	158	3½	421	165	4	432	159	4	469	166
2½	3	374	160	3½	385	154	3½	425	162	3½	466	170	4	476	163	4	518	171
3	3½	388	150	4	402	146	4	444	153	4½	458	150	4½	500	156	4½	545	163
3½	4	390	142	4	434	149	4	479	156	4½	494	152	4½	539	159	5	555	155
4	4	419	144	4	465	151	4½	481	148	4½	528	154	5	545	151	5	593	158
4½	4	446	145	4½	464	143	4½	512	150	5	530	147	5	579	153	5½	598	151
5	4½	445	138	4½	495	145	5	515	143	5	565	149	5½	585	147	5½	637	153
6	4½	502	141	5	523	140	5	578	146	5½	560	144	5½	655	150	6	678	149
7	4½	550	143	5	572	142	5	632	148	5½	655	147	6	679	146	6	738	151
8	5	560	137	5	622	143	5½	647	142	5½	710	149	6	735	148	6½	761	147
9	5	603	138	5½	630	138	5½	696	144	6	722	143	6	789	149	6½	817	149
10	5	653	140	5½	681	139	5½	752	146	6	779	145	6½	809	145	6½	880	150
11	5½	652	134	5½	724	140	6	754	140	6	829	146	6½	859	146	7	890	146
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14	5½	742	136	6	776	137	6	857	143	6½	891	143	7	926	143	7	1007	148
16	6	772	132	6	858	138	6½	896	139	7	934	139	7	1020	144	7½	1058	145
18	6	844	133	6½	886	134	6½	978	140	7	1018	140	7½	1059	141	7½	1153	146
20	6	917	134	6½	960	135	6½	1060	141	7	1102	142	7½	1146	142	7½	1247	148
24	6	1060	136	6½	1108	137	7	1157	138	7½	1206	139	7½	1318	144	8	1366	145
30	6½	1195	133	7	1253	134	7½	1312	135	7½	1440	141	8	1497	142	8½	1555	143
36	6½	1620	142	7	1690	144	7½	1790	147	7½	1950	153	8	2050	155	8½	2150	158

ET—economic thickness **HL**—heat loss . . . Btu/hr/lineal foot **ST**—surface temperature

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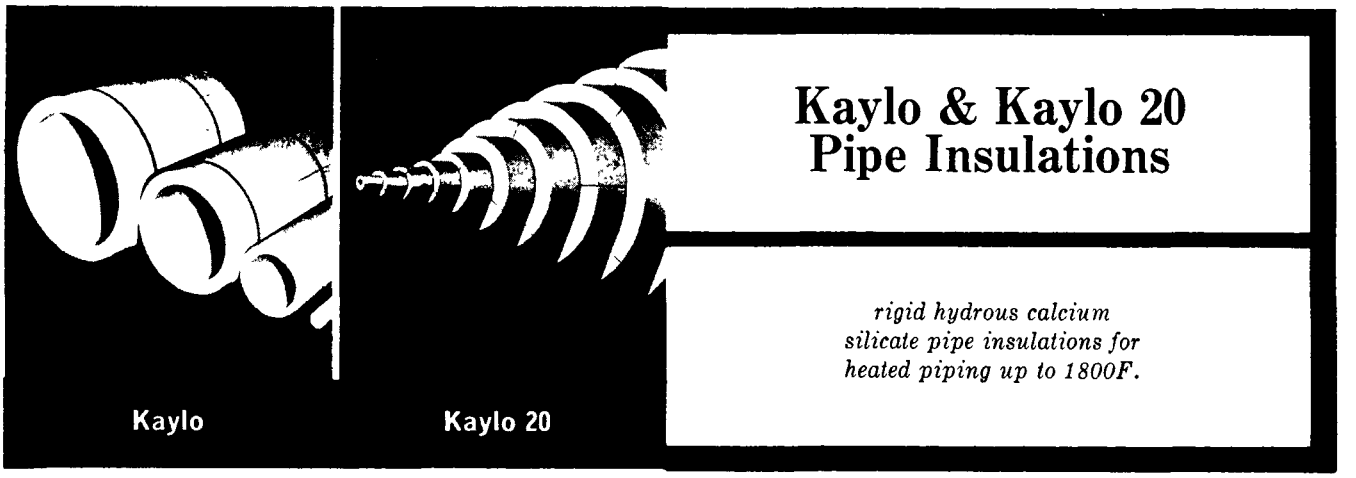
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power & process piping systems 5.3
January, 1969

Pipe Insulation



Kaylo & Kaylo 20 Pipe Insulations

rigid hydrous calcium silicate pipe insulations for heated piping up to 1800F.

uses

Standard Kaylo is recommended for use on heated piping operating up to 1200F and Kaylo 20 extends the temperature range to 1800F. These thoroughly field-tested insulations have the physical properties most desirable for efficient, durable work for indoor and outdoor, power and process piping. A variety of jackets are available for surface finish and weatherproofing.

description

Kaylo* & Kaylo 20* pipe insulations are rigid hydrous calcium silicate heat insulations for use on all heated piping up to 1800F—indoors and out. These products are precision molded in sections or segments from a chemically reacted material. A small amount of asbestos fiber is added to improve mechanical strength. Kaylo is white. Kaylo 20 has a slight pinkish color to distinguish it from Kaylo.

benefits

lower operating costs — Kaylo Insulations have exceptional thermal efficiency. The low k factor of .40 at 200 mean temperature means lower operating cost, better temperature control for process operations.

rugged — Kaylo Pipe Insulations are strong and rigid to resist mechanical abuse in shipping, handling and in service

versatile — Kaylo's extended temperature range covers a broad number of uses with one material. All heated piping requirements to 1800F and in sizes from ½" to 30" IPS can be met with Kaylo and Kaylo 20.

will not cause stress corrosion cracking — Kaylo will not cause stress corrosion cracking of stainless steel because Kaylo contains an inhibitor, and has less than 200 ppm soluble chlorides.

unaffected by moisture — Kaylo can be completely saturated in water without appreciable loss of strength and regains its strength and thermal value after drying out.

clean, neat installation — Kaylo cuts cleanly leaving a sharp square edge for neater appearance on fittings. Rigid manufacturing tolerances assure uniform, smooth, unbroken joints.

variety of jackets — A variety of factory-applied jackets allows a selection of product for indoor finished appearance or for weatherproofing insulation on outdoor lines.

nesting sizes — Kaylo and Kaylo 20 Pipe Insulations are manufactured to Simplified Dimensional Standards to permit nesting sizes for double layer applications.

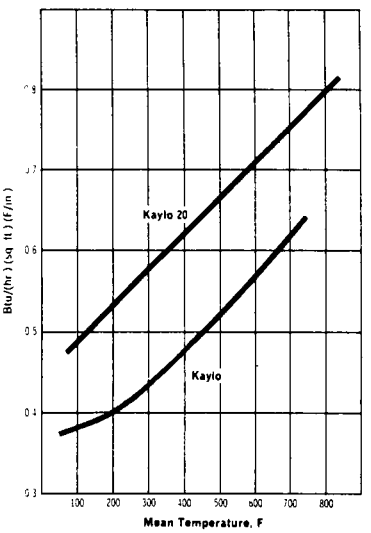
†Kaylo is a registered trademark (Reg U.S. Pat. Off.) of Owens-Corning Fiberglas Corp.

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performance characteristics

	Kaylo	Kaylo 20
density (approx.)	11 lb. pcf.	12 lb. pcf.
flexural strength (ASTM C-446)	75 lbs./sq. in.	90 lbs./sq. in.
compressive strength (ASTM C-165) at 5% deformation	125 psi	130 psi
resistance to abrasion (Conventional tumbling test-loss in weight before heating)	after 10 minutes, 20%	
	after 20 minutes, 40%	
alkalinity	ph 10	ph 10
corrosion resistance	does not cause or accelerate corrosion of steel, aluminum, or stainless steel	
Specific heat	0.22 btu/lb. F	
dimensional stability linear shrinkage after heating for 24 hours in a muffle		
% length loss	1.6 (at 1200°F)	2.5 (at 1800°F)

thermal conductivity



sizes

thickness — Kaylo Pipe Insulation is available in single or double layer thicknesses from 1" to 3" depending upon pipe size. Kaylo Tube Insulation is available in single layer thicknesses of 1" and 1½".

pipe sizes — Kaylo Pipe Insulation is available to fit nominal pipe sizes from ½" to 39" in diameter. Kaylo Tube Insulation will fit nominal copper tubing sizes from ⅜" to 3" in diameter.

forms — Kaylo Pipe Insulation is available in sectional or multisegmental form depending upon pipe size. All insulation is furnished in 3 ft. sections.

jackets

canvas — Standard canvas & 8 oz. canvas jacket are available for all types, sizes and thicknesses of Kaylo Pipe and Tube Insulation at an additional charge. These jackets are factory applied on Sectional Pipe and Tube Insulation. On Multisegmental forms, they are furnished but not adhered. Bands are available for use with this product at slight additional charge and will be furnished on request.

Kaylo Klad — Kaylo is also available with an embossed aluminum jacket .016" thick or .010" thick stainless steel jacket. These jackets provide greater resistance to mechanical damage and present a neat finished appearance to pipe lines. The longitudinal seam has a self-locking joint. Butt sealing strips with integral mastic and protective asbestos cover are furnished for sealing end joints.

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MIL-I-2781D (Int. Amend. 1) — Insulation Pipe Covering, Thermal: Grade I, Class b; Grade II, Class d; Grade III, Class e, Type I and II.

MIL-I-24244 (Ships) — Insulation Materials, Thermal, with Special Corrosion and Chloride Requirements, Type 1A, 1C, 1D, 1E.

ASTM C533-67.

application recommendations

outdoor lines — Kaylo Pipe Insulations are mechanically fastened by wiring in place using 16 gauge wire on 9" centers and subsequently covered with a weatherproof jacket of metal or 45 lb. roofing felt. See Application Specifications for complete details.

indoor lines — Kaylo for indoor piping work is furnished with a factory-applied canvas jacket and held in place with bands or wire. The jacket has overlapping joint flaps that are smoothly pasted in place. Canvas should be sized to provide a base for painting.

fittings — Fitting are insulated with mitered segments of Kaylo wired in place and finished with a ¼" layer of insulating cement. Flanges and valves are insulated with oversized pipe insulation. They are finished off with canvas pasted in place for indoor lines or reinforced waterproof mastic for outdoor lines.



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economic thickness

Selection of insulation thicknesses for any specific application should take into consideration the following important criteria. 1. Cost of insulation applied. 2. Cost of heat energy. 3. Cost of capital. 4. Cost of depreciation—plant and insulation. 5. Capital investment in heat production equipment. 6. Temperature differential. 7. Size of the pipe or surface. 8. Conductivity of insulation.

for hot piping, the tabulated thicknesses are optimum thicknesses calculated on an "Economic"* basis for heat conservation under average operating conditions and assures adequate temperature control. Special conditions may warrant the use of other thicknesses.

**From "How to Determine Economic Thickness of Insulation"—National Insulation Manufacturers Association.*

economic thickness*–Kaylo pipe insulation — process piping (80F ambient still air)

PIPE TEMP.	200			400			600			800			1000			1200		
TEMP. DIFF.	120			320			520			720			920			1120		
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	18	95	1	51	122	1	89	152	1	132	187	1	182	228	1½	202	198
¾	1	22	98	1	61	129	1	106	166	1	157	207	1	215	254	1½	232	215
1	1	23	95	1	64	123	1	111	154	1	165	190	1½	191	179	1½	252	211
1¼	1	29	99	1	81	143	1	140	173	1	207	218	1½	213	179	1½	281	211
1½	1	29	97	1	82	128	1	143	163	1½	173	161	1½	239	192	1½	315	227
2	1	34	98	1	96	130	1	167	166	1½	198	163	1½	273	194	2	308	188
2½	1	39	98	1	110	131	1½	136	128	1½	203	151	2	247	155	2	326	179
3	1	47	100	1	131	135	1½	174	141	1½	260	171	2	304	173	2½	355	176
3½	1	44	95	1	123	123	1½	175	133	1½	261	159	2	311	164	2½	366	168
4	1	55	99	1	155	134	1½	209	144	2	262	150	2	361	177	2½	418	181
4½	1	52	96	1	147	125	1½	206	135	2	262	143	2	363	168	2½	419	171
5	1	67	100	1	188	137	1½	250	147	2	308	154	2	426	183	2½	481	184
6	1	81	102	1½	171	121	1½	298	152	2	355	157	2	489	186	2½	558	190
7	1½	66	94	1½	187	120	1½	324	150	2	395	158	2½	467	165	2½	617	192
8	1½	73	95	1½	207	121	1½	359	151	2	434	159	2½	497	162	3	583	170
9	1½	80	95	1½	225	121	1½	391	151	2	454	155	2½	541	164	3	631	171
10	1½	85	94	1½	240	120	2	341	133	2½	433	143	2½	598	167	3½	633	162
11	1½	93	94	1½	262	121	2	368	133	2½	474	145	2½	656	170	3½	682	164
12	1½	99	94	1½	279	120	2	401	135	2½	507	146	2½	701	171	3½	727	165
14	1½	117	96	1½	331	125	2	456	139	2½	570	150	2½	787	177	3½	804	169
16	1½	134	96	1½	377	126	2	517	140	2½	643	151	2½	888	179	3½	901	171
18	1½	149	97	1½	419	126	2	574	141	2½	712	152	3	849	162	3½	993	173
20	1½	164	97	1½	462	127	2	630	141	2½	781	153	3	930	163	3½	1085	174
24	1½	194	97	1½	546	127	2	744	142	2½	919	154	3	1091	165	3½	1270	175

economic thickness–Kaylo pipe insulation — power & utility piping (80F ambient still air)

PIPE TEMP.	200			400			600			800			1000			1200		
TEMP. DIFF.	120			320			520			720			920			1120		
IPS	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	1	18	95	1	51	122	1½	74	123	1½	111	145	2	138	144	2½	161	136
¾	1	22	98	1	61	129	1½	85	130	2	112	132	2	156	153	2½	179	143
1	1	23	95	1	64	123	1½	93	128	2	122	131	2½	152	133	3	188	137
1¼	1	29	99	1	81	134	1½	103	128	2	143	140	2½	176	142	3	215	145
1½	1	29	97	1	82	128	1½	116	134	2½	128	119	2½	177	134	3	217	139
2	1	34	98	1½	76	112	1½	133	136	2½	151	126	2½	209	144	3	254	148
2½	1	39	98	1½	78	107	2	119	116	2½	161	123	3	205	129	3½	251	134
3	1	47	100	1½	100	115	2	147	125	2½	194	132	3	243	139	3½	293	143
3½	1	44	95	1½	101	111	2	151	121	3	180	119	3½	231	126	4	286	132
4	1	55	99	1½	121	117	2½	153	117	3	203	124	3½	257	131	4	316	137
4½	1	52	96	1½	118	112	2½	153	113	3	207	121	3½	264	128	4	321	133
5	1	67	100	1½	144	119	2½	176	118	3	235	126	3½	296	134	4	356	139
6	1	81	102	2	137	110	2½	205	120	3	270	129	3½	331	135	4½	356	129
7	1½	66	94	2	152	110	2½	226	121	3	291	128	3½	367	137	4½	416	137
8	1½	73	95	2	167	110	2½	241	120	3½	290	122	4	368	130	4½	452	139
9	1½	80	95	2	175	109	2½	262	121	3½	314	123	4	398	132	5	456	133
10	1½	85	94	2	196	110	3	258	115	3½	346	125	4	437	134	5	497	135
11	1½	93	94	2	212	111	3	278	116	3½	372	126	4	469	135	5	532	136
12	1½	99	94	2	231	112	3	297	116	4	360	120	4½	459	129	5	565	137
14	1½	117	96	2½	219	107	3	331	119	4	397	122	4½	503	131	5½	579	134
16	1½	134	96	2½	248	107	3	372	119	4	443	123	4½	561	132	5½	641	135
18	1½	149	97	2½	274	108	3	411	120	4	488	124	4½	617	133	5½	703	137
20	1½	164	97	2½	301	108	3	450	120	4	533	124	4½	672	134	5½	764	137
24	1½	194	97	2½	354	108	3½	464	115	4½	565	120	5	719	129	6	824	133

table key (ambient still air at 80F)

ET—economic thickness

HL—heat loss . . . Btu / hr / lineal foot

ST—surface temperature

*calculated

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economic thickness—Kaylo 20 pipe insulation—power & utility piping

(80F ambient still air)

Temp.	1300			1400			1500			1600			1700			1800		
Pipe Size	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST	ET	HL	ST
½	2½	221	152	2½	245	160	3	254	150	3	278	157	3	304	164	3½	313	156
¾	2½	243	156	3	252	148	3	278	155	3	305	162	3½	314	154	3½	342	161
1	2½	269	161	3	277	152	3	306	160	3½	316	152	3½	345	159	3½	375	166
1¼	3	279	149	3	310	157	3	342	165	3½	351	157	3½	384	164	3½	417	172
1½	3	284	153	3½	309	146	3½	362	160	3½	368	160	4	397	160	4	434	168
2	3	337	156	3½	347	150	3½	383	158	3½	421	165	4	432	159	4	469	166
2½	3	374	160	3½	385	154	3½	425	162	3½	466	170	4	476	163	4	518	171
3	3½	388	150	4	402	146	4	444	153	4½	458	150	4½	500	156	4½	545	163
3½	4	390	142	4	434	149	4	479	156	4½	494	152	4½	539	159	5	555	155
4	4	419	144	4	465	151	4½	481	148	4½	528	154	5	545	151	5	593	158
4½	4	446	145	4½	464	143	4½	512	150	5	530	147	5	579	153	5½	598	151
5	4½	445	138	4½	495	145	5	515	143	5	565	149	5½	585	147	5½	637	153
6	4½	502	141	5	523	140	5	578	146	5½	560	144	5½	655	150	6	678	149
7	4½	550	143	5	572	142	5	632	148	5½	655	147	6	679	146	6	738	151
8	5	560	137	5	622	143	5½	647	142	5½	710	149	6	735	148	6½	761	147
9	5	603	138	5½	630	138	5½	696	144	6	722	143	6	789	149	6½	817	149
10	5	653	140	5½	681	139	5½	752	146	6	779	145	6½	809	145	6½	880	150
11	5½	652	134	5½	724	140	6	754	140	6	829	146	6½	859	146	7	890	146
12	5½	693	135	5½	770	141	6	801	141	6½	834	141	6½	911	147	7	943	147
14	5½	742	136	6	776	137	6	857	143	6½	891	143	7	926	143	7	1007	148
16	6	772	132	6	858	138	6½	896	139	7	934	139	7	1020	144	7½	1058	145
18	6	844	133	6½	886	134	6½	978	140	7	1018	140	7½	1059	141	7½	1153	146
20	6	917	134	6½	960	135	6½	1060	141	7	1102	142	7½	1146	142	7½	1247	148
24	6	1060	136	6½	1108	137	7	1157	138	7½	1206	139	7½	1318	144	8	1366	145
30	6½	1195	133	7	1253	134	7½	1312	135	7½	1440	141	8	1497	142	8½	1555	143
36	6½	1620	142	7	1690	144	7½	1790	147	7½	1950	153	8	2050	155	8½	2150	158

ET—economic thickness **HL**—heat loss . . . Btu/hr/lineal foot **ST**—surface temperature

OWENS/CORNING FIBERGLAS

OWENS-CORNING FIBERGLAS CORPORATION

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

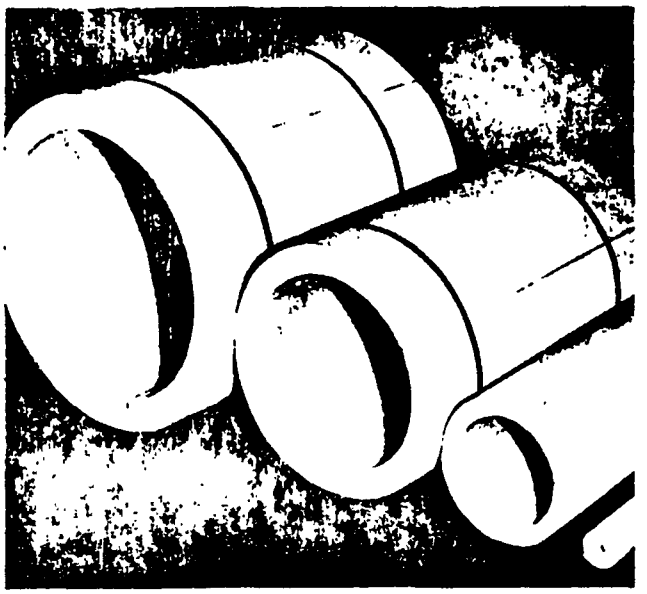
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Kaylo and Kaylo-20 Pipe Insulation

KAYLO pipe insulation *for indoor or outdoor piping up to 1200 F operating temperature*



Kaylo pipe insulation applies easily and quickly with standard application methods. Ordinary tools of the trade are sufficient for all cutting, sawing or scoring. It is non-irritating to the skin.



Kaylo Pipe Insulation presents a superior final appearance when applied to a variety of irregularly-shaped high temperature vessels.

*TM (Reg U.S. Pat. Off.) Owens-Corning Fiberglas Corporation

Kaylo* pipe insulation, a near white, rigid hydrous calcium silicate heat insulation, manufactured by Owens-Corning Fiberglas Corporation, effectively insulates indoor and outdoor piping to 1200 F. A chemically reacted material, Kaylo pipe insulation contains no added binder. For mechanical effects, a small amount of asbestos fiber is included at the time of manufacture.

This thoroughly tested and field-proven material contains the physical properties most desired for efficient, durable insulation work. It retains an appreciable percentage of its strength even after complete saturation in water, original efficiency returning after drying. The effectiveness, high strength and moisture resistance are unattained by most other insulating materials.

sizes

thickness—Kaylo Pipe Insulation is available in thicknesses from 1" to 3" depending upon pipe size. Kaylo Tube Insulation is available in thicknesses of 1" and 1½".

pipe sizes—Kaylo Pipe Insulation is available to fit pipe from ½" to 39" in diameter. Kaylo Tube Insulation will fit copper tubing from ½" to 3⅛" in diameter.

forms—Kaylo Pipe Insulation is available in sectional or multisegmental form depending upon pipe size. All insulation is furnished in 3 ft. sections.

jackets

canvas—Kaylo Sectional Pipe Insulation includes standard canvas jackets, at no additional charge, on thicknesses up to and including 2½". Standard canvas is available for segmental forms at a slight additional cost. Bands are available for use with this product at slight additional charge and will be furnished on request.

6 oz. and 8 oz. canvas jackets are available for all types, sizes and thicknesses of Kaylo Pipe and Tube Insulation at an additional charge. These jackets are factory applied on Sectional Pipe and Tube Insulation. On Multisegmental forms, they are furnished but not adhered.

Kaylo Klad—Kaylo is also available with a soft rippled embossed aluminum jacket .016" thick or .010 stainless steel jacket. These jackets provide greater resistance to mechanical damage and present a neat finished appearance to pipe lines. The longitudinal seam has a self-locking joint. Joint bands with integral mastic are furnished for sealing end joints.

limitations

Kaylo Pipe Insulation is designed for temperatures up to 1200 F and is not recommended when operating temperatures of piping exceed this limit.

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KAYLO AND KAYLO-20 PIPE INSULATION

FIBERGLAS

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physical properties

density .....approximately 11 lb. per cu. ft

flexural strength .....(ASTM C-203) over 50 lb. per sq. in.

compressive strength.....100 psi @ 5% deformation, ASTMC-165 modified

resistance to abrasion

(conventional tumbling test-loss in weight after 10 min.)

before heating 9%

after heating for 24 hours

at 750 F 5%
at 1000 F 4%
at 1200 F 3%

alkalinity: ph 10

corrosion: Kaylo does not cause or accelerate corrosion of steel, aluminum, or stainless steel

dimensional stability

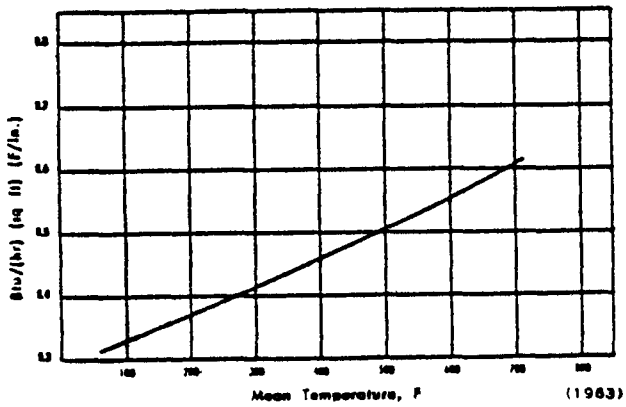
linear shrinkage after heating for 24 hours in muffle

at 750 F 0.8%
at 1000 F 0.9%
at 1200 F 1.4%

specific heat: 0.22 Btu/lb.F.

thermal diffusivity 0.012 sq. ft. per hr. at 200 F. mean temperature.

thermal conductivity



contains stress corrosion inhibitor

Ordinary construction grades (austenitic) of stainless steel are quite vulnerable to rapid deterioration by stress-corrosion cracking. This attack is caused by trace quantities of chlorides which are present in most industrial waters, industrial atmospheres and in all insulations.

Kaylo and Fiberglas have one of the lowest chloride contents of all commercially available insulations.

Now, as an added feature, Kaylo is being formulated with a stress corrosion inhibitor to protect expensive stainless steel piping and equipment from stress corrosion failure from the outside. This inhibitor has been field proven by years of experience in a variety of critical stainless steel applications. Kaylo, with the inhibitor added, has passed a very extensive series of laboratory stress corrosion tests (based on the DuPont test procedure).

The low chloride content of Kaylo plus the use of inhibitors make Kaylo the logical choice for insulating stainless steel piping and equipment.

specifications

for insulation of piping with Kaylo

applicable specifications

HH-I-523a Insulation Block, Pipe Covering and Cement, Thermal, Calcium Silicate (For Temperatures up to 1200 F) class II (pipe covering).

MIL-I-2781D Insulation Pipe Covering, Thermal
Grade 1, Class B; Grade 2, Class D;
Grade 3, Class E.

1. Insulating materials

All heated pipes shall be insulated with Kaylo Pipe Insulation as manufactured by Owens-Corning Fiberglas Corporation, to the thickness noted on drawings or as shown in the table.

The insulation shall have a maximum shrinkage of 1.4% after 24 hr. heat soak @ 1200F. The insulation shall be certified safe for stainless steel applications. The maximum density shall be 12 pcf.

2. Application

All Pipe Insulation shall be applied over clean, dry surfaces, butting adjoining sections firmly together and adhered canvas, when furnished, smoothly over joints. Longitudinal and circumferential joints need not be pointed with finishing cement to conserve heat.

Insulation on pipes over 12" diameter and all outdoor piping shall be wired in place with 16 gauge soft annealed wire on no greater than 9" centers. Where double layer insulation is applied, the first layer shall be wired in place without jacket; the second layer shall be applied with all joints staggered.

All flanges, valves and fittings shall be insulated with Fiberglas molded fitting insulation or fabricated mitered segments of pipe insulation equal in thickness to the insulation on the adjoining pipe. Fittings on pipe sizes 3" and smaller may be insulated with O-C 110 Insulating Cement of equal thickness.

3. Surface finish

Indoor piping under 12" diameter not subject to abrasion or mechanical abuse requires no finish in addition to the factory-furnished canvas. Piping over 12" diameter shall be finished with 6-ounce canvas adhered with Sealfas Mastic.

Piping located outdoors shall be finished with 45-lb. roofing felt jacket with all joints lapped not less than 2". Jackets shall be wired with 16 ga. copper wire on not greater than 9" centers or banded on 12" centers with ½" galvanized bands. Other suitable weatherproof jackets such as metal, asphalt or plastic coating may be applied according to the jacket manufacturers' specifications.

Insulation on flanges, valves and fittings shall be covered with a ¼" coat of O-C 110 Insulation Cement. Insulation located indoors shall be further finished with 6 oz. canvas neatly adhered with Sealfas Mastic.

All insulation on flanges, valves and fittings located outdoors shall be covered with asphalt weatherproof mastic, such as BF 90-07, reinforced with an open mesh glass fabric. Mastic shall be applied in sufficient thickness to give a ⅛" dry coat and shall be troweled neatly over the fitting with the jacket on the adjacent pipe insulation lapped at least 2" over the mastic.

The foregoing is necessarily general in nature. Application procedure and material approval is at the discretion and responsibility of the design engineer to meet specific job requirements.

Pub

Kaylo Block and Pipe Insulation Product Literature, Owens-Illinois and Owens-Corning Fiberglas (1951–1970) Published by AsbestosClaims.Law
ACL Doc 24543 · Page 46 of 51 asbestosclaims.law/library/24543/46

design data for Kaylo Insulations

This table presents reference data for information on the actual thicknesses according to the simplified Dimensional Standard system.

The following data are presented to aid in the design of Kaylo Pipe Insulation modified to meet specific needs. Recommendations are generalized and should be modified to meet local conditions and job requirements.

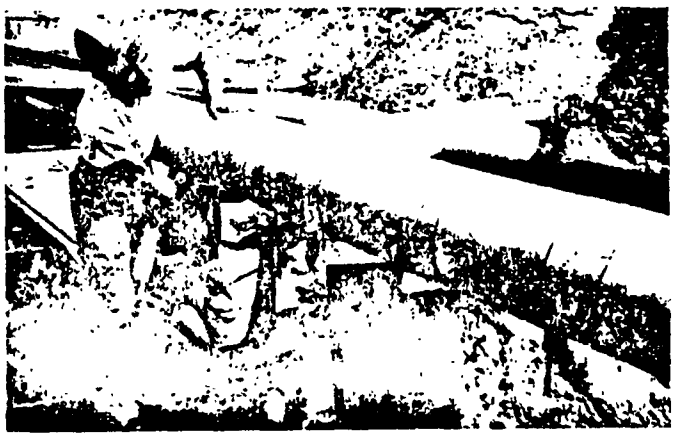
importance of calculating economic thickness

Selection of insulation thicknesses for any specific application should take into consideration at least the following criteria.

1. Cost of insulation applied
2. Cost of heat energy
3. Cost of capital
4. Depreciation period—plant and insulation
5. Capital investment in heat production equipment
6. Temperature differential
7. Size of the pipe or surface
8. Conductivity of insulation

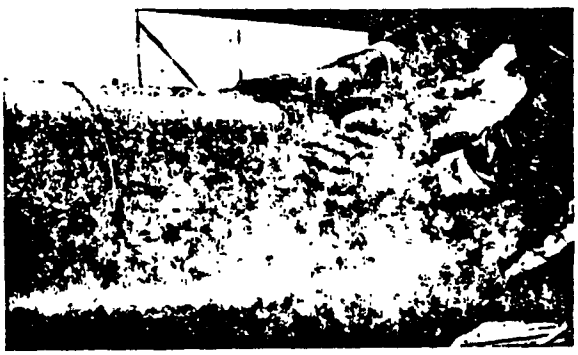
To assist the engineer, Owens-Corning Fiberglas has taken the figures provided by the National Insulation Manufacturers Association in their manual, "How to Determine Economic Thickness of Insulation" and, by pre-calculating many of the equations on a computer, has created a quick, simple system for resolving economic thickness. To obtain your copy of this Dividend Engineering "Economic Thickness Manual," contact your local Fiberglas branch office. Your local Fiberglas representative will be glad to explain this quick, practical method for computing economical thickness under all normal operating conditions.

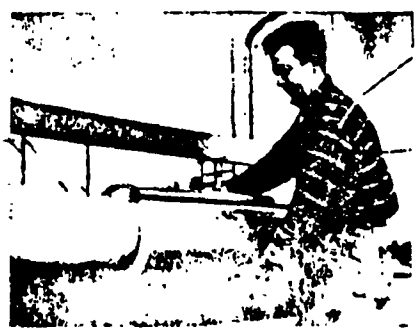
applications—Kaylo and Kaylo-Klad



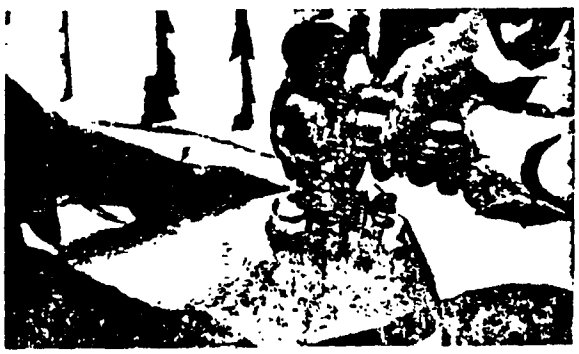
Off-site yard steam insulated with Kaylo Pipe Insulation for efficiency and controlled temperatures at distant points.







Kaylo Klad
Stainless steel and aluminum clad Kaylo Pipe Insulations apply quickly to piping. A self locking longitudinal seam and end joint strips make application of insulation and weather protection a "one-step" operation. The neat finished appearance "dresses up" the line and provides a virtually maintenance-free weather protection.



Kaylo-Klad aluminum jacket "locks out" the weather. The longitudinal seam joint and end joint band, with integral mastic, provide positive weather protection.

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economic thicknesses—Kaylo

temp. diff.		100 F			200 F			300 F		
	pipe size	E.T.	S.T.	H.L.	E.T.	S.T.	H.L.	E.T.	S.T.	H.L.
C	½"	1	92	16	1½	95	27	2	98	38
	¾"	1	94	18	1½	97	31	2	100	43
	1"	1	92	20	1½	96	34	2	99	46
	1¼"	1	95	25	1½	96	38	2	103	54
	1½"	1	93	25	1½	99	43	2	98	54
	2"	1	94	29	1½	99	48	2	102	64
	2½"	1	94	33	1½	96	50	2½	96	61
	3"	1	95	39	2	95	54	2½	100	74
	3½"	1½	89	30	2	94	55	2½	98	76
	4"	1½	90	33	2	96	64	2½	101	87
	4½"	1½	90	37	2	96	64	2½	100	87
	5"	1½	91	44	2	97	75	2½	101	100
	6"	1½	92	51	2½	94	74	3	99	102
	7"	1½	92	56	2½	94	82	3	99	110
	8"	1½	92	62	2½	94	87	3½	96	109
	9"	1½	92	67	2½	94	95	3½	97	118
	10"	2	89	59	2½	94	105	3½	97	130
	12"	2	90	68	3	92	106	4	95	135
	14"	2	90	78	3	93	118	4	96	148
	16"	2½	88	73	3	93	132	4	96	165
	18"	2½	88	81	3	94	146	4	96	182
	20"	2½	88	89	3	94	160	4	97	198
	24"	2½	88	104	3	94	188	4½	95	211
	30"	2½	88	118	3½	92	177	5	93	204

KEY

(ambient still air at 70 F)

ET = Economic Thickness (in.)

ST = Surface Temperature.* (F)

HL = Heat Loss Btu/Lin. ft./hr.

*Surface temperatures for Kaylo-Klad will be higher due to the emissivity of the aluminum jacket. This will vary with ambient temperature thickness of insulation used. However, the thermal efficiency of the application will be improved slightly by the aluminum jacket.

C = Commercial and Industrial

U = Power and Utility

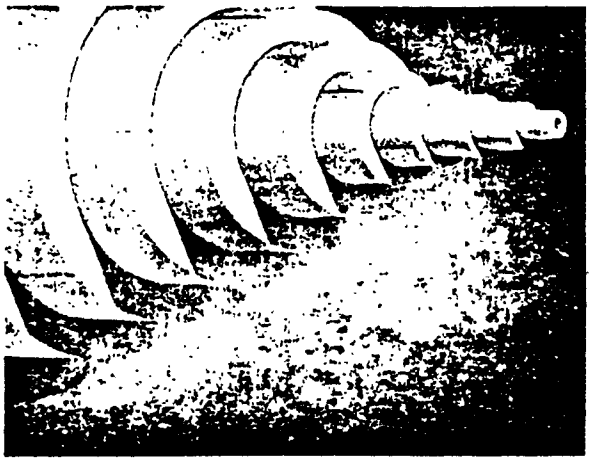
P = Process Industries

temp. diff.		200 F			400 F			600 F			800 F			1000 F		
	pipe size	E.T.	S.T.	H.L.	E.T.	S.T.	H.L.	E.T.	S.T.	H.L.	E.T.	S.T.	H.L.	E.T.	S.T.	H.L.
U	½"	1	105	32	1	136	71	1½	124	94	2	137	119	2	157	158
	¾"	1	110	39	1	148	84	1½	142	108	2	145	135	2½	136	154
	1"	1	105	41	1½	118	73	2	123	103	2	143	147	2½	143	175
	1¼"	1	112	52	1½	119	82	2	130	121	2	154	173	2½	153	203
	1½"	1	109	53	1½	123	92	2	121	121	2	141	169	2½	143	204
	2"	1	110	61	1½	125	105	2	130	143	2½	137	182	3	141	220
	2½"	1	111	70	1½	118	108	2½	116	136	2½	134	193	3	138	235
	3"	1	113	76	2	116	116	2½	124	164	3	133	210	3½	136	253
	3½"	1½	98	64	2	113	119	2½	120	169	3	128	216	3½	138	264
	4"	1½	102	77	2	118	139	2½	126	194	3	134	244	3½	140	295
	4½"	1½	98	85	2	113	151	2½	120	210	3	128	260	3½	138	304
	5"	1½	104	91	2	120	164	3	121	199	3½	129	256	4	138	310
	6"	1½	105	107	2	121	185	3	121	227	3½	129	286	4	136	348
	7"	1½	105	116	2	121	206	3	121	244	3½	131	314	4	136	383
	8"	1½	104	129	2½	112	188	3	121	268	3½	132	343	4½	130	387
	9"	2	98	110	2½	113	206	3½	118	262	4	127	340	4½	133	410
	10"	2	98	123	2½	114	228	3½	118	288	4	128	373	4½	135	457
	12"	2	100	142	2½	115	262	3½	119	330	4	130	426	5	131	483
	14"	2	100	162	2½	118	294	3½	121	366	4	132	470	5	133	527
	16"	2	101	182	3	112	286	4	116	368	4½	127	477	5½	129	535
	18"	2	101	202	3	112	316	4	117	404	4½	128	525	5½	130	570
	20"	2	101	222	3	112	346	4	117	442	4½	128	578	5½	131	626
	24"	2	101	262	3	113	407	4	118	517	4½	129	666	5½	132	721
	30"	2	101	370	3	113	490	4	118	612	5	125	650	6	128	770
P	½"	1	105	32	1	136	71	1	170	99	1	212	146	1½	185	160
	¾"	1	110	39	1	148	84	1	186	117	1	236	170	1½	200	190
	1"	1	105	41	1	139	89	1	172	124	1	215	180	1½	196	205
	1¼"	1	112	52	1	154	114	1	195	156	1½	169	167	1½	196	230
	1½"	1	109	53	1	146	115	1	183	159	1½	180	190	1½	210	255
	2"	1	110	61	1	149	133	1½	149	169	1½	182	210	2	176	271
	2½"	1	111	70	1	151	152	1½	140	136	1½	167	248	2	168	286
	3"	1	113	76	1	156	180	1½	156	223	2	163	266	2	188	354
	3½"	1	107	83	1½	123	138	1½	147	223	2	155	271	2½	159	319
	4"	1	112	98	1½	131	166	1½	159	268	2	167	317	2½	170	366
	4½"	1	114	103	1½	133	180	1½	163	290	2	170	350	2½	173	394
	5"	1	115	120	1½	135	199	1½	165	320	2	171	374	2½	175	422
	6"	1	117	151	1½	137	232	1½	169	374	2	175	424	2½	178	484
	7"	1½	105	116	1½	137	252	2	146	332	2½	154	405	3	160	461
	8"	1½	104	129	1½	137	280	2	146	366	2½	154	431	3	160	505
	9"	1½	104	142	1½	136	307	2	146	384	2½	156	470	3	162	550
	10"	1½	104	151	1½	135	328	2	146	430	2½	158	521	3	166	608
	12"	1½	104	174	1½	136	380	2	153	496	2½	161	600	3	168	697
	14"	1½	107	202	2	127	351	2½	139	474	2½	167	675	3	174	777
	16"	1½	108	228	2	128	394	2½	140	530	2½	168	756	3½	163	770
	18"	1½	108	253	2	129	434	2	141	589	3	155	775	3½	163	850
	20"	1½	108	279	2	129	481	2	141	646	3	155	794	3½	163	929
	24"	1½	108	331	2	129	569	2	142	759	3	156	930	3½	179	1089
	30"	1½	108	410	2	130	695	2	142	924	3	156	1,093	3	180	334

E.T.—Economic Thickness, inches S.T.—Surface Temperature, °F H.L.—Btu per linear foot per hour °F ambient still air

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KAYLO-20 pipe insulation *for indoor and outdoor piping up to 1800 F operating temperature*



Kaylo-20® Insulation, colored pink for identification, a high-temperature calcium silicate heat insulation manufactured by Owens-Corning Fiberglas extends the range of Kaylo Heat Insulation to include temperatures up to 1800 F with all the properties of moisture resistance and high strength of standard Kaylo material. It also may be used with outer layers of Fiberglas Pipe Insulation to provide ultimate balance of cost and efficiency.

Kaylo-20 Insulation is highly dimensionally stable at the temperatures for which it is designed. Resistance of this insulation to high temperatures makes it extremely useful for protecting fluids in the pipe in case of fire.

sizes

thickness—Kaylo-20 Pipe Insulation is available in thicknesses from 1" to 3" depending upon pipe size. Kaylo-20 Tube Insulation is available in thicknesses of 1" and 1½".

pipe sizes—Kaylo-20 Pipe Insulation is available to fit pipe from ½" to 39" in diameter. Kaylo-20 Tube Insulation in copper tubing sizes will fit tubing from ½" to 3⅛".

forms—Kaylo-20 Pipe Insulation is available in sectional or multi-segmental form depending upon pipe size. All insulation is furnished in 3' sections.

jackets

canvas—Standard canvas jackets are provided at no additional charge with Kaylo-20 Sectional Pipe and Tube Insulation on thicknesses up to and including 2½". Standard canvas is available for segmental forms at a slight additional cost. Bands are available for use with this product at a small additional charge and will be shipped only on request.

6 oz. and 8 oz. canvas jackets are available on all types, sizes and thicknesses of Kaylo-20 Pipe Insulation at additional charge. These jackets are factory applied on sectional pipe and tube insulation. On multi-segmental insulation, they are furnished but not adhered.

Kaylo Klad locks out the weather, protects the insulation and provides a maintenance free line and attractive finished appearance. Factory applied jackets of .016 embossed aluminum and .010 stainless steel have longitudinal interlocking seams and joint bands with integral mastic permitting application of insulation and weather proofing at the same time and reducing application costs.

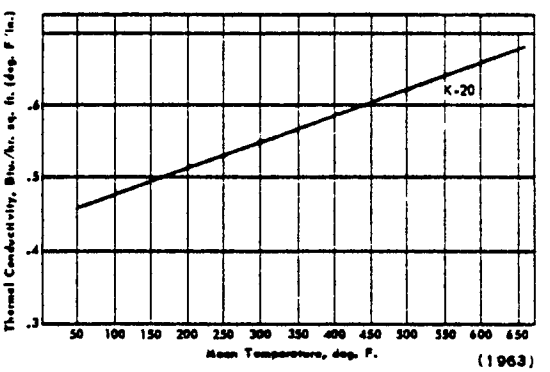
limitations

Kaylo-20 material is designed for temperatures up to 1800 F. It should not be used when operating temperatures exceed this limit.

physical properties

density:
approximately 12 lbs. per cu. ft.
flexural strength: (ASTM C-203)
90 lbs. per sq. in.
compressive strength: (ASTM C-165)
130 lbs. per sq. in. at 5% deformation
dimensional stability:
linear shrinkage after heating for 24 hours in muffle
at 1200 F.....0.7%
at 1800 F.....1.6%
resistance to abrasion:
(conventional tumbling test—loss in weight after 10 min.)
before heating 3%
after heating for 24 hours
at 1200 F 5%
at 1800 F 20%
alkalinity: ph 10
working temperature: up to 1800 F
physical properties
specific heat: 0.22 Btu/1 lbs. F.
thermal diffusivity: 0.016 sq. ft. per hr. at 200 F mean temperature.

thermal conductivity



recommended thicknesses†

These are average figures and may be adjusted to meet special conditions encountered on specific jobs. Kaylo heat loss data is available for use where plant operating economics and other conditions demand greater insulation thicknesses. Design surface temperatures are approx. 150 F.

nom. pipe size	Temperature Difference F							
	1100	1200	1300	1400	1500	1600	1700	1800
½	2½	2½	3	3	3½	3½	4	4
¾	2½	2½	3	3	3½	3½	4	4
1	2½	3	3	3	3½	3½	4	4½
1¼	2½	3	3	3½	3½	4	4½	4½
1½	3	3	3½	3½	3½	4	4½	5
2	3	3	3½	3½	4	4	4½	5
2½	3	3½	3½	4	4	4½	5	5½
3	3½	3½	3½	4	4	4½	5	5½
3½	3½	3½	4	4	4½	5	5½	6
4	3½	3½	4	4	4½	5	5½	6
6	4	4	4½	4½	5	5½	6	6½
8	4	4	4½	4½	5	5½	6	6½
10	4	4½	4½	5	5½	6	6½	7
12	4½	4½	5	5	5½	6	6½	7
14	4½	5	5	5½	6	6½	7	7½
16	4½	5	5½	6	6½	7	7½	8
18	5	5	5½	6	6½	7	7½	8
20	5	5½	6	6½	7	7½	8	8½
24-72	5	5½	6	6½	7	7½	8	8½

† For true economic thickness, request O-C "Economic Thickness Manual"

Kaylo Block and Pipe Insulation Product Literature, Owens-Illinois and Owens-Corning Fiberglas (1951–1970) Published by AsbestosClaims.Law
ACL Doc 24543 · Page 49 of 51 asbestosclaims.law/library/24543/49

insulation thickness standards— Kaylo and Kaylo-20

CT

nom. tube size	O. D. of tube (nom.)	single layer: nom. 1" actual	nom. 1" O.D.	nom. 1½" actual	nom. 1½" O.D.
⅜"	½"	1.18	2.88	1.49	3.50
½"	⅝"	1.11	2.88	1.42	3.50
¾"	⅞"	1.05	2.88	1.61	4.00
⅞"	1"	.99	2.88	1.55	4.00
1"	1⅛"	1.17	3.50	1.42	4.00
1¼"	1⅜"	1.05	3.50	1.55	4.50
1½"	1⅝"	1.17	4.00	1.42	4.50
2"	2⅛"	.81	4.00	1.41	5.00
2½"	2⅝"	.91	4.50	1.45	5.56
3"	3⅛"	.91	5.00	1.73	6.66

Federal Specification Compliance

HH-I-523a Insulation Block Pipe Covering and Cement, Thermal, Calcium Silicate (For Temperatures up to 1200 F) class 11 (pipe covering).

MIL-I-2781D Insulation Pipe Covering, Thermal, Grade I Class B, Grade II Class D, Grade III Class E.

For Applicable Specifications refer to Page 23.

note:

Insulations for tubing sizes other than standard sizes shown are available only as cut-downs from next larger size tube or pipe and will be slightly elliptical in shape.

KEY

IP = iron pipe sizes

CT = copper tubing

IL = Inner Layer

OL = Outer Layer

IP

nom. pipe size	O.D. of pipe	single layer only: nom. 1" actual	nom. 1" O.D.	nom. 1½" actual	nom. 1½" O.D.	single or double layer: nom. 2" actual	nom. 2" O.D.	nom. 2½" actual	nom. 2½" O.D.	nom. 3" actual	nom. 3" O.D.	multiple layer—recommended combinations: 2" IL/OL	2½" IL/OL	3" IL/OL	3½" IL/OL	4" IL/OL	4½" IL/OL	5" IL/OL	6" IL/OL
⅛"	.84	1.00	2.88	1.86	4.00	2.06	5.00	2.89	6.66	3.39	7.66	½x1 / 2½x1	½x1 / 2½x1½	½x1½ / 3½x1½	½x1½ / 3½x2	½x2 / 4½x2	½x2 / 4½x2½	½x2½ / 6	½x3 / 7
¼"	1.05	.90	2.88	1.46	4.00	1.96	5.00	2.79	6.66	3.29	7.66	¾x1 / 2½x1	¾x1 / 2½x1½	¾x1½ / 3½x1½	¾x1½ / 3½x2	¾x2 / 4½x2	¾x2 / 4½x2½	¾x2½ / 6	¾x3 / 7
1"	1.32	1.08	3.50	1.58	4.50	2.11	5.56	2.66	6.66	3.16	7.66	1 x1 / 3 x1½	1 x1 / 3 x1½	1 x1½ / 4 x1½	1 x1½ / 4 x2	1 x2 / 5 x2	1 x2 / 5 x2½	1 x2½ / 6	1 x3 / 7
1¼"	1.66	.90	3.50	1.06	5.00	1.94	5.56	2.48	6.66	2.98	7.66	1¼x1 / 3 x1½	1¼x1 / 3 x1½	1¼x1½ / 4½x1½	1¼x1½ / 4½x2	1¼x2 / 5 x2	1¼x2 / 5 x2½	1¼x2½ / 6	1¼x3 / 7
1½"	1.90	1.03	4.00	1.53	5.00	2.36	6.66	2.86	7.66	3.36	8.66	1½x1 / 3½x1½	1½x1 / 3½x1½	1½x1½ / 4½x1½	1½x1½ / 4½x2	1½x2 / 6 x2	1½x2 / 6 x2½	1½x2½ / 7	1½x3 / 8
2"	2.38	1.04	4.50	1.57	5.56	2.12	6.66	2.62	7.66	3.12	8.66	2 x1 / 4 x1½	2 x1 / 4 x1½	2 x1½ / 5 x2	2 x1½ / 6 x2	2 x2 / 6 x2	2 x2 / 6 x2½	2 x2½ / 7	2 x3 / 8
2½"	2.88	1.04	5.00	1.07	6.66	2.37	7.66	2.87	8.66	3.37	9.66	2½x1 / 4½x1½	2½x1 / 4½x1½	2½x1½ / 6 x2	2½x1½ / 6 x2	2½x2 / 7 x2	2½x2 / 7 x2½	2½x2½ / 8	2½x3 / 9
3"	3.50	1.00	5.56	1.55	6.66	2.05	7.66	2.55	8.66	3.05	9.66	3 x1 / 5 x1½	3 x1 / 5 x1½	3 x1½ / 6 x1½	3 x1½ / 6 x2	3 x2 / 7 x2	3 x2 / 7 x2½	3 x2½ / 8	3 x3 / 9
3½"	4.00	1.30	6.66	1.80	7.66	2.30	8.66	2.80	9.66	3.30	10.78	3½x1 / 6 x1½	3½x1 / 6 x1½	3½x1½ / 7 x1½	3½x1½ / 7 x2	3½x2 / 8 x2	3½x2 / 8 x2½	3½x2½ / 9	3½x3 / 10
4"	4.50	1.05	6.66	1.55	7.66	2.05	8.66	2.55	9.66	3.11	10.78	4 x1 / 6 x1½	4 x1 / 6 x1½	4 x1½ / 7 x1½	4 x1½ / 7 x2	4 x2 / 8 x2	4 x2½ / 9 x2½	4 x2½ / 9 x2½	4 x3 / 10 x3
4½"	5.00	1.30	7.66	1.80	8.66	2.30	9.66	2.86	10.78	3.36	11.78		4½x1 / 7 x1½	4½x1½ / 8 x1½	4½x1½ / 8 x2	4½x2 / 9 x2	4½x2 / 9 x2½	4½x2½ / 10 x2½	4½x3 / 11 x3
5"	5.56	1.82	7.66	1.32	8.66	2.82	9.66	2.58	10.78	3.08	11.78		5 x1 / 8 x1½	5 x1½ / 8 x1½	5 x1½ / 8 x2	5 x2 / 9 x2	5 x2 / 9 x2½	5 x2½ / 10 x2½	5 x3 / 11 x3
6"	6.63	.95	8.66	1.45	9.66	2.02	10.78	2.52	11.78	3.03	12.81		6 x1 / 8 x1½	6 x1½ / 9 x1½	6 x1½ / 9 x2	6 x2 / 10 x2	6 x2 / 10 x2½	6 x2½ / 11 x2½	6 x3 / 12 x3
7"	7.63			1.52	10.78	2.02	11.78	2.53	12.81	3.16	14.06		7 x1 / 8 x1½	7 x1½ / 10 x1½	7 x1½ / 10 x2	7 x2 / 11 x2	7 x2½ / 11 x2½	7 x2½ / 12 x2½	7 x3 / 14 x3
8"	8.63			1.52	11.78	2.03	12.81	2.66	14.06	3.16	15.06		8 x1 / 9 x1½	8 x1½ / 11 x1½	8 x2 / 11 x2	8 x2 / 12 x2	8 x2½ / 12 x2½	8 x2½ / 14 x2½	8 x3 / 15 x3
9"	9.63			1.53	12.81	2.16	14.06	2.66	15.06	3.17	16.09		9 x1 / 12 x1½	9 x1½ / 12 x1½	9 x2 / 12 x2	9 x2 / 14 x2	9 x2½ / 14 x2½	9 x2½ / 15 x2½	9 x3 / 16 x3
10"	10.75			1.59	14.06	2.09	15.06	2.61	16.09	3.06	17.00		10 x1 / 14 x1½	10 x1½ / 14 x1½	10 x2 / 14 x2	10 x2 / 15 x2	10 x2½ / 15 x2½	10 x2½ / 16 x2½	10 x3 / 17 x3
11"	11.75			1.58	15.06	2.09	16.09	2.55	17.00	3.06	18.00		11 x1 / 15 x1½	11 x1½ / 15 x1½	11 x2 / 15 x2	11 x2 / 16 x2	11 x2½ / 16 x2½	11 x2½ / 17 x2½	11 x3 / 18 x3
12"	12.75			1.58	16.09	2.05	17.00	2.55	18.00	3.06	19.00		12 x1 / 16 x1½	12 x1½ / 16 x1½	12 x2 / 16 x2	12 x2 / 17 x2	12 x2½ / 17 x2½	12 x2½ / 18 x2½	12 x3 / 19 x3
14"	14.00			1.42	17.00	1.92	18.00	2.42	19.00	2.92	20.00		14 x1 / 17 x1½	14 x1½ / 17 x2	14 x2 / 18 x2	14 x2 / 19 x2	14 x2½ / 19 x2½	14 x2½ / 20 x2½	14 x3 / 20 x3
15"	15.00			1.42	18.00	1.92	19.00	2.41	20.00	2.92	21.00		15 x1 / 18 x1½	15 x1½ / 18 x2	15 x2 / 19 x2	15 x2 / 20 x2	15 x2½ / 20 x2½	15 x2½ / 21 x2½	15 x3 / 21 x3
16"	16.00			1.41	19.00	1.91	20.00	2.41	21.00	2.91	22.00		16 x1 / 19 x1½	16 x1½ / 19 x2	16 x2 / 20 x2	16 x2 / 21 x2	16 x2½ / 21 x2½	16 x2½ / 22 x2½	16 x3 / 22 x3
17"	17.00			1.41	20.00	1.91	21.00	2.41	22.00	2.91	23.00		17 x1 / 20 x1½	17 x1½ / 20 x2	17 x2 / 21 x2	17 x2 / 22 x2	17 x2½ / 22 x2½	17 x2½ / 23 x2½	17 x3 / 23 x3
18"	18.00			1.41	21.00	1.91	22.00	2.41	23.00	2.91	24.00		18 x1 / 21 x1½	18 x1½ / 21 x2	18 x2 / 22 x2	18 x2 / 23 x2	18 x2½ / 23 x2½	18 x2½ / 24 x2½	18 x3 / 24 x3
19"	19.00			1.41	22.00	1.91	23.00	2.41	24.00	2.91	25.00		19 x1 / 22 x1½	19 x1½ / 22 x2	19 x2 / 23 x2	19 x2 / 24 x2½	19 x2½ / 24 x2½	19 x2½ / 25 x2½	19 x3 / 25 x3A
20"	20.00			1.41	23.00	1.91	24.00	2.41	25.00	2.91	26.00		20 x1 / 23 x1½	20 x1½ / 23 x2	20 x2 / 24 x2	20 x2 / 25 x2½	20 x2½ / 25 x2½A	20 x3 / 26 x3A	
21"	21.00			1.41	24.00	1.91	25.00	2.41	26.00	2.91	27.00		21 x1 / 24 x1½	21 x1½ / 24 x2	21 x2 / 25 x2A	21 x2 / 26 x2A	21 x2½ / 26 x2½A	21 x3 / 27 x3A	
22"	22.00			1.41	25.00	1.91	26.00	2.41	27.00	2.91	28.00		22 x1 / 25 x1½A	22 x1½ / 25 x2 A	22 x2 / 26 x2A	22 x2 / 27 x2A	22 x2½ / 27 x2½A	22 x3 / 28 x3A	
23"	23.00			1.41	26.00	1.91	27.00	2.41	28.00	2.91	29.00		23 x1½A / 26 x1½A	23 x1½ / 26 x2 A	23 x2 / 27 x2A	23 x2 / 28 x2A	23 x2½ / 28 x2½A	23 x3 / 29 x3A	
Quar. Seg. 24"	24.00			1.41	27.00	1.91	28.00	2.41	29.00	2.91	30.00		24 x1½ / 27 x1½A	24 x1½ / 27 x2 A	24 x2 / 28 x2A	24 x2 / 29 x2A	24 x2½ / 29 x2½A	24 x3 / 30 x3A	
25"	25.00			1.46	28.00	1.98	29.00	2.50	30.00	3.02	31.00		25 x1½A / 28 x1½B	25 x1½A / 28 x2 B	25 x2A / 29 x2B	25 x2 A / 29 x2½B	25 x2½A / 30 x2½B	25 x3A / 31 x3B	
26"	26.00			1.46	29.00	1.98	30.00	2.50	31.00	3.02	32.00		26 x1½A / 29 x1½B	26 x1½A / 29 x2 B	26 x2A / 30 x2B	26 x2 A / 30 x2½B	26 x2½A / 31 x2½B	26 x3A / 32 x3B	
27"	27.00			1.46	30.00	1.98	31.00	2.50	32.00	3.02	33.00		27 x1½A / 30 x1½B	27 x1½A / 30 x2 B	27 x2A / 31 x2B	27 x2 A / 31 x2½B	27 x2½A / 32 x2½B	27 x3A / 33 x3B	
28"	28.00			1.46	31.00	1.98	32.00	2.50	33.00	3.02	34.00		28 x1½A / 31 x1½B	28 x1½A / 31 x2 B	28 x2A / 32 x2B	28 x2 A / 32 x2½B	28 x2½A / 33 x2½B	28 x3A / 34 x3B	
29"	29.00			1.46	32.00	1.98	33.00	2.50	34.00	3.02	35.00		29 x1½A / 32 x1½B	29 x1½A / 32 x2 B	29 x2A / 33 x2B	29 x2 A / 33 x2½B	29 x2½A / 34 x2½B	29 x3A / 35 x3B	
30"	30.00			1.46	33.00	1.98	34.00	2.50	35.00	3.02	36.00		30 x1½B / 33 x1½C	30 x1½B / 33 x2 C	30 x2B / 34 x2C	30 x2 B / 34 x2½C	30 x2½B / 35 x2½C	30 x3B / 36 x3C	
31"	31.00			1.46	34.00	1.98	35.00	2.50	36.00	3.02	37.00		31 x1½B / 34 x1½C	31 x1½B / 34 x2 C	31 x2B / 35 x2C	31 x2 B / 35 x2½C	31 x2½B / 36 x2½C	31 x3B / 37 x3C	
32"	32.00			1.46	35.00	1.98	36.00	2.50	37.00	3.02	38.00		32 x1½B / 35 x1½C	32 x1½B / 35 x2 C	32 x2B / 36 x2C	32 x2 B / 36 x2½C	32 x2½B / 37 x2½C	32 x3B / 38 x3C	
33"	33.00			1.46	36.00	1.98	37.00	2.50	38.00	3.02	39.00		33 x1½B / 36 x1½C	33 x1½B / 36 x2 C	33 x2B / 37 x2C	33 x2 B / 37 x2½C	33 x2½B / 38 x2½C	33 x3B / 39 x3C	
34"	34.00			1.46	37.00	1.98	38.00	2.50	39.00	3.02	40.00		34 x1½B / 37 x1½C	34 x1½B / 37 x2 C	34 x2B / 38 x2C	34 x2 B / 38 x2½C	34 x2½B / 39 x2½C	34 x3B / 40 x3C	
35"	35.00			1.46	38.00	1.98	39.00	2.50	40.00	3.02	41.00								
36"	36.00			1.46	39.00	1.98	40.00	2.50	41.00	3.02	42.00								
37"	37.00			1.46	40.00	1.98	41.00	2.50	42.00	3.02	43.00								
38"	38.00			1.46	41.00	1.98	42.00	2.50	43.00	3.02	44.00								
39"	39.00			1.46	42.00	1.98	43.00	2.50	44.00	3.02	45.00								

Sectional / Tri-Segmental / K-Segmental

Insulation for the nominal pipe sizes range of 25"-39" is furnished in three K-Segmental curvature sizes. Approximately six to eight segments are required to enclose pipes in this size range. The last segment applied must be cut to fit accurately. Letter designates molded K Segmental size for proper nesting.

Segmental Dimensions: Letter	In. Dia.	O. Dia.	Approx. Outer Arc
A	25.00"	31.00"	6"
B	[illegible]	[illegible]	7"
C	36.00"	41.00"	9¼

PRODUCED JM - 83

Kaylo Block and Pipe Insulation Product Literature, Owens-Illinois and Owens-Corning Fiberglas (1951–1970)
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Where to buy

Available from authorized distributors located in principal cities. Consult the yellow pages of your classified directory for their location or call your nearest Fiberglas Branch Office listed below.

Albany, New York	438-6021
Albuquerque, New Mexico	243-4583
Anchorage, Alaska	275-8344
Atlanta, Georgia	355-6821
Baltimore, Md. (Washington)	587-0930
Billings, Montana	252-8496
Birmingham, Alabama	252-4184
Boise, Idaho	342-9311
Boston, Massachusetts	235-7540
Buffalo, New York	853-4123
Charleston, West Virginia	343-7094
Charlotte, North Carolina	334-6864
Chicago, Illinois	583-0100
Cincinnati, Ohio	281-1173
Cleveland, Ohio	621-6451
Columbia, South Carolina	252-1348
Columbus, Ohio	486-9418
Dallas, Texas	741-3982
Dayton, Ohio	293-3155
Denver, Colorado	244-2991
Des Moines, Iowa	288-4273
Detroit, Michigan	547-8000
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Memphis, Tennessee	327-6116
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Philadelphia, Pennsylvania	688-8650
Phoenix, Arizona	258-4541
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