

ILO50C.ASB
05/23/91

STATE OF ILLINOIS
IN THE CIRCUIT COURT OF THE ELEVENTH JUDICIAL CIRCUIT
COUNTY OF MCLEAN

MOLLIE CRABTREE, Individually and as	)	
Special Administrator of the Estate of	)	
CHARLES CRABTREE, deceased,	)	
Plaintiff,	)	
v.	)	No. 91 L 1
ARMSTRONG WORLD INDUSTRIES, INC., et al.,	)	
Defendants.	)	

DEFENDANT, OWENS-ILLINOIS, INC'S RESPONSES TO
PLAINTIFFS' FIRST REQUEST FOR DISCOVERY FROM
DEFENDANT, OWENS-ILLINOIS, INC.

PRELIMINARY STATEMENT

Some of the events which may be relevant to the matters inquired about by Plaintiffs' Request for Production apparently occurred more than thirty-five years ago. In addition, effective April 30, 1958, Owens-Illinois, Inc. disposed of the business involved in this action by way of sale of that business to Owens-Corning Fiberglas Corporation. Since that time, Owens-Illinois, Inc. has not engaged in any such business. It does not now and it has not since that sale manufactured, distributed or sold any asbestos-containing products. As a result of the foregoing factors, investigations to date indicate that at least some documents which relate to matters inquired about by these requests were transferred to Owens-Corning Fiberglas Corporation with the transfer of the business in question in 1958. Owens-Illinois, Inc. is engaged in a continuing investigation in an attempt to locate, confirm the transfer of, or confirm the absence of, such documents and is also engaged in a continuing investigation into the matters inquired about in these requests. Unless otherwise stated in an answer to a specific request, the answers set out hereinafter are limited to the period during which Owens-Illinois, Inc. manufactured asbestos-containing

JUN 17 1991

insulation products and to the facilities related to that business. The following is a part of and is incorporated by reference in every answer provided hereinafter:

This answer is accurate as of the date made. However, Owens-Illinois, Inc.'s investigation is continuing, and Owens-Illinois, Inc. cannot exclude the possibility that it may be able to obtain more complete information or even information which indicates that the answer being supplied is incorrect. Owens-Illinois, Inc. objects to answering this request in regard to any period of time other than the period during which it engaged in the business involved in this case which ended in mid-1958 or concerning any facility not related to that business, on the basis that any such answer would be irrelevant to the subject matter of the pending litigation, would not be reasonably calculated to lead to the discovery of admissible evidence, and would be burdensome and oppressive.

Furthermore, Owens-Illinois, Inc. objects to the instructions and definitions supplied by plaintiffs with regard to these requests, on the basis that the definitions are overly broad, vague, and often inconsistent with the normal usage and meaning of such words, and the instructions are overly broad, burdensome and constitute an unreasonable expansion of the requests themselves. Owens-Illinois, Inc. therefore gives notice that it does not consider itself bound by the instructions and definitions propounded by plaintiffs, and instead shall answer the requests in a manner consistent with a normal understanding of the language used in the requests and to the extent necessary to fairly and fully answer the requests.

REQUEST NO. 1. All witness statements of any sort, whether signed or unsigned (together with all documents purporting to reflect the same), and a list of those statements for which a privilege from disclosure is claimed.

RESPONSE NO. 1. Neither this defendant nor its counsel is in possession of materials referred to in this request. This defendant reserves the right to supplement its response at any time in the future.

REQUEST NO. 2. All data as to the physical or mental condition of Charles Crabtree, excluding all documents provided you by plaintiffs' counsel and excluding all documents, copies of which have already been provided plaintiffs' counsel through formal discovery.

RESPONSE NO. 2. Neither this defendant nor its counsel is in possession of materials referred to in this request. This defendant reserves the right to supplement its response at any time in the future.

REQUEST NO. 3. All photographs, models, sketches or diagrams of Charles Crabtree.

RESPONSE NO. 3. This defendant has found no documents responsive to this request.

REQUEST NO. 4. All photographs, models, sketches or diagrams of any of the sites at which Charles Crabtree worked.

RESPONSE NO. 4. Neither this defendant nor its counsel is in possession of materials referred to in this request. This defendant reserves the right to supplement its response at any time in the future.

REQUEST NO. 5. All photographs, models, sketches or diagrams of any of the products involved in this litigation.

RESPONSE NO. 5. Refer to Exhibit I which may contain information relevant to the subject matter of this request.

REQUEST NO. 6. All pamphlets, brochures or other documents prepared, distributed or utilized by defendant to advertise or promote asbestos-containing products during the 1950's through 1970's.

RESPONSE NO. 6. Refer to Exhibit I.

REQUEST NO. 7. All medical articles, case reports, textbooks or other documents which relate to any "state-of-the-art" defense you will present.

RESPONSE NO. 7. The documents which this defendant intends to rely upon at trial are not known at the present time. This defendant reserves the right to designate documents to be used at trial at a later date. As a partial listing, however, the following materials may be relied upon: "A Study of Asbestosis in the Asbestos Textile Industry," Dressen, W.C. (1938); an article published in the Transactions of the Eleventh Annual Meeting, Industrial Hygiene Foundation, November 7, 1946, by J. J. Bloomfield; "A Health Survey of Pipe Covering Operations in Constructing Naval Vessels," Fleischer, Drinker, et al., (1946); "Asbestos Exposure During Naval Vessel Overhaul," Marr, William T. (1964); "Prevalence of Chronic Respiratory Disease," Ferris, B. G., Jr. (1971); "Asbestosis and Bronchogenic Carcinoma," Isselbacher, K. J. (1953); Annals of the New York Academy of Sciences Volumes 132 and 330; and the Threshold Limit Values promulgated by the American Conference of Governmental Industrial Hygienists for the years 1946 through 1958.

REQUEST NO. 8. A transcript (including exhibits) of each instance where an expert witness has testified in support of defendant's "state-of-the-art" defense in asbestos disease litigation.

RESPONSE NO. 8. This defendant objects to this request as being vague, ambiguous, irrelevant, overly broad, burdensome and oppressive, not reasonably calculated to lead to the discovery of admissible evidence and not limited to any issue which is the subject of this case.

REQUEST NO. 9. Each document authored by an employee of defendant in the course of his employment dealing in whole or in part with the consequences of exposure to asbestos.

RESPONSE NO. 9. This defendant objects to this request as being unintelligible, overly broad, burdensome and oppressive, not reasonably calculated to lead to the discovery of admissible evidence and not limited to any issue which is the subject of this case.

REQUEST NO. 10. All medical records of those present or former employees of defendant who have filed claims for workers' compensation or occupational disease benefits alleging an injury or disease from exposure to asbestos and all personnel and employment records which evidence or reflect the duration, quantity and quality of his or her exposure to asbestos while employed by defendant.

RESPONSE NO. 10. This defendant objects to this request on the basis that it seeks information which is not relevant to the subject matter of this litigation and is not reasonably calculated to lead to the discovery of admissible evidence, except as it relates to the period of time during which this defendant engaged in the manufacture, sale and distribution

of its asbestos-containing products. Without waiving the above objection, during the period in which this defendant engaged in the manufacture of its asbestos-containing products, it received no workers' compensation claims for any asbestos-related disease.

REQUEST NO. 11. Each written warning, caution or other document which was intended by defendant to reach those persons who would breathe or ingest the asbestos from asbestos-containing products manufactured and/or sold by defendant.

RESPONSE NO. 11. This defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958. This defendant has not found information in its records sufficient to enable it to answer this request. However, it does not appear that any warning concerning asbestos was given in that it does not appear that this defendant had reason to believe that the use of its products would result in a foreseeable risk of harm.

REQUEST NO. 12. A transcript (including exhibits) of each instance where an employee of defendant testified at deposition or trial in asbestos disease litigation.

RESPONSE NO. 12. This defendant objects to this request as being vague, ambiguous, irrelevant, overly broad, burdensome and oppressive, not reasonably calculated to lead to the discovery of admissible evidence and not limited to any issue which is the subject of this case.

REQUEST NO. 13. A transcript (including exhibits) of each instance where an individual whom defendant listed, retained or called as an expert witness, testified at deposition or trial in asbestos disease litigation.

RESPONSE NO. 13. This defendant objects to this request as being vague, ambiguous, irrelevant, overly broad, burdensome and oppressive, not reasonably calculated to lead to the discovery of admissible evidence and not limited to any issue which is the subject of this case.

REQUEST NO. 14. All agreements to which defendant is a party and which relate to the manner in which this case shall be evaluated, delayed or defended including, but not limited to, all Wellington agreements and all documents exchanged by the parties thereto.

RESPONSE NO. 14. This defendant objects to this request on the basis that it seeks information which is not relevant to the subject matter of this litigation and is not reasonably calculated to lead to the discovery of admissible evidence.

REQUEST NO. 15. Defendant's last three annual reports.

RESPONSE NO. 15. This defendant objects to this request on the basis that it seeks information which is not relevant to the subject matter of this litigation and is not reasonably calculated to lead to the discovery of admissible evidence.

REQUEST NO. 16. A list of the names, addresses and employers of each person involved or consulted in the preparation of your response to this request.

RESPONSE NO. 16. This defendant states that it has referred to the relevant business records of the Owens-Illinois Glass Company, which are still in the possession of Owens-

Illinois, Inc., in connection with the preparation of answers to these interrogatories unless otherwise indicated.

REQUEST NO. 17. An affidavit stating whether production is complete according to the knowledge of defendant and defendant's insurance carriers, attorneys, agents and employees.

RESPONSE NO. 17. This defendant states that it has referred to the relevant business records of the Owens-Illinois Glass Company, which are still in the possession of Owens-Illinois, Inc., in connection with the preparation of answers to these interrogatories unless otherwise indicated.

AFFIDAVIT

STATE OF OHIO)

)SS:

COUNTY OF LUCAS)

A. H. SMITH, being duly sworn according to law, deposes and says that he is an Assistant Secretary of Owens- Illinois, Inc., a defendant herein; that as such he is authorized to make an Affidavit on its behalf; and that the facts set forth in the foregoing DEFENDANT, OWENS-ILLINOIS, INC.'S RESPONSES TO REQUEST FOR PRODUCTION, are true and correct to the best of his knowledge, information and belief.

A. H. Smith
A. H. SMITH

SWORN TO and subscribed before me this 4th day of June, 1991.
My Commission Expires: January 4th, 1996

SEAL

Mary Janet Crawford
Notary Public

MARY JANET CRAWFORD
Notary Public, State of Ohio
My Commission Expires 1-4-96

XXXXXXXXXX

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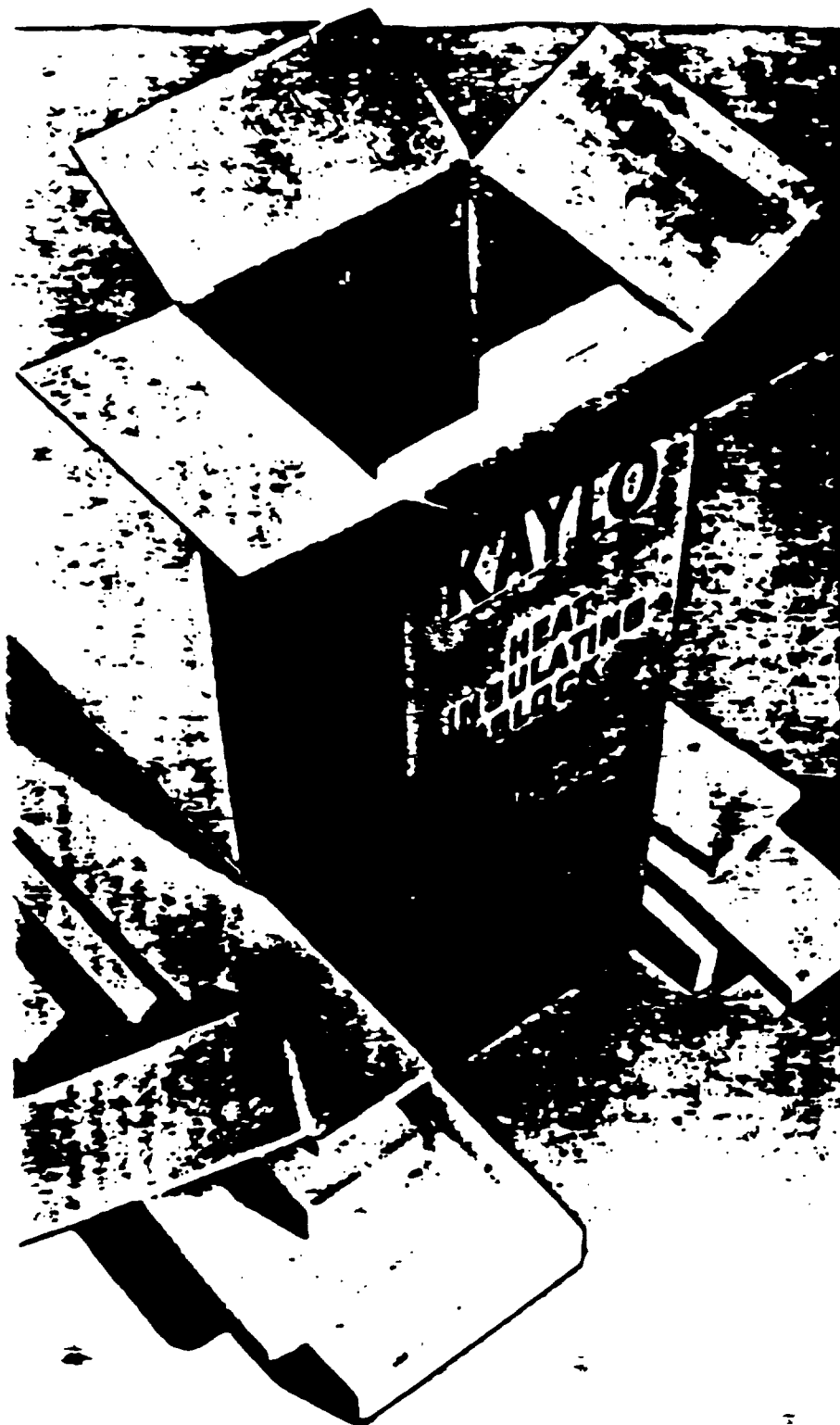
NEW

KAYLO

HEAT INSULATING BLOCK
For Temperatures up to 1200° F.

**AMERICAN STRUCTURAL
PRODUCTS COMPANY
TOLEDO, OHIO
OWENS-ILLINOIS GLASS COMPANY**

A NEW HEAT INSULATION WITH A REMARKABLE COMBINATION OF ADVANTAGES....



Kaylo Heat Insulating is a new type of lightweight insulation that is *efficient* enough used in ordinary room temperature and *resistant* enough to perform evenly up to 1200° F.

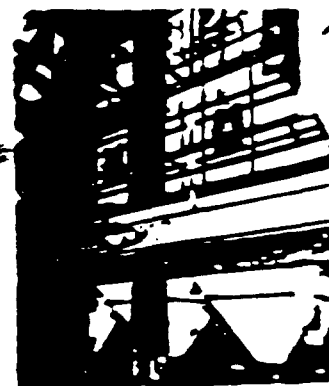
Few new products of any kind have been so thoroughly researched and being placed on the market. Heat Insulating Block is the result of many years' work by Illinois Glass Company, chemists and physicists.

No other material now or effectively combines the most desirable characteristics of the old insulation.

For instance:

LOW DENSITY

Kaylo Heat Insulating weighs only 11 pounds per cubic foot. This light weight (less than one-third the weight of concrete) simplifies shipping and application. It reduces weight—an important factor on ships, for an example.



Notice the clean, straight lines of these insulated precipitators. Applicators find it easy to kind of work with Kaylo Heat Insulating Block because they are so cut and yet they have a great strength. The hoppers are also insulated with Heat Insulating Block.

LOW THERMAL CONDUCTIVITY

The coefficient of conductivity, or K, of Kaylo Heat Insulating Block, is shown on the chart on page four. It is among the most efficient insulations for medium temperature ranges. Its insulation value comes principally from its fine, interfaced cellular structure. These cells are so tiny and so numerous that they present a material surface of approximately 140 acres per cubic foot of insulation.

Experience shows that the insulation value of Kaylo insulation improves when the material is put into service.

EFFECTIVE OVER WIDE TEMPERATURE RANGE

Kaylo Heat Insulating Block performs efficiently not only on temperatures in the low pressure steam and hot water range but on temperatures in the superheated steam range as well. This is shown by the flatness of the conductivity curve. One material coverage with Kaylo insulation handles applications which often require two thicknesses of different materials.

HIGH COMPRESSIVE STRENGTH

Its compressive strength is unusually high for a mineral product of such light weight. Kaylo Heat Insu-

lating Block withstands compression values equivalent to those of a man walking on it or even to those of a heel's being ground into it.

HIGH FLEXURAL STRENGTH

Its flexural strength is higher than the normal requirement for heat insulation of this type. This strength makes for easy handling and application, and contributes to long service with low maintenance.

NO ADDED BINDER

Kaylo insulation is an inorganic compound, containing no added binder. Its performance characteristics, therefore, are not affected by additives, which often reduce insulating value, modify effective temperature range or otherwise limit performance.

EASY TO APPLY WELL

Kaylo Heat Insulating Blocks are clean-cut and trim. They are easy to fit into place to make a good-looking installation. Their "feet" is pleasant and non-irritating. They can be cut, scored and sawed with ordinary wood-working tools. Finishes that go over the block, whether cement, cloth or other types, can be applied smoothly and with a minimum of effort. No special tools are needed.

LOW MOISTURE ABSORPTION

Moisture absorption is no problem with Kaylo insulation. Even when subjected to an atmosphere of 90% relative humidity and a temperature of 120° F., in standard tests, specimens absorb less than 1% moisture by volume.

RETAINS EFFECTIVENESS AFTER LONG SERVICE

Kaylo Heat Insulating Block remains strong, free from excessive powdering, and shows little loss in weight or shrinkage after long application to temperatures up to 1200° F. Even conventional tumbling tests, run after prolonged heating, produce relatively little crumbling or break-down of the material.

STANDARD SIZES

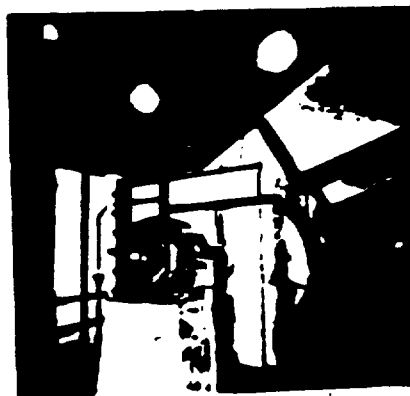
Lengths (inches)	Widths (inches)	Thicknesses (inches)
36	6	1
36	6	1 1/2
36	6	2
36	6	2 1/2
36	6	3
36	12	1
36	12	1 1/2
36	12	2
36	12	2 1/2
36	12	3

Other sizes are available on special order.

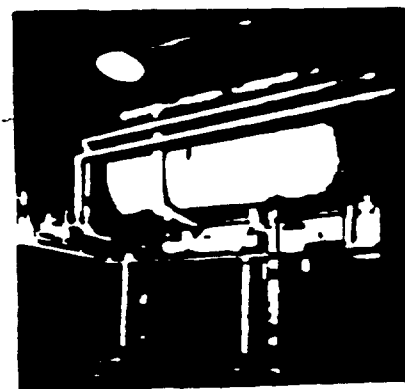
AND A REMARKABLE VERSATILITY



On large or small equipment, inside or out, Kaylo Heat Insulating Block performs efficiently and with a minimum of maintenance. Here it is being applied to the walls of a large precipitator. Workmen are laying block over 6" x 6" wire mesh welded to the stiffeners. The block is then covered with finishing cement and asphalt mastic weatherproofing.



Kaylo Heat Insulating Block covers both flat and curved surfaces on the power house equipment pictured here. At the right are fresh air intakes; the center compartments house induced draft fans; and at the left are conduits leading to a precipitator. Kaylo insulation means continuous fuel savings to this power plant.



Hot water is always ready when needed in the office building where this hot water storage tank is installed thanks to Kaylo Heat Insulating Block. This permanent insulation holds water temperature constant with a minimum of power consumption.

Other applications for Kaylo Heat Insulating block are listed on the back page.

PRINCIPAL FEATURES OF KAYLO HEAT INSULATING BLOCK



PHYSICAL CHARACTERISTICS AT A GLANCE

DENSITY Approximately 11 lb. per cu. in.

FLEXURAL STRENGTH 50 lb. per sq. in.

COMPRESSIVE STRENGTH 125 lb. per sq. in.

Before heating 117 lb. per sq. in.

After heating for 24 hours:

at 750° F. 125 lb. per sq. in.

at 1000° F. 125 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. 3.5%

at 1000° F. 7.9%

at 1200° F. 9.8%

After boiling for 24 hours 0.3%

RESISTANCE TO ABRASION

(Conventional Tumbling Test—Loss in weight after 10 minutes)

Before heating 0.0%

After heating for 24 hours:

at 750° F. 0.0%

at 1000° F. 0.0%

at 1200° F. 0.0%

DIMENSIONAL STABILITY

Linear Shrinkage after heating for 24 hours:

at 750° F. 0.5%

at 1000° F. 0.9%

at 1200° F. 1.5%

Elongation after saturation (max.) 0.4%

MOISTURE ABSORPTION (volume)

After 6 hours exposure in atmosphere of

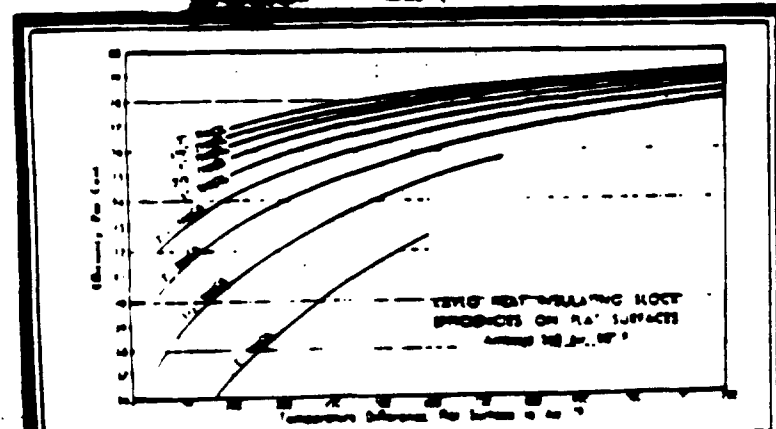
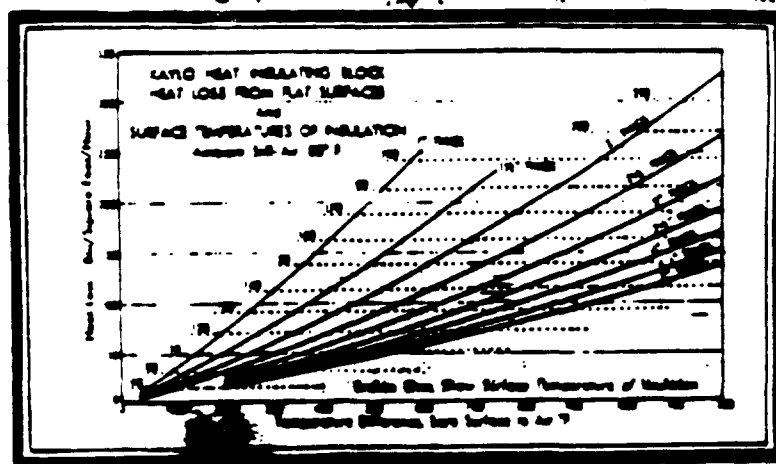
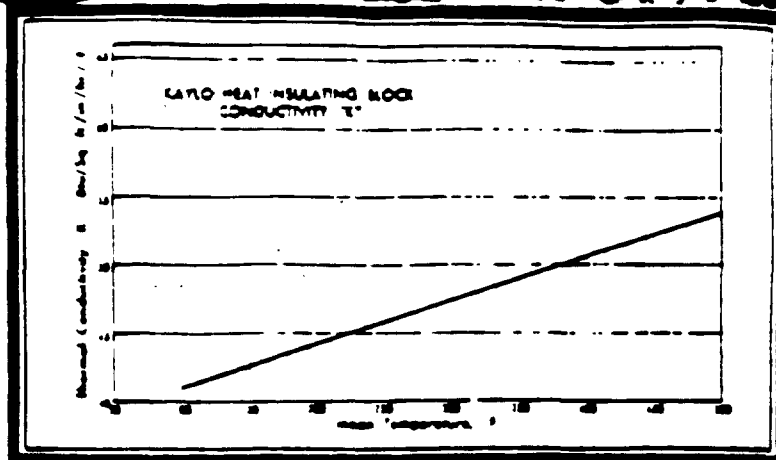
120° F. and 90% Relative Humidity 0.9%

At 300° F. mean temperature 0.474



HEAT INSULATING BLOCK

Heat Loss, Surface Temperature
and Efficiencies...



inside or outside, for large tanks
large or small, from 0 to 1000
sq. ft. Kaylo Heat Insulating Block

- | | |
|-----------------|-------------|
| Boiler Rooms | Lehrs |
| Hot Air Driers | Aureclave |
| Tanks | Ovens |
| Towers | Furnaces |
| Dryers | Turbines |
| Evaporators | Chilling P. |
| Heat Exchangers | Boilers |
| Condensers | Preheaters |
| Locomotives | |

SOURCE OF TEST DATA

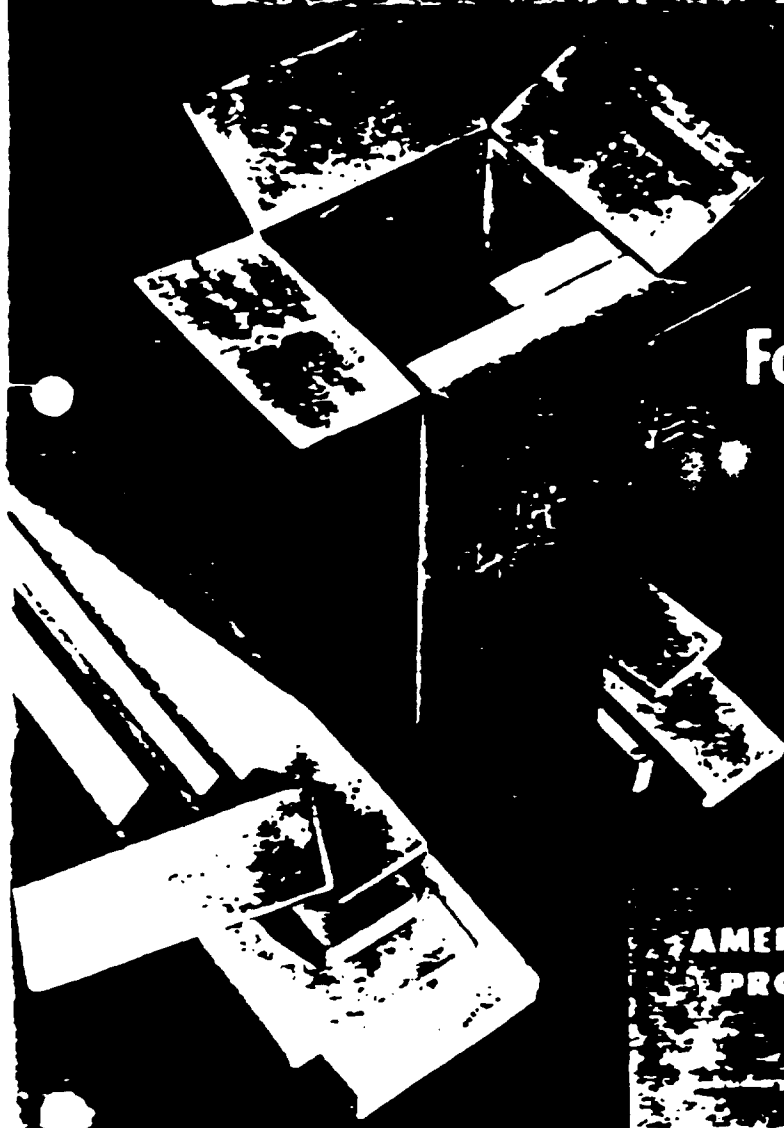
The data obtained on these pages
are supported by tests run at various
laboratories, all well known to the
insulation industry. They are further
supported by the performance of the
product in service.

More detailed information
Kaylo Heat Insulating Block is available
on request. American Structural
Products Company, Toledo, Ohio
Subsidiary of Owens-Illinois Glass
Company.

NEW

KAYLO®

HEAT-RESISTANT GLASS



**For Temperatures
Up To 1200° F.**

**AMERICAN STRUCTURAL
PRODUCTS COMPANY**

Toledo, Ohio

SOLE AGENTS: ILLINOIS GLASS COMPANY

A new heat insulating block

WITH A REMARKABLE COMBINATION OF

KAYLO HEAT INSULATING BLOCK is a new type of lightweight mineral insulation that is *efficient* enough to be used at ordinary room temperatures and *resistant* enough to perform effectively up to 1200° F.

Few new products of any kind have been so thoroughly researched before being placed on the market. Kaylo Heat Insulating Block is the achievement of many years' work by Owens-Illinois Glass Company engineers, physicists and chemists. It combines the most desirable characteristics of the ideal heat insulation.

LOW DENSITY. Kaylo Heat Insulating Block weighs only 11 pounds per cubic foot. This light weight (less than one pound to the board foot) simplifies handling, shipping and application.

LOW THERMAL CONDUCTIVITY. The coefficient of conductivity, or k , of Kaylo Heat Insulating Block places it among the most efficient insulations for medium high temperatures. Its insulation value comes principally from its fine, cellular structure. These cells are so tiny and so numerous that they present a material surface of approximately 140 acres per cubic foot of insulation.

Experience shows that the efficiency of Kaylo insulation improves after exposure to service temperatures.

EFFECTIVE OVER WIDE TEMPERATURE RANGE

Kaylo Heat Insulating Block performs efficiently not only on temperatures in the low pressure steam and hot water range but on temperatures in the superheated steam range as well. One-material covering with Kaylo insulation handles applications which often require two thicknesses of different materials.

HIGH COMPRESSIVE STRENGTH. Its compressive strength is unusually high for a mineral product of such light weight.

HIGH FLEXURAL STRENGTH. Its flexural strength is higher than the normal requirements for heat insulation of this type. This strength makes for easy handling and application, and contributes to long service with low maintenance.

NO ADDED BINDER. Kaylo insulation is an inorganic compound, containing no added binder. Its performance characteristics, therefore, are not affected by additives, which often reduce insulating value, reduce effective temperature range or otherwise impair performance.

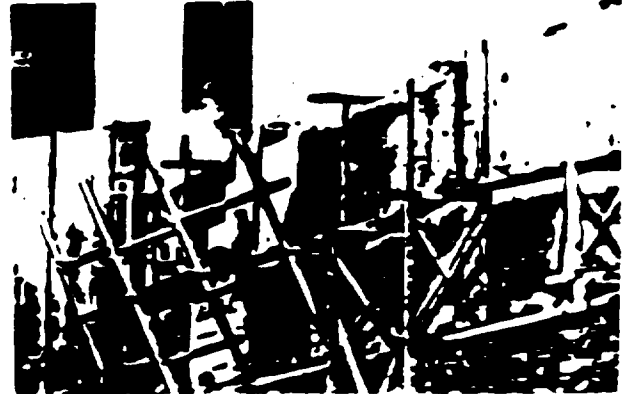
EASY TO APPLY. Kaylo Heat Insulating Blocks are clean-cut and trim. They are easy to fit into place.



Notice the clean, straight edges on these insulated precipitator hoppers. It is easy to work with Kaylo Heat Insulating Block because they are so easy to cut and yet have a high breaking strength.



On large or small equipment, inside or out, Kaylo Heat Insulating Block performs efficiently and with a minimum of maintenance. Here it is being applied to the walls of a large precipitator.



Insulation

ADVANTAGES...

Make a good-looking installation. These "fins" are resistant and non-irritating. They can be cut, scored and sawed with ordinary woodworking tools. Finishes that go over the block, whether cement, cloth or other types, can be applied smoothly and with a minimum of effort. No special tools are needed.

LOW MOISTURE ABSORPTION. Kaylo Heat Insulating Block absorbs little moisture from surrounding humid air.

EFFECTIVE AFTER LONG SERVICE. Kaylo Heat Insulating Block remains strong, free from excessive powdering, and shows little loss in weight or shrinkage after long application to temperatures up to 1200° F. Even conventional rumbling tests, run after prolonged heating, produce relatively little crumbling or break-down of the material.

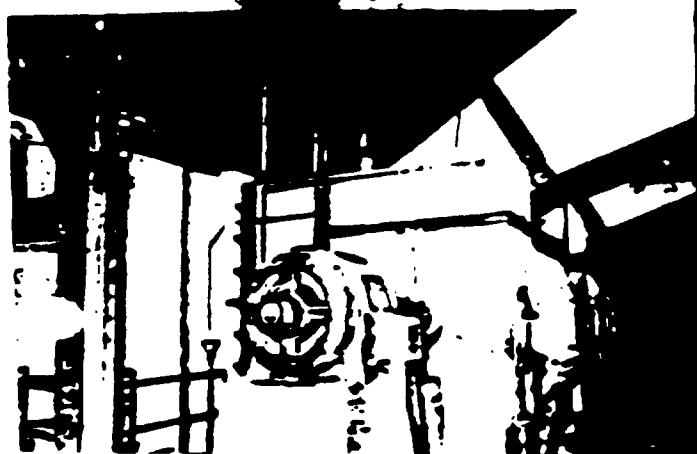
TYPICAL APPLICATIONS:

Indoor or outside, for large installations or small, up to 1200° F., use Kaylo Heat Insulating Block to insulate:

Breechings	Heat Exchangers	Turbines
Hot Air Ducts	Condensers	Chilling Pits
Tanks	Lehrs	Boilers
Towers	Autoclaves	Precipitators
Dryers	Ovens	Locomotives
Evaporators	Furnaces	



Kaylo Heat Insulating Block covers both flat and curved surfaces on the power house shown pictured here. By minimizing heat loss, it keeps the room at comfortable temperatures.



PHYSICAL CHARACTERISTICS

DENSITY	Approximately 15 lb. per cu. ft.
FLEXURAL STRENGTH	50 lb. per sq. in.
COMPRESSIVE STRENGTH (at 1% deformation)	50 lb. per sq. in.
Before heating	
After heating for 24 hours	
at 750° F.	44 lb. per sq. in.
at 1000° F.	23 lb. per sq. in.
at 1200° F.	17 lb. per sq. in.
After heating for 24 hours (while wet)	74 lb. per sq. in.
LOSS IN WEIGHT	
After heating for 24 hours	
at 750° F.	3.1%
at 1000° F.	7.4%
at 1200° F.	9.8%
After heating for 24 hours (after drying)	0.2%
RESISTANCE TO ABRASION	
(Conventional tumbling test—loss in weight after 10 minutes)	2.2%
Before heating	
After heating for 24 hours	
at 750° F.	3.1%
at 1000° F.	5.9%
at 1200° F.	
DIMENSIONAL STABILITY	
Linear shrinkage after heating for 24 hours	
at 750° F.	0.1%
at 1000° F.	0.1%
at 1200° F.	0.1%
Expansion after saturation (meq.)	0.1%
MOISTURE ABSORPTION (volume)	
After 6 hours exposure in atmosphere of 120° F. and 90% Relative Humidity	0.1%
CONDUCTIVITY (Btu)	
At 100° F. mean temperature	0.0001
At 300° F. mean temperature	0.0001

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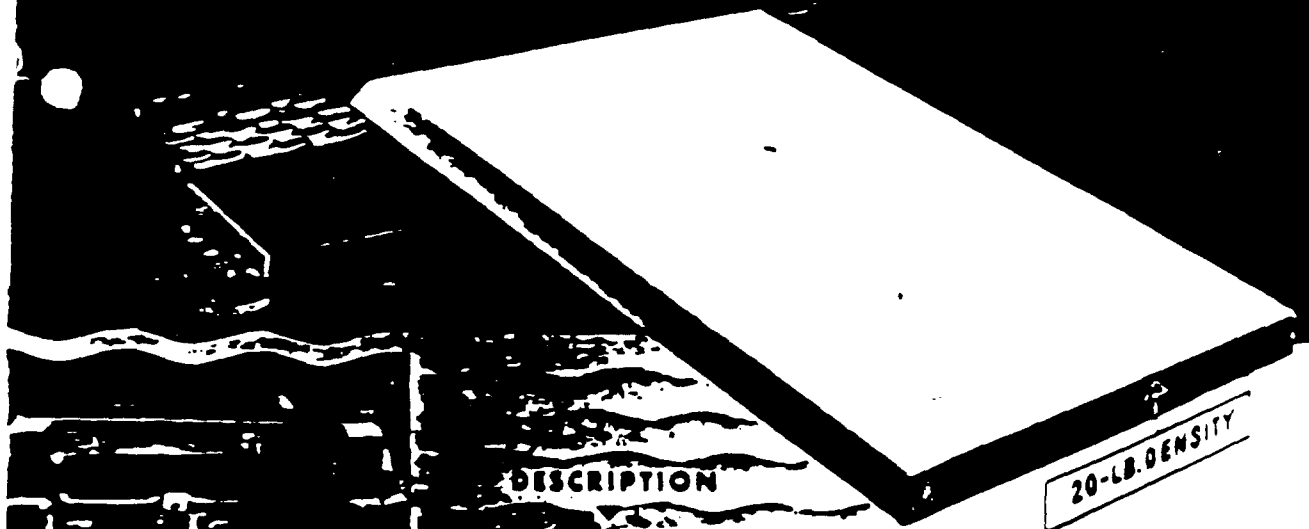
TEMPERATURE (°F.)	WIDTH (in.)	THICKNESS (in.)
100	12	1
200	12	1
300	12	1
400	12	1
500	12	1
600	12	1
700	12	1
800	12	1
900	12	1
1000	12	1
1100	12	1
1200	12	1



KAYLO®

20-LB. DENSITY

STRUCTURAL INSULATING BLOCK



DESCRIPTION

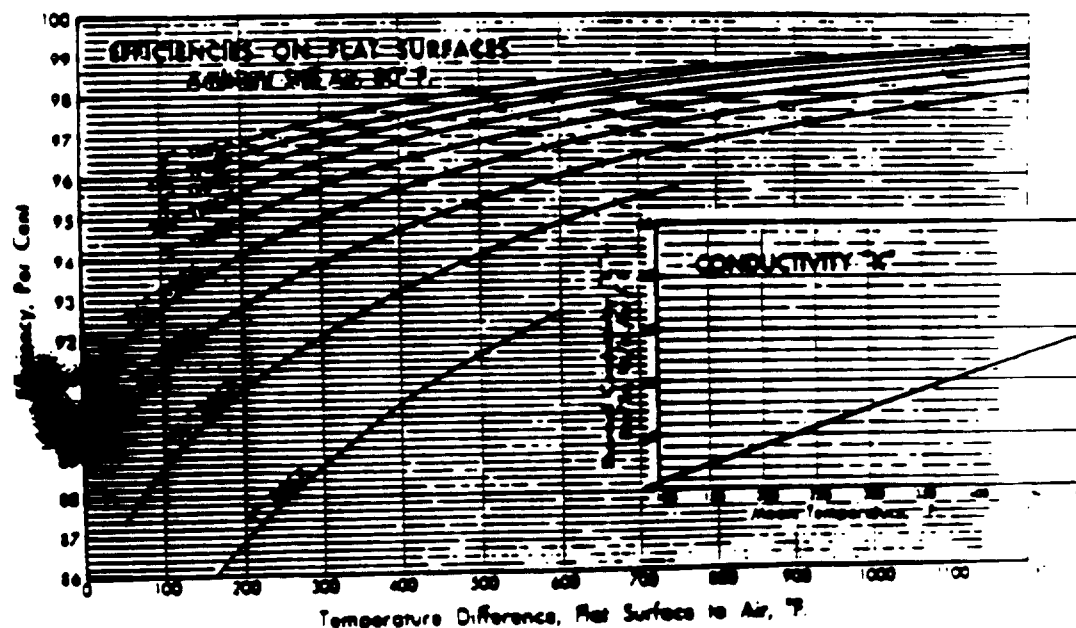
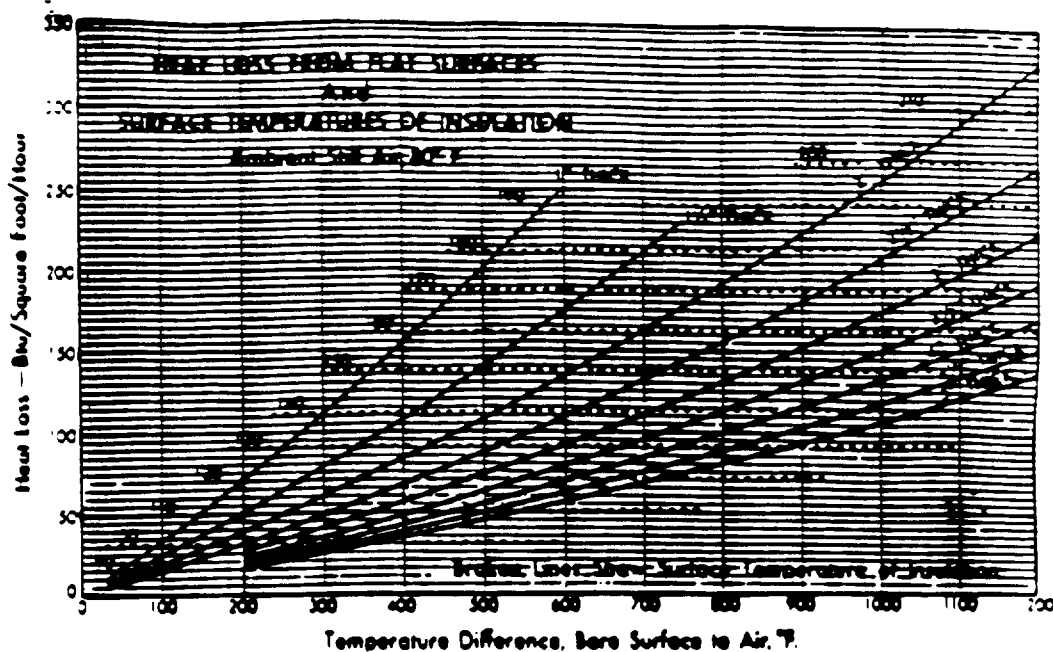
Kaylo Structural Insulating Block—is a near-white, rigid mineral insulating material weighing approximately 20 pounds per cubic foot. It is composed principally of calcium silicate. Except for density and for those characteristics that are changed by density it is similar to Kaylo Heat Insulating Block, a lightweight insulation used to insulate against heat loss from hot surfaces. Kaylo Structural Insulating Block (20-lb. density) is designed to give maximum strength and fire resistance without sacrificing its advantages of light weight and low thermal conductivity. In fact the practical combination of these four properties—strength, weight, insulating value and fire resistance—makes it almost unique as a building material.

It weighs nominally 20 pounds to the cubic foot (actually on an average basis from 19.5 to 22 lb.), has a compressive strength of approximately 1 lb. per sq. in., a k of 0.66 at 100 mean and outstanding resistance to the travel of heat and flame at building fire temperatures.



HEAT INSULATING BLOCK

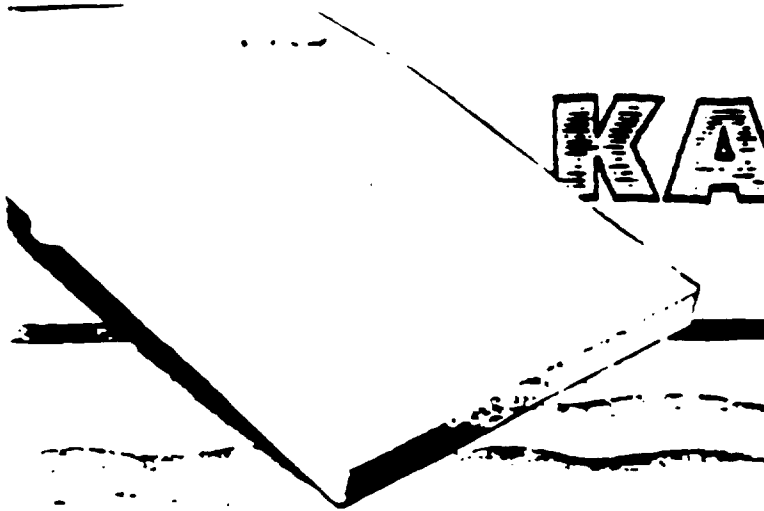
Heat Loss, Surface Temperatures, and Efficiencies



SOURCES OF TEST DATA: The data shown on these pages are supported by tests run at various laboratories, all well known to the insulation industry. They are further supported by the performance of the product in service.

More detailed information on Kaylo Heat Insulating Block is available on request.

KAYLO. STRUCT



USES

Kaylo Structural Insulating Block is not a finished building material in itself and is not made for exposure to the weather. Its principal uses are as a structural roof tile, or roof deck unit, in which a steel reinforcing mat is inserted at the time of forming, and as a core material. In this latter use it serves as the core of laminated structures where the faces or laminates are applied with adhesives, and also as the core of structural shells or envelopes where the Kaylo core material is simply inserted in the open spaces and held by its own contact or by such conventional methods as clips or other attachments.

In any of these applications it adds rigidity to the structure and vastly increases insulation value and fire resistance.

PHYSICAL PROPERTIES

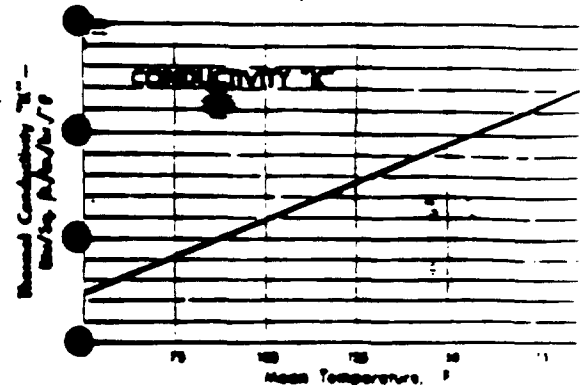
Light Weight—Nominal 20-lb. density Kaylo Block is about a third lighter than yellow pine. On an oven-dry basis it weighs from 19.5 to 22 pounds per cubic foot.

High Strength—Its compressive strength is approximately 500 lb. per sq. in. with a deformation of 5 per cent. Flexural strength is approximately 175 lb. per sq. in.

Fireproof—Kaylo 20-lb. density Structural Insulating Block has been tested at the Underwriters' Laboratories in Chicago and given the following rating, based on comparison with untreated Red Oak as 100.

Flame spread	0.0
Fuel contributed	negligible
Smoke produced	0.0

For use in fabrications that are to be Underwriters' Laboratories inspected, Kaylo Structural Insulating Block is furnished bearing the Underwriters' Label for fire classification for building material.



Good Insulation Value—At low mean temperatures Structural Insulating Block is one of the most efficient structural mineral insulations. At high mean temperatures it still compares favorably with heat insulating materials of its own weight.

High Light Reflectivity—When left exposed and uncoated (as with the underside of a roof deck) Kaylo Structural Insulating Block has high light reflectivity. Its reflection factor is from 70 to 80 per cent.

Non-Abrasive Surface—Its surface is non-abrasive and has a somewhat "soapy" feel that makes it pleasant to touch. At the same time it has a firm surface that assures contact with surfaces applied over it.

No Added Binder—It contains no added binder and stands as its own binder. Hence its characteristics are not modified as to temperature limit, sound insulation value, fire resistance or otherwise by limitations.



L INSULATING BLOCK (20-LB. DENSITY)

Good Workability—Kaylo Structural Insulating Block is responsive to wood working tools. It can be sawed with a hand saw or power saw, can be routed, tongue-and-grooved, sanded, and, in fact, run through most woodworking equipment.

High Modulus of Elasticity—The modulus of elasticity of 20-lb. density block is approximately 160,000 lb. per sq. in.

Low Specific Heat—The specific heat of Kaylo Structural Insulating Block is approximately 0.22.

Cellular Structure—Kaylo Structural Insulating Block is about 80 per cent inter-communicating air cells. The cells are extremely small, less than a micron in diameter.

Low Moisture Absorption—Kaylo Structural Block is hygroscopic. It will absorb moisture from humid air and will reach equilibrium at lower moisture contents when exposed to lower humidities. However, because of its extremely small pore size and other characteristics, its behavior with respect to moisture differs from that of most porous materials. It has unusual capacity to distribute moisture within its mass, and to give it off to surrounding air of lower moisture content.

Its moisture absorption when surrounded by humid air is slow. Test specimens dried for 24 hours at 215° F., cooled and then exposed on all surfaces to an atmosphere of 90 per cent relative humidity and a temperature of 120° F. for six hours, absorbed less than one per cent of moisture by volume.

Consistent with the common practice for good construction involving porous insulating materials of high internal surface area, Kaylo Structural Insulating Block should be sealed against moisture on the warm side when it is subjected to extremely low temperatures.

High Wet Strength—Kaylo Structural Insulating Block, like most other insulating materials, is not intended to serve immersed in water or exposed to extremely damp or humid conditions, yet its tensile strength when wet (immersed 10 hours) is reduced only about 15 per cent.

Dimensionally Stable—The dimensions of Kaylo Structural Insulating Block change little with changes in moisture content. Experience has shown from the manufacture of thousands of units of laminated structures that they have unusual dimensional stability and unusual freedom from warping.

Available with and without Reinforcing—In the form of roof tile Kaylo Structural Insulation is available with a steel reinforcing mat. In the form of core material for various types of structure it is available without reinforcing.

Accepts Nails and Screws—Both nails and screws can be used with Kaylo Structural Block. Tables showing holding power of both are available on request. Nails should be of the cement-coated type without barbs that abrade the sides of the opening they make as they are driven into the block. Galvanized or non-ferrous nails may be used where greater resistance to corrosion is required. Screws may be inserted either with or without drilling a pilot hole.

Size—Kaylo Structural Insulating Block is made in a standard size of 18 x 36 inches.

Since most uses involve manufacturing operations, thicknesses that are practical can best be worked out with the manufacturer of Kaylo Insulating Products after approximate quantities needed are known. These will usually be between one and two inches thick.

Certain thicknesses are suggested by certain building requirements. A thickness of from 1½ to 2 inches of Kaylo Structural Insulating Block is required to withstand a typical building fire for one hour—usually somewhat more for a partition than for a door because of the greater performance required of a partition.

20-lb. and 11-lb. Density Block Can Be Used in Combination—Where two thicknesses of insulation are used to build up an insulating structure it is possible to use the two densities in combination to develop the best insulation value, strength and fire resistance.

**AMERICAN STRUCTURAL
PRODUCTS COMPANY**

Toledo 1, Ohio

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LAMINATION

lamination over a Kaylo Insulating Core—Almost any face material may be bonded to Kaylo Structural Insulating Block surfaces. Bonding agents can be selected to meet the requirements of the particular facing—also to satisfy

the service requirements of the finished product—still offer some choice in curing procedures.

Some adhesives which may be used with various types face materials are listed below. (This list is not intended to be complete. Its only purpose is to identify a partial list of adhesives. These have been found to provide a tensile strength of 35 lb. per sq. in. and a minimum shear strength of 100 lb. per sq. in. when cured in the manner indicated.)

ADHESIVES FOR JOINING STRUCTURAL INSULATING BLOCK TO:

KAYLO

Wood Veneer	Aluminum	Stainless Steel
Durite No. 3026A	Durite No. 3026A	Durite No. 3026
3026A-WH387	Peacore 718	No. A, NR267
3026A-WF	Weldwood	H100
Pennacrete	Insulate No. 1	3 ABC 626
Q1131	Insulate	Weldwood
Peacore 718	4162	Insulate No. 1
Corabond 720	Vulcanok	Insulate
Vynplast	Dupont 4463	4162
MA 28-18	Dupont 4466	Vulcanok
Amberlite	G. E. 2142	Dupont 4463
PE14	G. E. 7081	Dupont 4466
South 7026	Vynplast	G. E. 2142
Radon	MA 28-18	G. E. 7081
Synco I-8248	Amberlite	Vynplast
+ 130LW (DW)	PE14	MA 28-18
	South EXE 130	Amberlite
	Radon	PE14
		South 7026
		South EXE 130
		South 2142
		Radon
		Synco I-8248
		+ 130LW (DW)

ADHESIVES FOR JOINING LIKE MATERIAL

Insulating Block to Insulating Block	Aluminum to Aluminum	Stainless Steel to Stainless Steel
Durite 3026A	Vulcanok	Dupont 4463
Pennacrete	Dupont 4466	G. E. 7081
Q1131	Dupont 4466	South 7026
Weldwood	G. E. 2142	South EXE 130
Insulate 1	South 7026	Radon
G. E. 2142	South EXE 130	
Flexon 911	Radon	
Solaston 3026		
Vynplast		
MA 28-18		
Amberlite		
PE14		
South 7026		
South EXE 130		
South 2142		
Radon		
Synco I-8248		
+ 130LW (DW)		

Symbols for method of cure
For Maximum Strength

- Clamped at room temperature for 24 hours.
- Clamped in oven at 120° F. for 1 hour.
- Placed in press at 10 p.s.i. at 300° F. for 10-30 minutes.
- Placed in press at 100 p.s.i. at 300° F. for 10-30 minutes.
- Clamped in oven at 250° F. for 10-30 minutes.

High-frequency curing has been tried successfully on an experimental beam with wood, aluminum and stainless steel bonded to a Kaylo insulating core. Many of the manufacturers making the above listed adhesives can provide adhesives suitable for high-frequency curing.

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TELESG 1, CHGO

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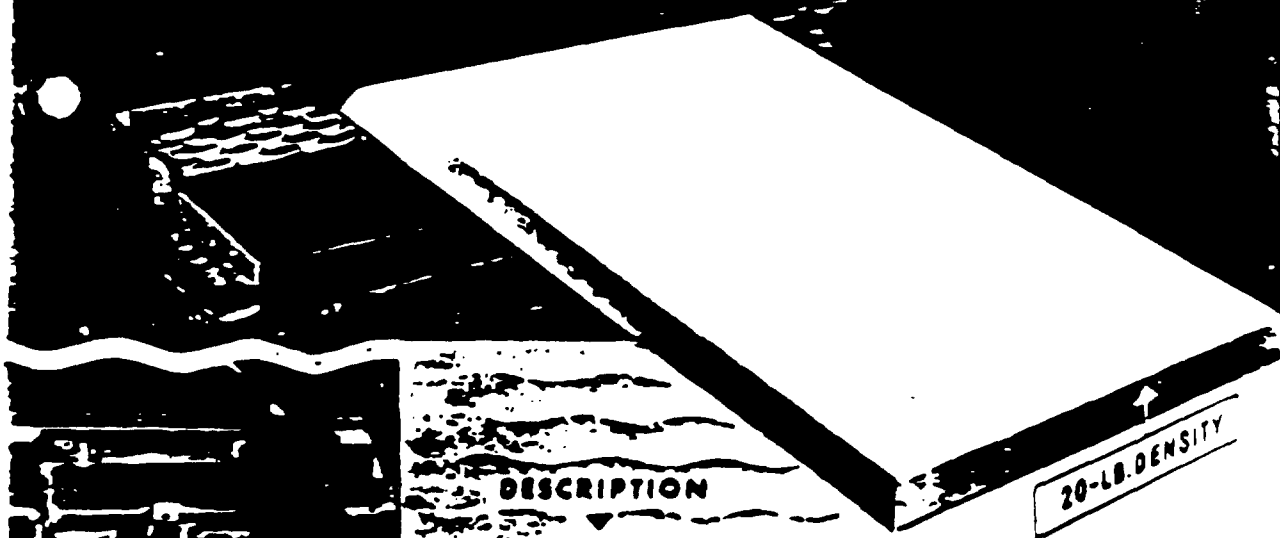
400-251-0775 Copyright 1966 American Structural Products Company



KAYLO

20-LB. DENSITY

STRUCTURAL INSULATING BLOCK



DESCRIPTION

Kaylo Structural Insulating Block—is a near-white, rigid mineral insulating material weighing approximately 20 pounds per cubic foot. It is composed principally of calcium silicate. Except for density and for those characteristics that are changed by density it is similar to Kaylo Heat Insulating Block, a lightweight insulation used to insulate against heat loss from hot surfaces. Kaylo Structural Insulating Block (20-lb. density) is designed to provide maximum strength and fire resistance without sacrificing its advantages of light weight and low thermal conductivity. In fact the practical combination of these four properties—strength, weight, insulating value and fire resistance—makes it almost unique as a building material.

It weighs nominally 20 pounds to the cubic foot (actually on an average basis from 19.5 to 22 lb.), has a compressive strength of approximately 1 lb. per sq. in., a k of 0.66 at 100 mean and outstanding resistance to the travel of heat and flame at building fire temperatures.



the service requirements of the finished product—and still offer some choice in curing procedures. Some adhesives which may be used with various types of face materials are listed below. (This list is not intended to be complete. Its only purpose is to identify a partial list of adhesives. These have been found to provide a tensile strength of 35 lb. per sq. in. and a minimum shear strength of 100 lb. per sq. in. when cured in the manner indicated.)

PLATING BLOCK TO:

KAYLO

ADHESIVES FOR JOINING LIKE MATERIALS:

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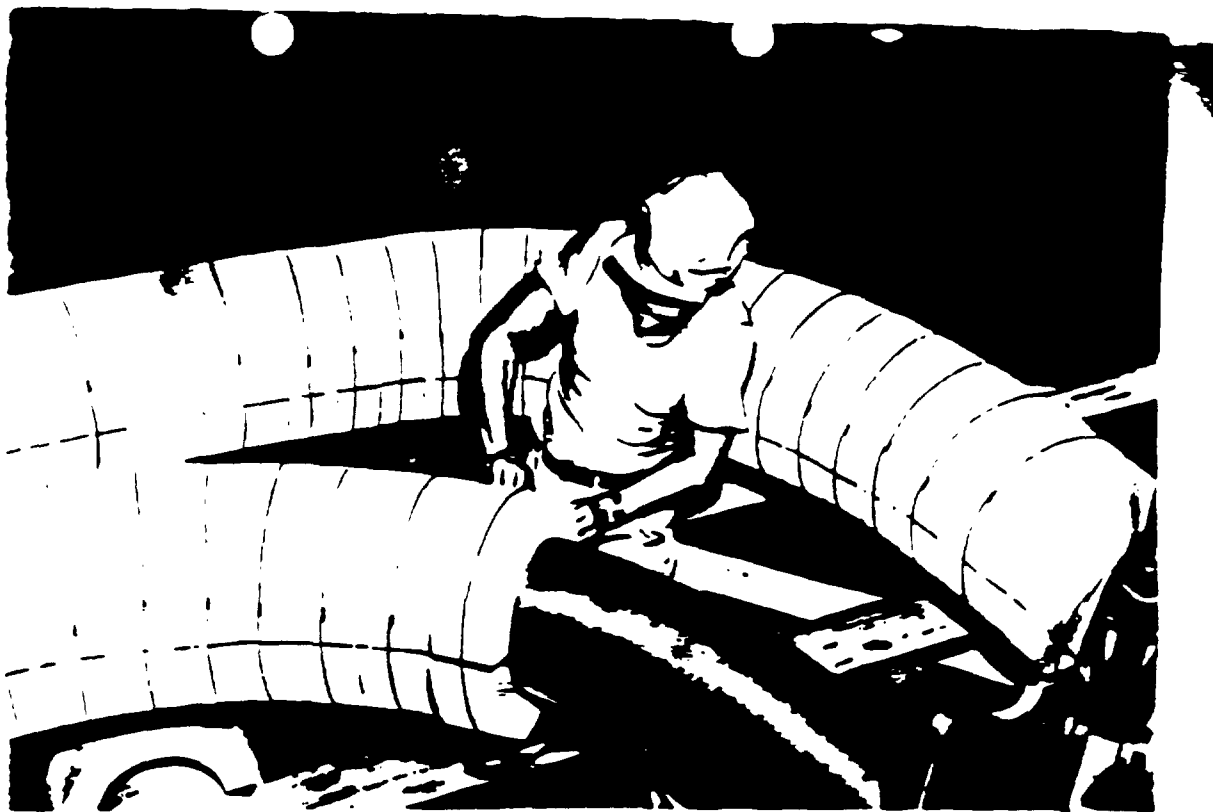
As for method of cure
For Maximum Strength

- ① Clamped at room temperature for 24 hours.
- ② Clamped in oven at 120° F. for 1 hour.
- ③ Placed in press at 10 p.s.i. at 305° F. for 10-30 minutes.
- ④ Placed in press at 100 p.s.i. at 305° F. for 10-30 minutes.
- ⑤ Clamped in oven at 250° F. for 10-30 minutes.

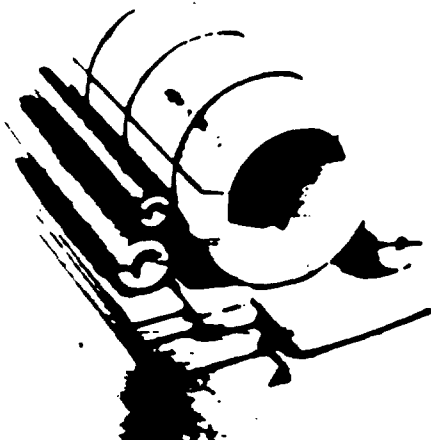
High-frequency curing has been tried successfully on an experimental basis with wood, aluminum and stainless steel bonded to a Kaye's radiating cure. Many of the manufacturers making the above listed products provide adhesives suitable for high-frequency curing.

AMERICAN STRUCTURAL
PRODUCTS COMPANY
TELEPHONE 1. ONE

PRODUCTS
TOLEDO 1, OHIO
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The Right Material... Expert Application



First, Kaylo Heat Insulation is proved a better material hydrous calcium silicate. Its light weight, strength, water-insolubility, low conductivity and wide temperature range give you extra advantages at no extra cost.

Second, Kaylo distributors have the technical knowledge and experience to provide you with a complete insulating service. Their trained applicators are skilled craftsmen who do neat and efficient installation.

To be sure of getting the most out of your insulating dollars for your next job, call the nearest Kaylo distributor. Chances are you can find him listed in the yellow pages of your phone book. If not contact us and we'll give you his name.

WRITE FOR FREE BOOK—"Kaylo Heat Insulation"
Address: Dept. H-378, Owens-Illinois Glass Company, Kaylo Division, Toledo 1, Ohio.



KAYLO

...first in calcium silicate

...pioneered by OWENS  ILLINOIS Glass Company

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Owens-Illinois Glass Company—Kaylo Division
Advertisements: No. 151, appearing in the following publications:
Chemical Engineering—Jan., 1953
Oil & Gas Journal—Jan. 13, 1953
Plant Engineering—Jan., 1953
Power—Jan., 1953
Petroleum Refiner—Feb., 1953
Chemical Processing—Feb., 1953
Construction—Feb., 1953
Industry & Power—Feb., 1953

LAMINATION

Lamination over a Kaylo Insulating Core—Almost any face material may be bonded to Kaylo Structural Insulating Block surface. Bonding agents can be selected to meet the requirements of the particular facing—also to satisfy the service requirements of the finished product—and still offer some choice in curing procedures.

Some adhesives and primers which may be used with various types of face materials are listed below. This list is not intended to be complete. Its only purpose is to identify a partial list of adhesives. An adhesive not listed does not imply that it is not suitable. These have been found to provide a tensile strength of 35 lb. per square inch and a minimum shear strength of 100 lb. per square inch when cured according to the manufacturer's recommendation. They are not listed in the order of their adhesive strength.)

ADHESIVES AND PRIMERS FOR JOINING



STRUCTURAL INSULATING BLOCK TO:

Wood Veneer or Paper or Plastics		Steel, Stainless Steel Galvanized, or Aluminum		Kaylo Insulating Block or Cement-Asbestos Board	
Durite No. 3026A	●	Durite No. 3026A or No. A 30267	●	Durite 3026A	●
Panacellic G1131	●	M100	●	Panacellic G1131	●
Powder 718	●	Powder 718	●	Armstrong J 1162	●
Celabond 720	●	3MGC 826	●●	Insulate 1	●
Vynolac MA 28-18	●	Panacellic G1131	●	G.E. 2142	●
Amberlite PB 14	●	Insulate No. 1	●	Schulman 3003	●
Sealt 7026	●	Insulate 4162	●●	Vynolac MA 28-18	●
Rodex	●	Vulcolac	●●	Amberlite PB-14	●
Synco 3-8348 + 130LW (BW)	●	DuPont 4633	●●	Sealt 7026	●
Resorband 8-12	●	DuPont 4646	●●	Sealt 88 136	●
Armstrong J-1162	●	Resorband 8-12	●	Sodium Silicate	●
Togo	●	G.E. 2142	●	Rodex	●
		G.E. 7031	●	Synco 3-8348 + 130LW (BW)	●
		Sealt 7026	●	Resorband 8-12	●
		Sealt 88 136	●	Togo	●
		Sealt 1087	●		
		Vynolac MA 28-18	●		
		Amberlite PB-14	●		
		Rodex	●		
		Armstrong J-1162	●		

Symbols for method of cure:
For Maximum Strength

- Clamped at room temperature for 24 hours.
- Clamped in oven at 120° F. for 1 hour.
- Placed in press at 10 p.s.i. at 300° F. for 10-30 minutes.
- Placed in press at 100 p.s.i. at 300° F. for 10-30 minutes.
- Clamped in oven at 250° F. for 10-30 minutes.

High-frequency curing has been tried successfully on an experimental basis with wood, aluminum and stainless steel bonded to a Kaylo insulating core. Many of the manufacturers making the above listed adhesives can provide adhesives suitable for high-frequency curing.

Kaylo Division
OWENS-ILLINOIS
GLASS COMPANY
Toledo 1, Ohio

For Radii from $\frac{1}{4}$ Inch...

to
Infinity...

Nesting Kaylo Heat Insulation Requires Fewer Pieces Per Job

The complete range of Kaylo Insulation includes pipe covering in Simplified Dimensional Standards for diameters from $\frac{1}{4}$ in. to 72 in., curved block from 72 in. to 60 ft. and flat block for surfaces of less curvature whose radii approach infinity. With its wide selection of interchangeable sizes and shapes, Kaylo Insulation reduces the number of items needed per job and permits substantial savings in warehousing maintenance stock.

KAYLO ... first in calcium silicate

...pioneered by OWENS ILLINOIS Glass Company

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Owens-Illinois Glass Company
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Plant Engineering—March, 1933
Oil & Gas Journal—March 23, 1933
Chemical Engineering—March, 1933
Chemical Progress—April, 1933

WRITE FOR FREE BOOK — "Kaylo Heat Insulation"
Address Dept. H-271, Owens-Illinois Glass Company,
Kaylo Division, Toledo 1, Ohio.

