

ASB. 44, #3

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

IN RE:	)	BML-3
	)	
SPARROWS POINT STEEL PLANT	)	ALL CASES
	)	
ASBESTOS CASES	)	

ANSWERS OF OWENS-ILLINOIS, INC.
TO MALE PLAINTIFF'S INTERROGATORIESPRELIMINARY STATEMENT

Some of the events which may be relevant to the matters inquired about by Plaintiffs' Interrogatories apparently occurred more than thirty-five years ago. In addition, more than twenty-five years ago, 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, many of the individuals who might have had personal knowledge of the matters to which Plaintiff's Interrogatories relate are deceased, or are otherwise unavailable to Owens-Illinois, Inc., and investigations to date indicate that at least some documents which relate to matters inquired about by these Interrogatories may have been 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 Interrogatories. Unless otherwise stated in an answer to a specific Interrogatory, the

answers set out hereinafter are limited to the period during which Owens-Illinois, Inc. manufactured asbestos-containing 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 Interrogatory 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 Plaintiff with regard to these Interrogatories, on the basis that the definitions are overbroad, vague, and often inconsistent with the normal usage and meaning of such words, and the instructions are overbroad, burdensome, and constitute an unreasonable expansion of the Interrogatories themselves. Owens-Illinois, Inc. therefore gives notice that it does not consider itself bound by the instructions and definitions propounded by Plaintiff, and instead shall answer the Interrogatories in a manner consistent with a normal understanding of the language used in the answer and to the extent necessary to fairly and fully answer the Interrogatory.

A. 1. 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.

A. 2. Owens-Illinois Glass Company was incorporated in the State of Ohio in 1929. Owens-Illinois Glass Company changed its name to Owens-Illinois, Inc. on April 28, 1965. The address of the principal place of business is One SeaGate, Toledo, Ohio 43666. Owens-Illinois, Inc. has been authorized to do business in the State of Maryland as of May 31, 1962.

A. 3. No. Refer to answer to Interrogatory No. 2.

A. 4. No. Refer to answer to Interrogatory No. 2.

A. 5. Owens-Illinois Glass Company began limited pilot plant operations involving the production of "Kaylo" asbestos-containing products in 1943. It began the manufacture of commercial quantities of "Kaylo" asbestos-containing products in about 1948 and continued such manufacture until about April 30, 1958. This Defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958. Its investigation as to the composition of each such product, including the type of asbestos contained therein (i.e., amosite or chrysotile) and the quantitative percentage of asbestos in each product, is continuing, although Defendant now believes that its asbestos-containing products were hydrous calcium silicates containing between 13% and 25% asbestos. Chrysotile asbestos was the primary type apparently used. Amosite was used to a lesser extent. The asbestos-containing products manufactured by this Defendant were intended to be used for industrial high temperature thermal insulation such as pipe covering and block insulation, and to increase fireproofing and fire protection and for

insulation through use as a roof deck or fireproof material or door core material.

A. 6. Owens-Illinois Glass Company began limited pilot plant operations involving the production of "Kaylo" asbestos-containing products in 1943. It began the manufacture of commercial quantities of "Kaylo" asbestos-containing products in about 1948 and continued such manufacture until about April 30, 1958.

This defendant objects to answering this interrogatory for any state other than the state of Maryland on the grounds that such information is not relevant to the subject matter of this litigation and is not reasonably calculated to lead to the discovery of admissible evidence.

Without waiving its objection, this defendant states that this defendant has referred to the business records of Owens-Illinois Glass Company which are still in the possession of Owens-Illinois, Inc. in answer to this interrogatory insofar as the state of Maryland. This defendant has found no information in its records which indicate that this defendant sold or supplied its asbestos-containing products to the Bethlehem Steel Company at their Sparrows Point, Maryland facility.

A. 7. Refer to Answers to Interrogatories Nos. 5 and 6.

A. 8. Refer to Answers to Interrogatories Nos. 5 and 6. In 1953, this defendant entered into a sales agreement with Owens-Corning Fiberglas Corporation under which it agreed to the sale of asbestos-containing products to that corporation. This defendant believes that it ceased the general marketing and sales of its asbestos-containing thermal insulation products at that time, disbanded its sales force, and that thereafter, Owens-Corning Fiberglas Corporation was the primary marketer of its product until the sale of the division to Owens-Corning Fiberglas in 1958.

A. 9. This defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958. It does not now, and it has not since that time, manufactured, sold or distributed any asbestos-containing products. In 1953, this Defendant entered into a sales agreement with Owens-Corning Fiberglas Corporation under which it agreed to the sale of asbestos-containing products to that corporation. This Defendant believes that it ceased the general marketing and sales of its asbestos-containing thermal insulation products at that time, disbanded its sales force, and that thereafter, Owens-Corning Fiberglas Corporation was the primary marketer of its product until the sale of the division to Owens-Corning Fiberglas in 1958.

A. 10. This defendant has located information in its records indicating that several efforts were made to substitute other materials for the asbestos in its Kaylo products; however, such efforts were unsuccessful. Defendant will make available to plaintiffs' counsel through its local counsel reports on such experiments. Some of the reports are contained on microfilm which is old and of poor quality. Adequate copies may not be made from it, and reading it requires a reader device. Its investigation into the subject matter referred to in this interrogatory is continuing.

A. 11. Refer to Answer to Interrogatory No. 5.

A. 12. Refer to Answer to Interrogatory No. 5.

A. 13. Refer to Answer to Interrogatory No. 5.

A. 14. Refer to Answer to Interrogatory No. 6.

A. 15. Refer to Answer to Interrogatory No. 6.

A. 16. This defendant ceased the manufacture, sale and distribution of asbestos-containing thermal insulation products in 1958. This defendant states that in 1953 it entered into a "Sales Agreement" under which it agreed to sell certain amounts of its asbestos-containing thermal insulation products to Owens-Corning Fiberglas Corporation. Furthermore, this defendant has found information in its records which indicate that in at least 1956, it placed Owens-Corning Fiberglas Corporation's logo on some of its boxes. This defendant does not have information sufficient to further respond to this interrogatory.

A. 17. This defendant has never distributed or sold any asbestos products not manufactured by it.

A. 18. 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 Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing. 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.

A. 19. This Defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958. It does not now, and it has not since that time, manufactured, sold or distributed any asbestos-containing products.

A. 20. Charles Shook, M.D., deceased, employed from March 25, 1946 until June 30, 1960; Glenn S. Usher, M.D., 4254 Bonnie Brook, Toledo, Ohio, employed from April 1, 1961 until December 31, 1969; George N. Bates, M.D., 2102 Shenandoah, Toledo, Ohio, employed March 15, 1971 until present. Dr. Shook was the Medical Director during the period in which this Defendant manufactured, sold or distributed asbestos-containing products.

A. 21. This Defendant objects to this Interrogatory 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 within which this defendant manufactured its asbestos-containing products. Without waiving its objection, this defendant answers: Vice President of Corporate Staff, Director of Corporate Personnel.

A. 22. This Defendant's chief medical officer is responsible for assuring and promoting preventive and corrective medical programs, services and practices to protect and preserve employee health and productivity throughout Owens-Illinois, Inc. The individual in this position develops, organizes, introduces and implements pre-employment and periodic examinations as well as new health programs in order to insure the continued well being of Defendant's employees in a safe and healthy environment. The person in this position is also responsible for the quality of medical services at Owens-Illinois locations.

A. 23. This Defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958 and does not have any records from which it can obtain information sufficient to answer this Interrogatory.

During May, 1979, various papers and reports were produced by an employee of the Trudeau Institute, Mr. Allan Logie, regarding animal experiments conducted at laboratories at Saranac Lake involving dust collected during the Kaylo manufacturing process. These papers and reports may contain information related to the substance of this Interrogatory. This Defendant has not been able to find these papers and reports in its business records or correspondence although it has searched for and continues to search for them.

This Defendant's counsel obtained copies of some of the papers and reports produced by Mr. Logie. However, these copies constitute only a portion of a larger volume of papers and reports which this Defendant has not copied. They are available at Milbank, Tweed, Hadley & McCloy, 1 Chase Manhattan Plaza, New York, New York. This Defendant also has reason to believe that Plaintiffs' counsel has copies of the documents produced by Mr. Logie. Other documents possibly relating to this Interrogatory may have been produced by Owens-Corning Fiberglas Corporation in the asbestos litigation.

Those documents found at Saranac Lake and at Owens-Corning Fiberglas Corporation and elsewhere, indicate that during the period of time when Owens-Illinois was in the business of manufacturing asbestos-containing products, the state of government, industrial hygiene and medical community knowledge was that there was a recognized safe exposure level for asbestos dust, that persons installing insulation were not exposed to excessive or hazardous levels of asbestos dust, that Kaylo plant employees were x-rayed periodically and displayed no asbestos-related chest disease, and that therefore during the period in which this Defendant was in the business of manufacturing Kaylo it had no reason to believe that the foreseeable use of Kaylo would create a hazard to users.

The documents produced by Owens-Corning indicate that the September, 1955 publication in the A.M.A. Archives of Industrial Health was a publication of inhalation experiments described by documents produced at the deposition of Mr. Logie.

A. 24. 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 interrogatory. Its investigation into the subject matter referred to in this interrogatory is continuing.

A. 25. This Defendant objects to this Interrogatory on the grounds 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 within which this Defendant manufactured its asbestos-containing products.

Without waiving the above objection, this Defendant states that insofar as this Interrogatory refers to associations or organizations of which this Defendant was a member during the time when it manufactured asbestos-containing products, it was a member of the Industrial Hygiene Foundation (which changed its name to the Industrial Health Foundation in 1970) for the years 1936 through 1975. This Defendant has been unable to find any information in its records which would enable it to further answer this Interrogatory, although its investigation into the subject matter referred to in this Interrogatory is continuing.

A. 26. Refer to Answer to Interrogatory No. 25. 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 further answer this Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing.

A. 27. Refer to Answer to Interrogatory No. 25. 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 further answer this Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing.

A. 28. Refer to Answer to Interrogatory No. 25. 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 further answer this Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing.

A. 29. This Defendant objects to this interrogatory on the grounds 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 within which this Defendant manufactured its asbestos-containing products. Without waiving this objection, Defendant states that it has found information in its records which indicate that at one time this Defendant's industrial hygienist received copies of various bulletins from and the transactions of the Industrial Hygiene Foundation. However, these documents were destroyed in 1969 and Defendant has no way of determining whether such documents were in fact received by its industrial hygienist.

A. 30. This defendant objects to this interrogatory 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.

A. 31. This defendant objects to this interrogatory 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.

A. 32. W. G. Hazard was employed as this Defendant's industrial hygienist during the period of time in which this Defendant engaged in the manufacture, sale and distribution of asbestos-containing products. Mr. Hazard has retired from this Defendant's employ and currently resides at 3609 Mapleway Drive, Toledo, Ohio 43614. This Defendant objects to further answering this Interrogatory on the grounds that it seeks information not relevant to the subject matter of this litigation and not reasonably calculated to lead to the discovery of admissible evidence except as it relates to the period of time within which this Defendant manufactured its asbestos-containing products.

A. 33. This Defendant objects to this interrogatory 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. Without waiving its objection, this defendant states that it ceased the manufacture, sale and distribution of its asbestos-containing thermal insulation products in 1958. It has found information in its records which indicate that McCormick Asbestos Company was a distributor of its asbestos-containing products in the State of Maryland.

A. 34. 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 interrogatory. Its investigation into the subject matter referred to in this interrogatory is continuing. However, it does not appear that any instructions concerning asbestos were 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.

A. 35. This Defendant ceased the manufacture, sale, and distribution of asbestos-containing products in 1958, and has not been able to find information in its records sufficient to enable it to answer this Interrogatory. Its investigation into the subject matter of this Interrogatory is continuing. However, a document produced at the deposition of E. C. Shuman on June 12, 1979 in a case then pending in the United States District Court for the Eastern District of Virginia, C/P 77-1-N indicates that during the period in which this Defendant engaged in the manufacture, sale and distribution of its asbestos-containing products, none of its employees employed at its facilities in which it manufactured asbestos-containing products filed a workers' compensation claim or other claim claiming disability or seeking compensation for any asbestos-related disease. This

Defendant has been unable to locate this document in its business records or correspondence although it has searched for, and continues to search for it.

This Defendant further states that it sold its asbestos-containing product business to Owens-Corning Fiberglas Corporation in 1958. At the time of the sale, this Defendant's employees left the employ of this Defendant and became employees of Owens-Corning Fiberglas Corporation.

A. 36. This Defendant believes that some of its asbestos-containing insulation products were packaged in corrugated cartons with the trademark Kaylo on the carton. This Defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958 and does not have information sufficient to further answer this Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing.

A. 37. Refer to Exhibit I.

A. 38. This Defendant objects to this Interrogatory on the basis that is burdensome and oppressive. Further, 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.

A. 39. This Defendant has not engaged in sufficient discovery to make such contention at this time. However, this defendant reserves the right to make such contention after it has engaged in sufficient discovery.

A. 40. The identity of witnesses to be called at trial is not known at the present time. This Defendant reserves the right to designate at a later date witnesses to be used at trial.

A. 41. This defendant objects to answering this interrogatory for any period of time other than the period of time this defendant manufactured its asbestos-containing products. Without waiving its objections, this Defendant states that it ceased the manufacture, sale and distribution of asbestos-containing products effective April 30, 1958 and has not engaged in any such business since.

During May, 1979, various papers and reports were produced by an employee of the Trudeau Institute, Mr. Allan Logie, regarding animal experiments conducted at laboratories at Saranac Lake involving dust collected during the Kaylo manufacturing process. These papers and reports may contain information related to the substance of this Interrogatory. This Defendant has not been able to find these papers and reports in its business records or correspondence although it has searched for and continues to search for them.

This Defendant's counsel obtained copies of the papers and reports produced by Mr. Logie. However, these copies constitute only a portion of a larger volume of papers and reports which this Defendant has not copied. This Defendant also has reason to believe that Plaintiff's counsel has copies of the documents produced by Mr. Logie. They are available at Milbank, Tweed, Hadley & McCloy, 1 Chase Manhattan Plaza, New York, New York. Other documents possibly relating to this Interrogatory have been produced by Owens-Corning Fiberglas Corporation. Those documents indicate that the experiments referred to in the documents produced by Mr. Logie were published in an AMA publication in September, 1955. As with the documents produced by Mr. Logie, the documents produced by Owens-Corning Fiberglas Corporation have not been found as part of this Defendant's records.

The foregoing documents indicate that during the time in which this Defendant engaged in the manufacture, sale and distribution of asbestos-containing products, its products contained a relatively small portion of asbestos when compared to other asbestos-containing products in use during and prior to the same period of time. It appears that this Defendant's employees

at its asbestos product manufacturing plants were x-rayed periodically and displayed no asbestos-related chest disease, although in the course of their employment they were exposed to the raw materials of this Defendant's products as well as the dust of the finished product. Furthermore, these documents indicate that there were no worker's compensation claims filed by its employees for asbestos-related diseases.

It was this Defendant's understanding of the state of medical and industrial hygiene knowledge that exposure to asbestos in excessive amounts over a prolonged period of time (years), in the conditions typically experienced in factories, workshops, and possibly mines and mills could lead to the potential hazard of contracting a disease known as asbestosis.

However, the state of medical and industrial hygiene knowledge was also to the effect that there was a safe level (threshold limit value) of asbestos to which a person could be exposed without risk of injury. This Defendant was aware of the threshold limit value for asbestos as published by the American Conference of Governmental Industrial Hygienists (ACGIH) in the 1940's and 1950's through publications by the Industrial Hygiene Foundation, ACGIH and from the above referenced "Logie" and "OCF" documents.

In addition, it appears that an employee of this Defendant subscribed to and received the Journal of Industrial Hygiene and Toxicology which contained in January, 1946 an article published by the Navy entitled, "A Health Survey of Pipe Covering Operations in Constructing Naval Vessels," by Fleischer, Viles, Gade and Drinker. This article stated that persons who worked as insulators in shipyards were not exposed and did not work in conditions similar to those experienced in factories, workshops, mines and mills, and were not exposed to levels of asbestos above the recognized safe limits. Therefore, the article concluded that such persons were not engaged in a hazardous occupation.

From the foregoing papers, reports and articles, this Defendant had no reason to believe that exposure to its

asbestos-containing products would result in a foreseeable risk of harm to users.

This Defendant reserves the right to supplement this response as discovery and the case warrant. This Defendant has reason to believe that Plaintiffs' counsel is in possession of a substantial library of asbestos-related literature containing articles that Defendant may wish to rely upon.

A. 42. This Defendant objects to answering this interrogatory insofar as it pertains to products manufactured or sold by other defendants. Without waiving its objection, refer to Answer to Interrogatory No. 41.

A. 43. Refer to Answer to Interrogatory No. 41.

A. 44. Refer to Answer to Interrogatory No. 41.

A. 45. To the extent this interrogatory inquires as to asbestos-containing products manufactured or sold by other Defendants, this Defendant states that it does not have any records from which it can obtain information sufficient to answer this Interrogatory, nor can it locate any present employees with knowledge thereof.

Insofar as this Interrogatory inquires as to asbestos-containing products manufactured by this Defendant, this Defendant states that it ceased the manufacture, sale and distribution of asbestos-containing products effective April 30, 1958 and has not engaged in any such business since.

During May, 1979, various papers and reports were produced by an employee of the Trudeau Institute, Mr. Allan Logie, regarding animal experiments conducted at laboratories at Saranac Lake involving dust collected during the Kaylo manufacturing process. These papers and reports may contain information related to the substance of this Interrogatory. This Defendant has not been able to find these papers and reports in its business records or correspondence although it has searched for and continues to search for them.

(This Defendant's counsel obtained copies of the papers and reports produced by Mr. Logie. However, these copies constitute only a portion of a larger volume of papers and reports which this Defendant has not copied. This Defendant also has reason to believe that Plaintiff's counsel has copies of the documents produced by Mr. Logie. They are available at Milbank, Tweed, Hadley & McCloy, 1 Chase Manhattan Plaza, New York, New York. Other documents possibly relating to this Interrogatory have been produced by Owens-Corning Fiberglas Corporation. Those documents indicate that the experiments referred to in the documents produced by Mr. Logie were published in an AMA publication in September, 1955. As with the documents produced by Mr. Logie, the documents produced by Owens-Corning Fiberglas Corporation have not been found as part of this Defendant's records.

(The foregoing documents indicate that during the time in which this Defendant engaged in the manufacture, sale and distribution of asbestos-containing products, its products contained a relatively small portion of asbestos when compared to other asbestos-containing products in use during and prior to the same period of time. It appears that this Defendant's employees at its asbestos product manufacturing plants were x-rayed periodically and displayed no asbestos-related chest disease, although in the course of their employment they were exposed to the raw materials of this Defendant's products as well as the dust of the finished product. Furthermore, these documents indicate that there were no worker's compensation claims filed by its employees for asbestos-related diseases.

It was this Defendant's understanding of the state of medical and industrial hygiene knowledge that exposure to asbestos in excessive amounts over a prolonged period of time (years), in the conditions typically experienced in factories, workshops, and possibly mines and mills could lead to the potential hazard of contracting a disease known as asbestosis.

(However, the state of medical and industrial hygiene knowledge was also to the effect that there was a safe level (threshold limit value) of asbestos to which a person could be

exposed without risk of injury. This Defendant was aware of the threshold limit value for asbestos as published by the American Conference of Governmental Industrial Hygienists (ACGIH) in the 1940's and 1950's through publications by the Industrial Hygiene Foundation, ACGIH and from the above referenced "Logie" and "OCF" documents.

In addition, it appears that an employee of this Defendant subscribed to and received the Journal of Industrial Hygiene and Toxicology which contained in January, 1946 an article published by the Navy entitled, "A Health Survey of Pipe Covering Operations in Constructing Naval Vessels," by Fleischer, Viles, Gade and Drinker. This article stated that persons who worked as insulators in shipyards were not exposed and did not work in conditions similar to those experienced in factories, workshops, mines and mills, and were not exposed to levels of asbestos above the recognized safe limits. Therefore, the article concluded that such persons were not engaged in a hazardous occupation.

From the foregoing papers, reports and articles, this Defendant had no reason to believe that exposure to its asbestos-containing products would result in a foreseeable risk of harm to users.

This Defendant reserves the right to supplement this response as discovery and the case warrant. This Defendant has reason to believe that Plaintiff's counsel is in possession of a substantial library of asbestos-related literature containing articles that Defendant may wish to rely upon.

A. 46. 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 Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing.

A. 47. Refer to Answer to Interrogatory No. 46.

A. 48. This Defendant objects to this Interrogatory 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.

A. 49. 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 Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing. 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.

A. 50. Refer to Answer to Interrogatory No. 49.

A. 51. 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 interrogatory. Its investigation into the subject matter referred to in this interrogatory is continuing. 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.

A. 52. Refer to Answers to Interrogatories Nos. 45 and 51.

A. 53. Refer to Answers to Interrogatories Nos. 45 and 51.

A. 54. Refer to Answers to Interrogatories Nos. 45 and 51.

A. 55. Refer to Answer to Interrogatory No. 45.

A. 56. Refer to Answers to Interrogatories Nos. 45 and 51.

A. 57. Refer to Answer to Interrogatory No. 45.

A. 58. Refer to Answer to Interrogatory No. 39.

A. 59. Refer to Answer to Interrogatory No. 39.

A. 60. Refer to Answer to Interrogatory No. 39.

A. 61. Refer to Answer to Interrogatory No. 39.

A. 62. Refer to Answer to Interrogatory No. 39.

A. 63. 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 interrogatory. Its investigation into the subject matter referred to in this interrogatory is continuing.

A. 64. Refer to Answer to Interrogatory No. 63.

A. 65. This defendant does not make such contention at the present time, but reserves the right to make such contention after it has engaged in sufficient discovery.

A. 66. This defendant contends that plaintiff did not use its asbestos-containing products. This defendant also contends that plaintiff assumed the risk of injury to the extent plaintiff smoked, did not wear respirators, did not wear protective clothing, disregarded warnings, and did not participate in health or other safety programs offered by his employer.

A. 67. This defendant contends that plaintiff did not use its asbestos-containing products. This defendant also contends that plaintiff was contributorily negligent to the extent plaintiff smoked, did not wear respirators, did not wear protective clothing, disregarded warnings, and did not participate in health or other safety programs offered by his employer.

A. 68. This defendant contends that the plaintiff improperly used or misused its asbestos-containing products to the extent it can be proven that plaintiff used this defendant's products.

A. 69. This Defendant objects to answering this interrogatory as being ambiguous, overly broad, burdensome and not restricted to the time period of this litigation.

A. 70. This Defendant objects to answering this interrogatory insofar as it pertains to any period of time other than that during which this Defendant manufactured its asbestos-containing products on the grounds that said information is not relevant to the subject matter of the pending litigation and is not calculated to lead to the discovery of admissible evidence. Without waiving its objection, this Defendant states that it ceased the manufacture, sale and distribution of asbestos-containing products in 1958. Refer to Answer to Interrogatory No. 23.

A. 71. Refer to Answer to Interrogatory No. 49.

A. 72. Refer to Answer to Interrogatory No. 49.

A. 73. 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 interrogatory. Its investigation into

the subject matter referred to in this interrogatory is is pertinent to this defendant. Without waiving this objection, defendant states that it has not found any information in its records sufficient to enable it to answer this interrogatory.

A. 74. Refer to Answer to Interrogatory No. 73.

A. 75. This Defendant objects to this interrogatory except as it relates to the time period in which this defendant manufactured its asbestos-containing products. Without waiving this objection, this defendant states that 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 interrogatory. Its investigation into the subject matter referred to in this interrogatory is continuing. 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.

A. 76. This Defendant objects to this interrogatory except as it relates to the time period in which this defendant manufactured its asbestos-containing products. Without waiving its objection, this Defendant states that it 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 interrogatory. Its investigation into the subject matter referred to in this interrogatory is continuing.

A. 77. This Defendant objects to this interrogatory except as it relates to the State of Maryland. Without waiving its objection, refer to Answer to Interrogatory No. 6.

A. 78. Refer to Answer to Interrogatory No. 77.

A. 79. Refer to Answer to Interrogatory No. 41.

A. 80. During the period of time pertinent to these actions, this Defendant did not maintain an entity which could be characterized as an industrial hygiene, medicine, safety and/or engineering library. However, this Defendant believes that a separate engineering library may have been maintained by its technical facility. This Defendant also states that although it has no records indicating the existence of such a library, the publications listed on Exhibit II and attached hereto are presently located in its current industrial hygiene library. This Defendant has not yet determined which, if any, of these publications were in this Defendant's possession during the time it manufactured, sold and distributed asbestos-containing products.

A. 81. This Defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958 and does not have any records from which it can obtain information sufficient to answer this Interrogatory.

During May, 1979, various papers and reports were produced by an employee of the Trudeau Institute, Mr. Allan Logie, regarding animal experiments conducted at laboratories at Saranac Lake involving dust collected during the Kaylo manufacturing process. These papers and reports may contain information related to the substance of this Interrogatory. This Defendant has not been able to find these papers and reports in its business records or correspondence although it has searched for and continues to search for them.

This Defendant's counsel obtained copies of some of the papers and reports produced by Mr. Logie. However, these copies constitute only a portion of a larger volume of papers and reports which this Defendant has not copied. They are available at Milbank, Tweed, Hadley & McCloy, 1 Chase Manhattan Plaza, New York, New York. This Defendant also has reason to believe that Plaintiffs' counsel has copies of the documents produced by Mr.

Logie. Other documents possibly relating to this Interrogatory may have been produced by Owens-Corning Fiberglas Corporation in the asbestos litigation.

Those documents found at Saranac Lake and at Owens-Corning Fiberglas Corporation and elsewhere, indicate that during the period of time when Owens-Illinois was in the business of manufacturing asbestos-containing products, the state of government, industrial hygiene and medical community knowledge was that there was a recognized safe exposure level for asbestos dust, that persons installing insulation were not exposed to excessive or hazardous levels of asbestos dust, that Kaylo plant employees were x-rayed periodically and displayed no asbestos-related chest disease, and that therefore during the period in which this Defendant was in the business of manufacturing Kaylo it had no reason to believe that the foreseeable use of Kaylo would create a hazard to users.

The documents produced by Owens-Corning indicate that the September, 1955 publication in the A.M.A. Archives of Industrial Health was a publication of inhalation experiments described by documents produced at the deposition of Mr. Logie.

A. 82. The documents upon which 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," Dreessen,, 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," Feris, B. G., Jr. (1971); "Asbestosis and Bronchogenic Carcinoma," Isselbacher, K.J. (1953); and the Threshold Limit Values promulgated by the American Conference of Governmental Industrial

Hygienists for 1946 through 1958; along with others to be supplemented later.

A. 83. This Defendant objects to this interrogatory on the basis that it ceased the manufacture, sale and distribution of its asbestos-containing products more than 20 years ago. This Defendant further states that it began collecting written materials of the kind referred to in this interrogatory in 1975, once this Defendant became involved in asbestos-related litigation. This Defendant objects to listing these materials as they constitute attorney work product.

Without waiving this objection, this Defendant states that within the relevant time period during which it was involved in the manufacture of asbestos-containing products, in May, 1979, various papers and reports were produced by an employee of the Trudeau Institute, Mr. Allan Logie, regarding animal experiments conducted at laboratories at Saranac Lake involving dust collected during the Kaylo manufacturing process. These papers and reports may contain information related to the substance of this Interrogatory. This Defendant has not been able to find these papers and reports in its business records or correspondence although it has searched for and continues to search for them.

This Defendant's counsel obtained copies of some of the papers and reports produced by Mr. Logie. However, these copies constitute only a portion of a larger volume of papers and reports which this Defendant has not copied. They are available at Milbank, Tweed, Hadley & McCloy, 1 Chase Manhattan Plaza, New York, New York. This Defendant also has reason to believe that Plaintiffs' counsel has copies of the documents produced by Mr. Logie. Other documents possibly relating to this Interrogatory may have been produced by Owens-Corning Fiberglas Corporation in the asbestos litigation.

Those documents found at Saranac Lake and at Owens-Corning Fiberglas Corporation and elsewhere, indicate that during the period of time when Owens-Illinois was in the business of

manufacturing asbestos-containing products, the state of government, industrial hygiene and medical community knowledge was that there was a recognized safe exposure level for asbestos dust, that persons installing insulation were not exposed to excessive or hazardous levels of asbestos dust, that Kaylo plant employees were x-rayed periodically and displayed no asbestos-related chest disease, and that therefore during the period in which this Defendant was in the business of manufacturing Kaylo it had no reason to believe that the foreseeable use of Kaylo would create a hazard to users.

The documents produced by Owens-Corning indicate that the September, 1955 publication in the A.M.A. Archives of Industrial Health was a publication of inhalation experiments described by documents produced at the deposition of Mr. Logie.

A. 84. This Defendant states that it has not engaged in sufficient discovery to enable it to answer this interrogatory. Its investigation is continuing and Defendant hereby reserves the right to make contentions at any time in the future as a result thereof.

A. 85. This defendant objects to this interrogatory on the grounds that it seeks information which is not relevant to the subject matter of this litigation and is not calculated to lead to the discovery of admissible evidence. Without waiving its objections, this defendant responds that the status of its liability coverage by its insurer, Aetna, with regard to actions brought against this defendant allegedly resulting from the use of asbestos-containing products has not yet been resolved and is unclear at this time.

A. 86. This Defendant objects to this interrogatory on the basis that it ceased the manufacture, sale and distribution of its asbestos-containing products in 1958 and therefore its

present knowledge concerning the manufacture of asbestos-containing products is not relevant to issues in the litigation.

A. 87. Refer to Answer to Interrogatory No. 86.

A. 88. 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 Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing. 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.

-----A. 89. This defendant objects to this interrogatory except as it relates to the time period in which this Defendant manufactured its asbestos-containing products. Without waiving its objection, refer to Answer to Interrogatory No. 88.

A. 90. Refer to Answer to Interrogatory No. 6.

A. 91. Refer to Answer to Interrogatory No. 82.

A. 92. 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.

A. 93. Refer to Answer to Interrogatory No. 92.

A. 94. 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 Interrogatory. Its investigation into the subject matter referred to in this Interrogatory is continuing. In addition, this Defendant states that it has found no information in its records which indicate that this Defendant sold or supplied its asbestos-containing products to the Bethlehem Steel Co. at their Sparrows Point, Maryland facility.

A. 95. This Defendant objects to this interrogatory on the basis that it ceased the manufacture, sale and distribution of its asbestos-containing products in 1958, and therefore its present knowledge concerning the difference between asbestos fiber types and asbestos-related diseases is not relevant to the issues in this litigation.

A. 96. This defendant ceased the manufacture, sale and distribution of asbestos-containing products in 1958. This defendant is aware that the following present or former employees have testified at trial or by deposition in asbestos-related litigation: Edward C. Ames, Richard L. Grimmie, William Justice, John Pershing, John Rhoads, June Welser, Everett Shuman, Willis G. Hazard, Richard R. Beck, Samuel F. Schillaci, George N. Bates, M.D., and Thomas A. Meehan, Esq. This defendant objects to listing dates of trials and/or depositions for each name listed above as being burdensome and oppressive.

Effective April 30, 1958, this defendant sold its asbestos-containing product manufacturing division to Owens-Corning Fiberglas Corporation. At that time certain employees who worked in the division, some of whom are mentioned above, transferred to Owens-Corning Fiberglas. These individuals have been deposed with regard to asbestos-related litigation involving Owens-Corning Fiberglas Corporation.

E X H I B I T I

HEAT

KAYLO

HEAT INSULATING BLOCK

For Temperatures up to 1200° F.

AMERICAN STRUCTURAL
PRODUCTS COMPANY
1000 E. 10th St.
Cleveland, Ohio 44114

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



Kaylo Heat Insulating Block is a new type of lightweight mineral insulation that is *efficient* enough for use at ordinary room temperatures and *resistant* enough to perform reliably up to 1200° F.

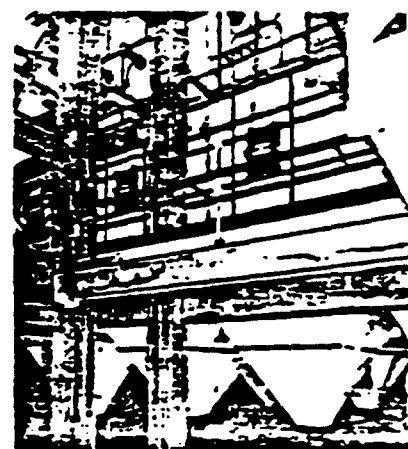
Few new products of any kind have been so thoroughly researched before being placed on the market. Heat Insulating Block is the achievement of many years' work by the Illinois Glass Company engineers, physicists and chemists.

No other material, new or old, effectively combines the most desirable characteristics of the ideal insulation.

For instance . . .

LOW DENSITY

Kaylo Heat Insulating Block weighs only 11 pounds per cubic foot. This light weight (less than one to the board foot) simplifies handling, shipping and application. It reduces weight—an important advantage on ships, for an example.



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

LOW THERMAL CONDUCTIVITY

The coefficient of conductivity, or k , of Kaylo Heat Insulating Block, shown on the chart on page four, places it among the most efficient insulations for medium high temperatures. Its insulation value comes principally from its fine, interlaced cellular structure. These cells are so tiny and numerous that they present a material surface of approximately 140 res 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 hotter 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 this weight. Kaylo Heat Insu-

lating Block withstands compression values equivalent to those of a man's 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 "feel" 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 rumbling tests, run after prolonged heating, produce relatively little crumbling or breakdown 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.

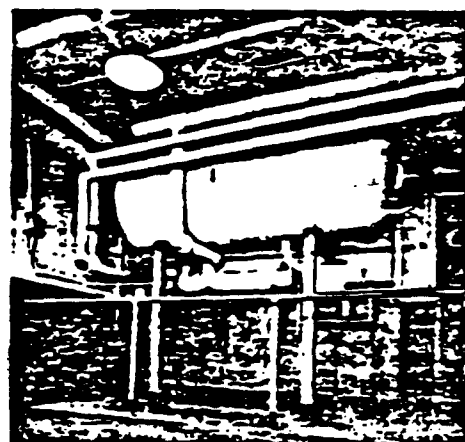
DEMONSTRATING A REMARKABLE VERSATILITY



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 building. Workmen are laying blocks of 6" x 6" wire mesh welded together stiffeners. The block are then covered with finishing cement and shall 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.



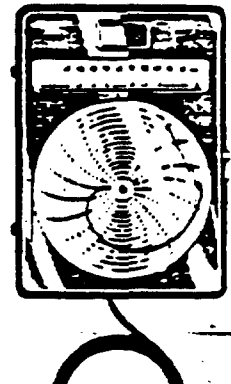
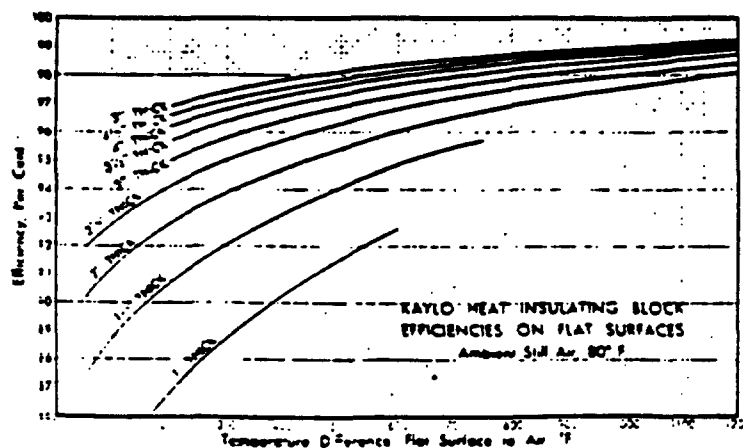
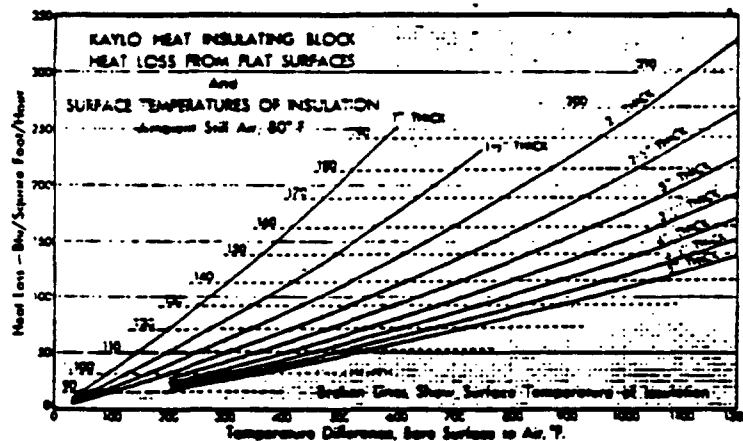
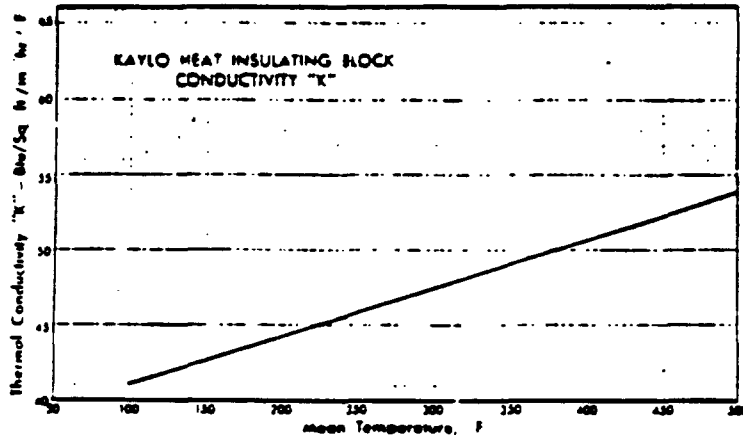
Hot water is always ready when needed in the office building where this hot water storage tank is installed, thanks to Kaylo Heat Insulating Block. This permanent insulation holds water temperature constant with a minimum of power consumption.

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

KAYLO

HEAT INSULATING BLOCK

Heat Loss, Surface Temperatures
and Efficiencies...



Inside or outside, for large installations or small, from 0 to 1200° F., use Kaylo Heat Insulating Block to insulate:

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

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. American Structural Products Company, Toledo 1, Ohio. Subsidiary of Owens-Illinois Glass Company.

PHYSICAL CHARACTERISTICS (AT A GLANCE

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

..... 50 lb. per sq. in.

(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..... 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 hrs.

at 750° F..... 0.8%

at 1000° F..... 0.9%

at 1200° F..... 1.5%

Elongation after saturation (max.)..... 0.4%

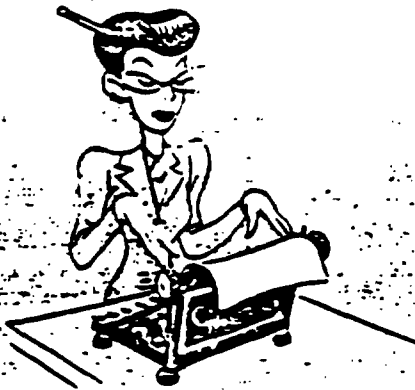
MOISTURE ABSORPTION (volume)

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

At 300° F. mean temperature..... 0.474

PRINCIPAL FEATURES OF KAYLO HEAT INSULATING BLOCK

WIND PROOF



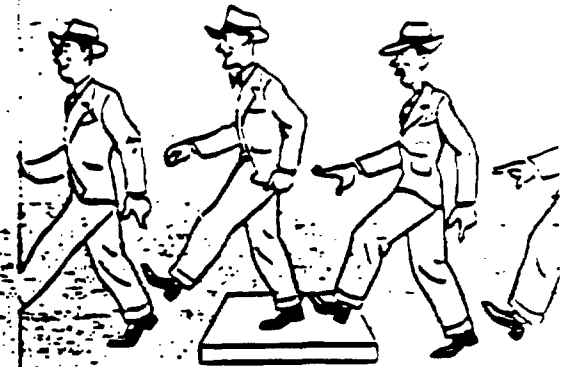
EXTREMELY LIGHTWEIGHT



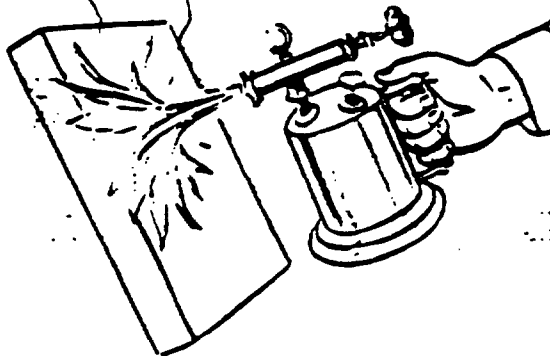
EASY TO APPLY



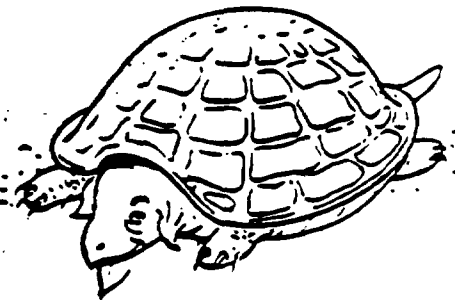
HIGH COMPRESSIVE STRENGTH



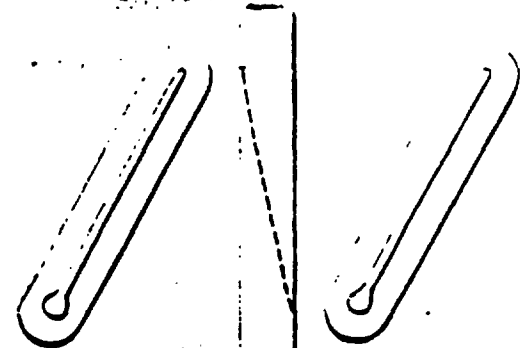
FIRE-PROOF



DURABLE



NO ADDED BINDER

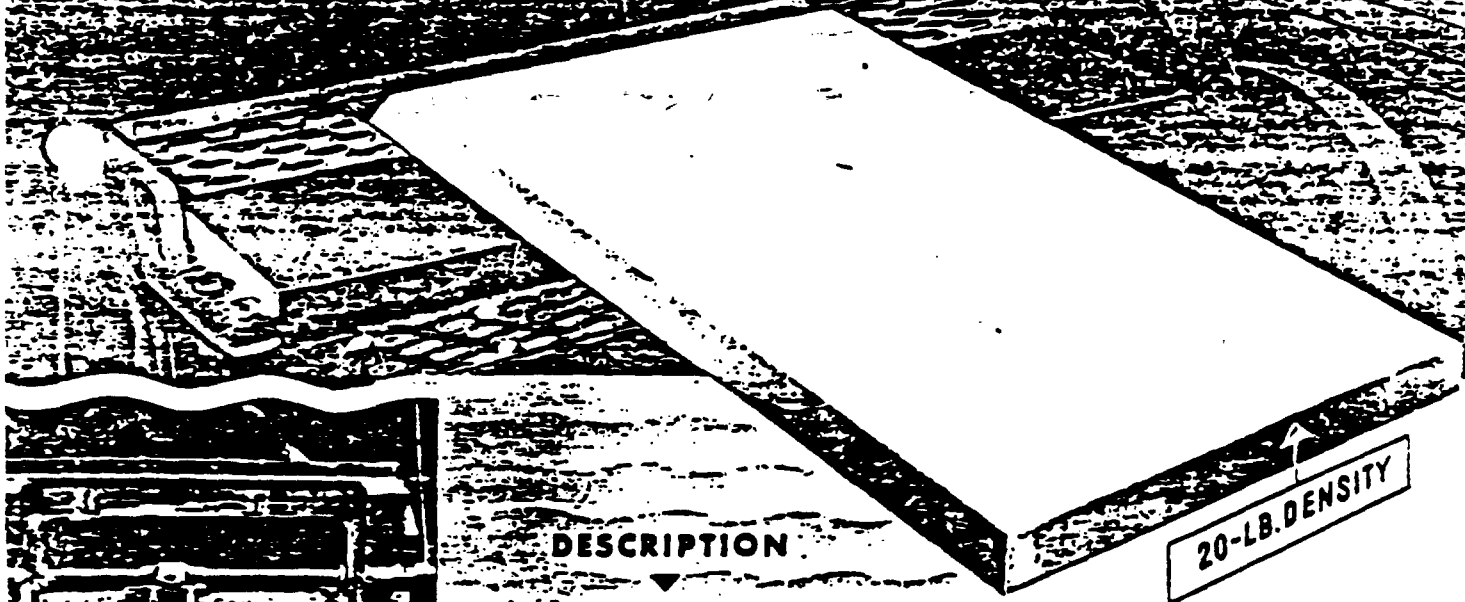




KAYLO®

20-LB. DENSITY

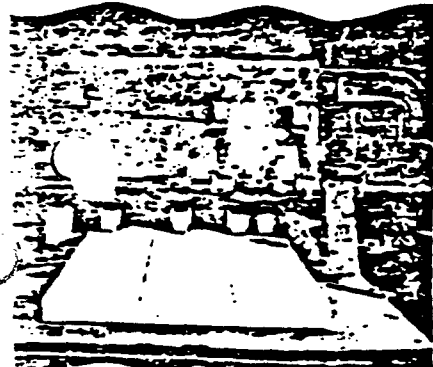
STRUCTURAL INSULATING BLOCK



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 develop 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 oven dry basis from 19.5 to 22 lb.), has a compressive strength of approximately 500 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.



KAYLO STRUCTURAL

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

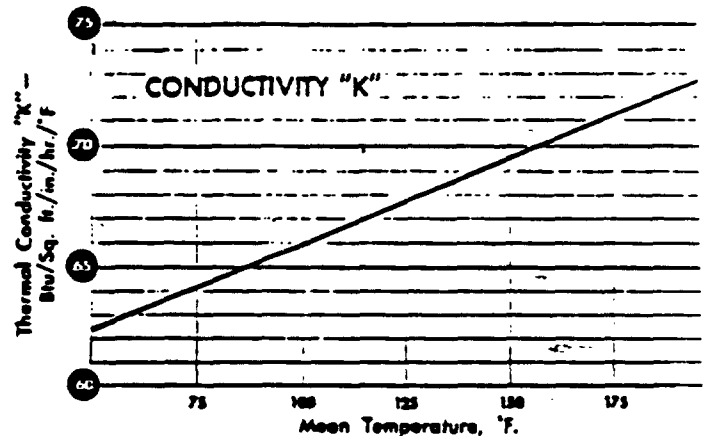
Light Weight—Nominal 20-lb. density Kaylo Block is about a third lighter than yellow pine. On an oven-dry basis it weighs from 19.5 to 22 pounds per cubic foot.

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 furnished bearing the Underwriters' label for fire hazard classification for building material.



Good Insulation Value—At low mean temperatures Kaylo 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 untreated (as with the underside of a roof deck) Kaylo Structural Insulating Block has high light reflectivity. Its light reflection factor is from 70 to 80 per cent.

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

No Added Binder—It contains no added binder, but instead constitutes its own binder. Hence its characteristics are not modified as to temperature limit, solubility, insulation value, fire resistance or otherwise by "binding limitations."



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 wood-working 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 throughout its mass, and to give it off to surrounding air of lower moisture content.

Low moisture absorption when surrounded by humid air at low humidity. 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 be immersed in water or exposed to extremely damp or humid conditions, yet its flexural 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.

Sizes—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 1 3/4 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



INATION

on over a Kaylo Insulating Core—Almost any face may be bonded to Kaylo Structural Insulating faces. Bonding agents can be selected to meet 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 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.

YES FOR JOINING KAYLO

URAL INSULATING BLOCK TO:

Insulating Block	Aluminum	Stainless Steel
3026A	Durite No. 3026A	Durite No. 3026
07	Pecora 718	No. A, NH267
	Weldwood	N100
	Insolute No. 1	3 MEC 826
	Interlake 4162	Weldwood
	Vulcoseal	Insolute No. 1
	Dupont 4653	Interlake 4162
	Dupont 4646	Vulcoseal
	G. E. 2142	Dupont 4653
	G. E. 7031	Dupont 4646
	Vinylseal MA 28-18	G. E. 2142
	Amberlite PR14	G. E. 7031
	Bestik EXE 138	Vinylseal MA 28-18
	Redux	Amberlite PR14
		Bestik 7026
		Sodium Silicate
		Redux

ADHESIVES FOR JOINING LIKE MATERIALS:

Insulating Block to Insulating Block	Aluminum to Aluminum	Stainless Steel to Stainless Steel
Durite 3026A	Vulcoseal	Dupont 4653
Penacelita G1131	Dupont 4653	G. E. 7031
Weldwood	Dupont 4646	Bestik 7026
Insolute 1	G. E. 7031	Bestik EXE 138
G. E. 2142	Bestik 7026	Redux
Plaskon 911	Bestik EXE 138	
Selectron 5003	Redux	
Vinylseal MA 28-18		
Amberlite PR14		
Bestik 7026		
Bestik EXE 138		
Sodium Silicate		
Redux		
Synco X-8348 + 130LW (DW)		

method of cure:
maximum Strength

- (A) Clamped at room temperature for 24 hours.
- (B) Clamped in oven at 120° F. for 1 hour.
- (C) Placed in press at 10 p.s.i. at 300° F. for 10-30 minutes.
- (D) Placed in press at 100 p.s.i. at 300° F. for 10-30 minutes.
- (E) Clamped in oven at 250° F. for 10-30 minutes.

by curing has been tried successfully on an experimental bond of aluminum and stainless steel bonded to a Kaylo. Many of the manufacturers making the above listed products have adhesives suitable for high-frequency curing.

AMERICAN STRUCTURAL PRODUCTS COMPANY

TOLEDO 1, OHIO

Subsidiary of OWENS-ILLINOIS GLASS COMPANY

A new heat insulating

WITH A REMARKABLE COMBINATION C

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 coverage with Kaylo insulation handles applications which often require two thicknesses of different material.

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

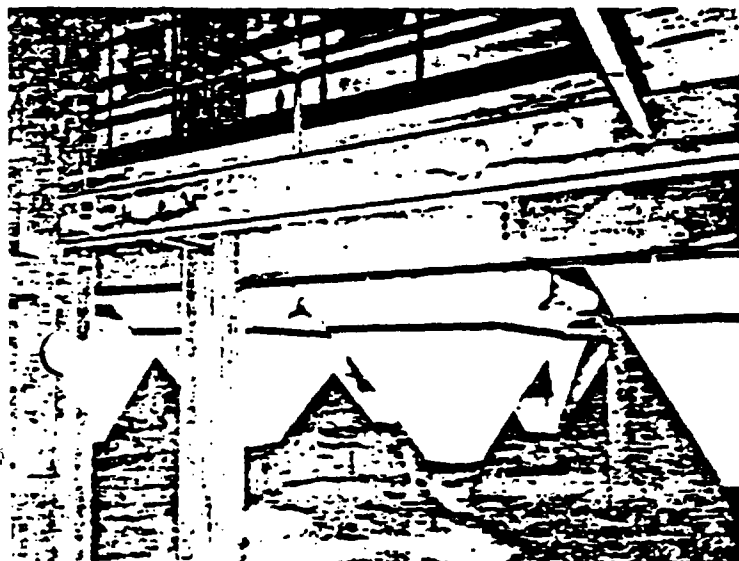
HIGH FLEXURAL STRENGTH. Its flexural strength is higher than the normal requirements for heat insulation of this type. This strength makes for easy handling and application, and contributes to long service with low maintenance.

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, modify effective temperature range or otherwise limit performance.

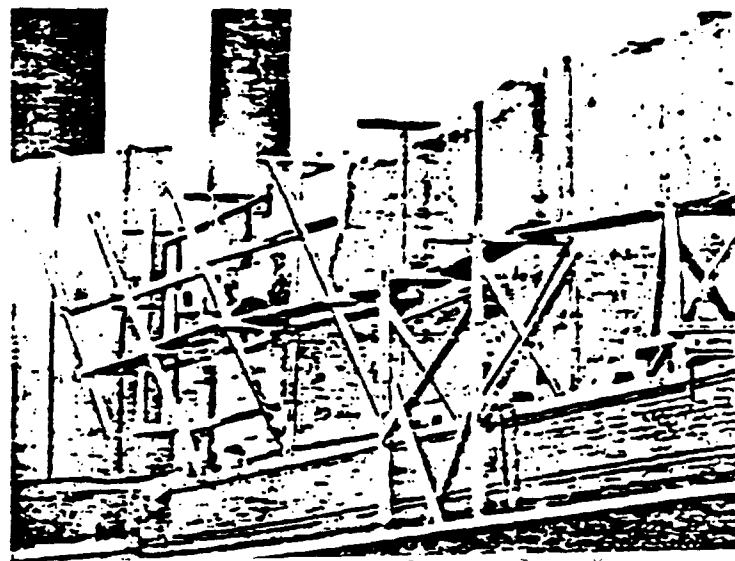
EASY TO APPLY. Kaylo Heat Insulating Blocks are clean-cut and trim. They are easy to fit into place.



Notice the clean, straight edges on these insulated precipitator hoppers. Applicators find it easy to work with Kaylo Heat Insulating Block because they are so easy to cut and yet have a high flexural 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...

Like a good-looking installation. Their "feel" is pleasant and non-irritating. They can be cut, scored and sawed with ordinary woodworking tools. Finishes cut go over the block, whether cement, cloth or other, can be applied smoothly and with a minimum 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. In conventional tumbling tests, run after prolonged heating, produce relatively little crumbling or breakdown of the material.

TYPICAL APPLICATIONS:

Used inside or outside, for large installations or small, up to 100 ft. Use Kaylo Heat Insulating Block to insulate:

Refrigerating	Heat Exchangers	Turbines
Air Ducts	Condensers	Chilling Pits
Pipes	Lehrs	Boilers
Welders	Autoclaves	Precipitators
Boilers	Ovens	Locomotives
Refrigerators	Furnaces	



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



PHYSICAL CHARACTERISTICS

DENSITY	Approximately 11 lb. per cu. ft.
FLEXURAL STRENGTH	50 lb. per sq. in.
COMPRESSIVE STRENGTH (at 5% deformation)	150 lb. per sq. in.
Before heating	
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	5.5%
at 750° F.	7.9%
at 1000° F.	9.8%
at 1200° F.	0.2%
After boiling for 24 hours (after drying)	
RESISTANCE TO ABRASION	
(Conventional tumbling test-loss in weight after 10 minutes)	2.2%
Before heating	
After heating for 24 hours	3.7%
at 750° F.	5.7%
at 1000° F.	6.9%
at 1200° F.	
DIMENSIONAL STABILITY	
Linear shrinkage after heating for 24 hours	0.8%
at 750° F.	0.9%
at 1000° F.	1.5%
at 1200° F.	
Expansion after saturation (max.)	0.04%
MOISTURE ABSORPTION (volume)	
After 6 hours exposure in atmosphere of 120° F. and 90% Relative Humidity	0.9%
CONDUCTIVITY (K)	
At 100° F. mean temperature	0.41
At 500° F. mean temperature	0.54

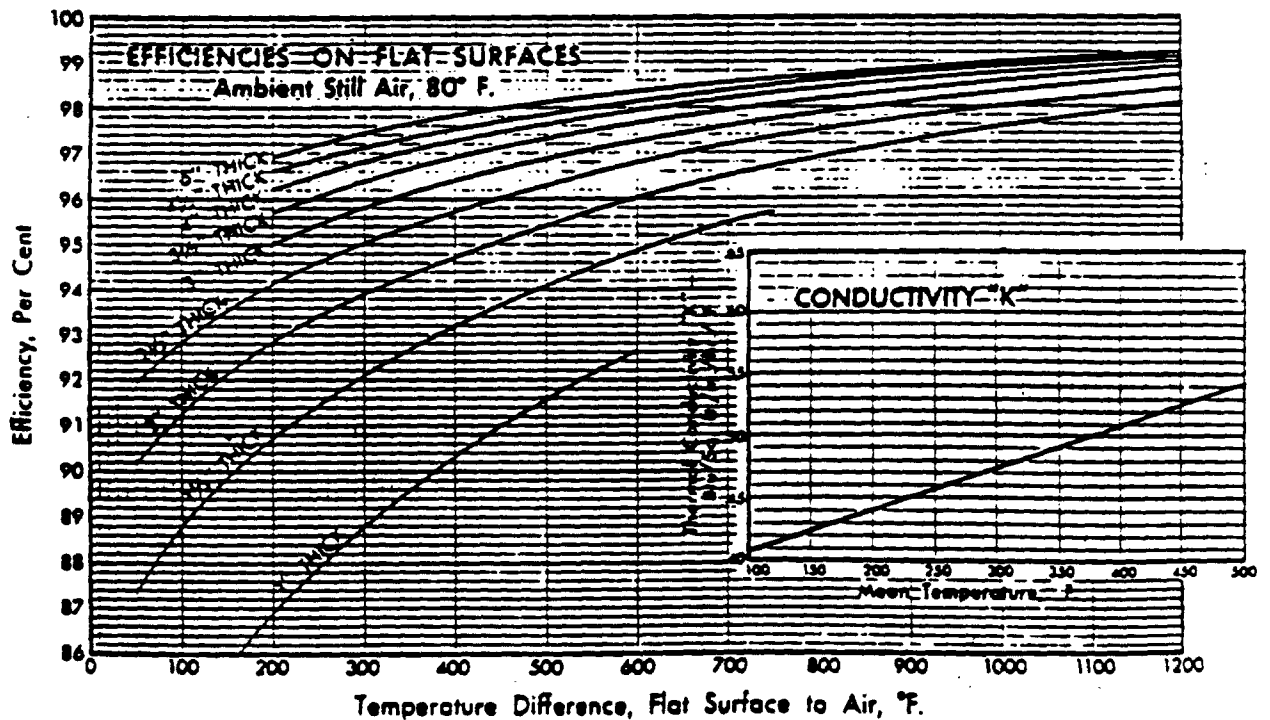
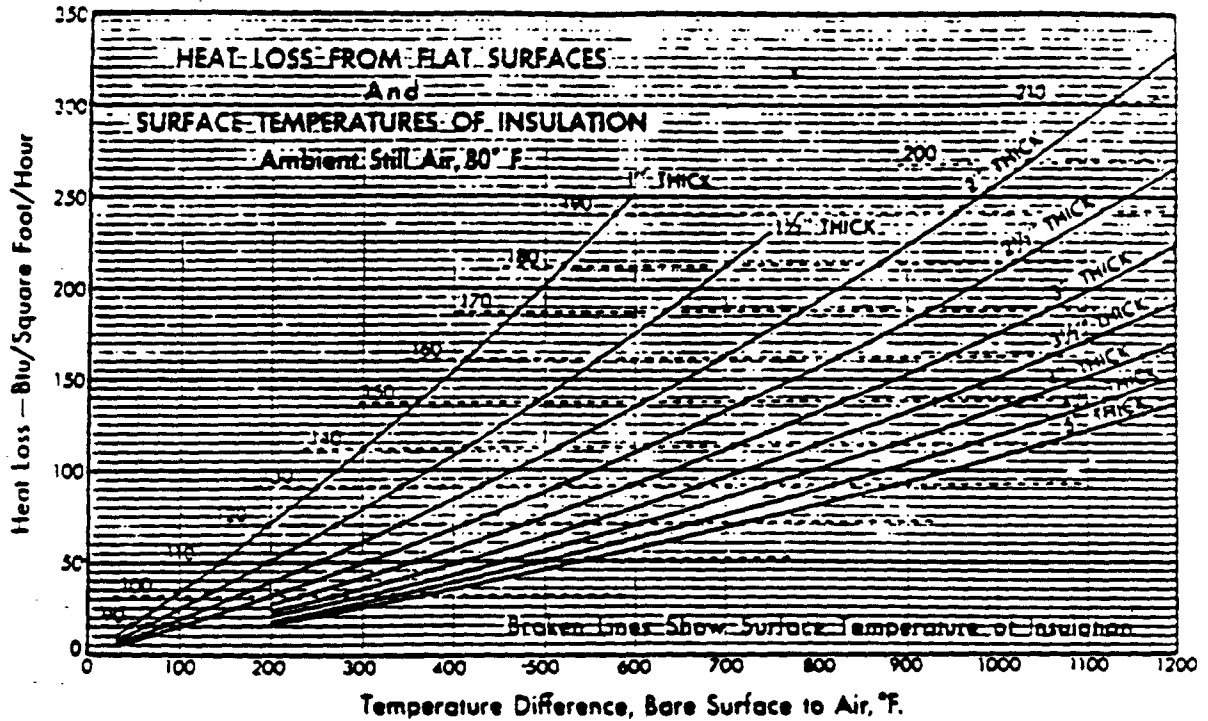
STANDARD SIZES

LENGTH (inches)	WIDTH (inches)	THICKNESS (inches)
16	6	1
16	6	1 1/2
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16	6	

KAYLO®

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. American Structural Products Company, Toledo 1, Ohio.

KAYLO[®]

20-LB.
DENSITY

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

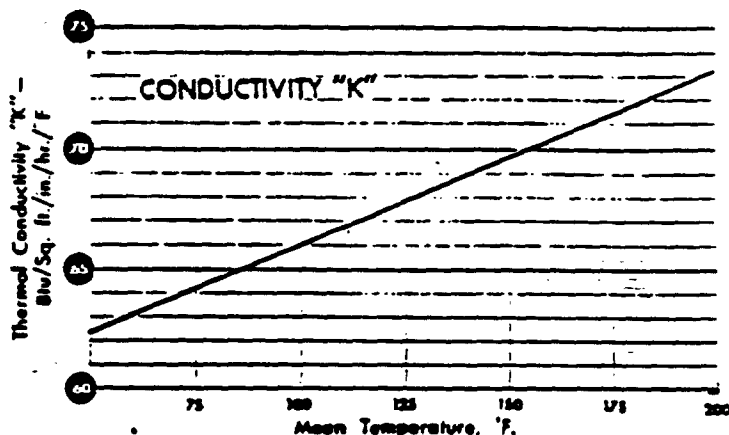
Light Weight—Nominal 20-lb. density Kaylo Block is about a third lighter than yellow pine. On an oven-dry basis it weighs from 19.5 to 22 pounds per cubic foot.

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 hazard classification for building material.



Good Insulation Value—At low mean temperatures Kaylo 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—Where left exposed and untreated (as with the underside of a roof deck) Kaylo Structural Insulating Block has high light reflectivity. Its light reflection factor is from 70 to 80 per cent.

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

No Added Binder—It contains no added binder, but instead constitutes its own binder. Hence its characteristics are not modified as to temperature limit, solubility, insulation value, fire resistance or otherwise by "binder limitations."



STRUCTURAL INSULATING BLOCK

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 wood-working 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 low. 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 flexural 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.

Sizes—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.

**Kaylo Division
OWENS-ILLINOIS
GLASS COMPANY**

Toledo 1, Ohio



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—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

KAYLO

STRUCTURAL INSULATING BLOCK TO:

Wood Veneer or Paper or Plastics		Steel, Stainless Steel Galvaneal, or Aluminum		Kaylo Insulating Block or Cement-Asbestos Board	
Durite No. 3026A	A	Durite No. 3026A or No. A NM267	A	Durite 3026A	A
Penacelite G1131	A	N100	C	Penacelite G1131	A
Pecore 718	E	Pecore 718	E	Armstrong J 1162	D
Ceresbond 720	A	JMEC 826	C D E	Insulite 1	A
Vinylbond MA 28-18	E	Penacelite G1131	A	G.E. 2142	C
Amberlite PR 14	D	Insulite No. 1	A	Selectron 5003	E
Bostik 7026	D	Insulite 4162	C D	Vinylbond MA 28-18	E
Radux	D	Vulcoalack	A B	Amberlite PR-14	D
Synco S-8348+130LW (DW)	D	DuPont 4653	C D E	Bostik 7026	D
Resorbond R-12	A	DuPont 4646	C D E	Bostik EXE 138	D
Armstrong J-1162	D	Resorbond R-12	A	Sodium Silicate	A
Togo	D	G.E. 2142	C	Radux	D
		G.E. 7031	C	Synco X-8348+130LW (DW)	D
		Bostik 7026	D	Resorbond R-12	A
		Bostik EXE 138	D	Togo	D
		Bostik 1007	A		
		Vinylbond MA 28-18	E		
		Amberlite PR-14	D		
		Radux	D		
		Armstrong J-1162	D		

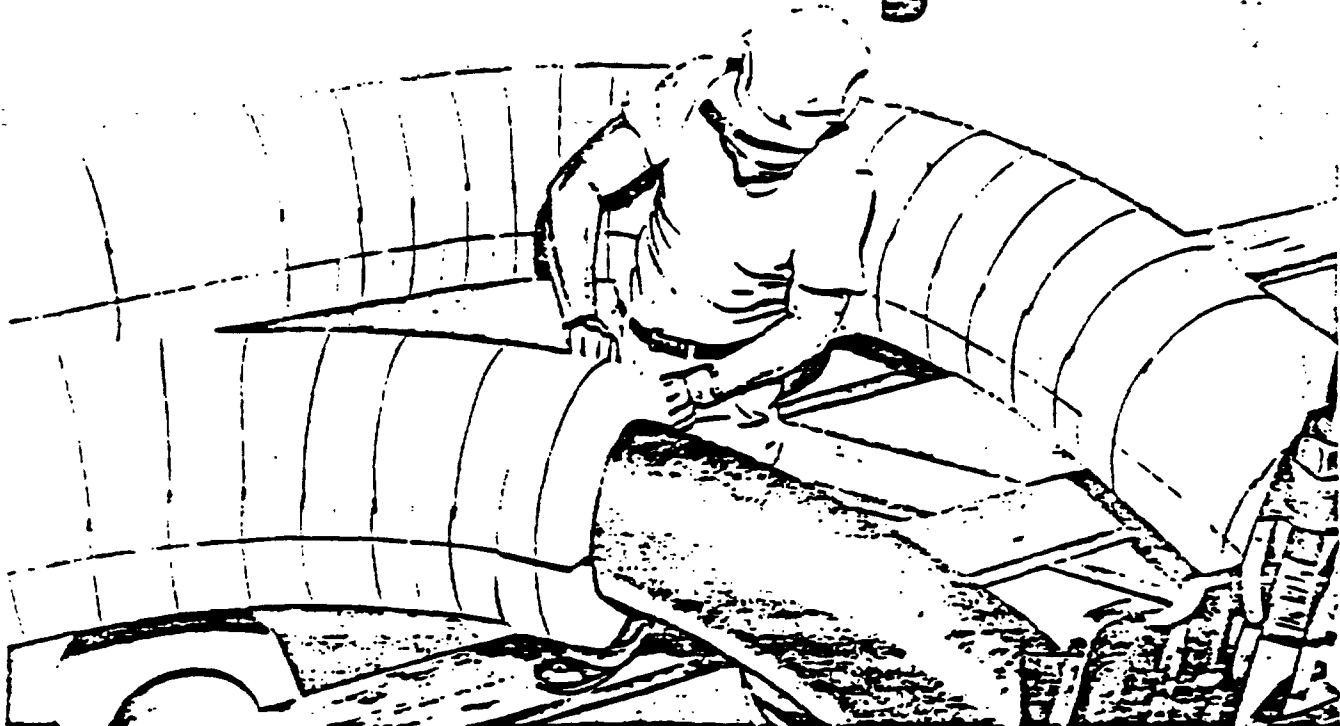
Symbols for method of cure:
For Maximum Strength

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

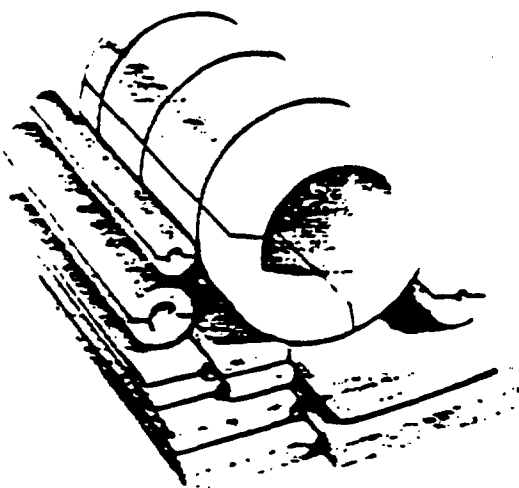
High-frequency curing has been tried successfully on an experimental basis with wood, aluminum and stainless steel bonded to a Kaylo insulating core. Many of the manufacturers making the above listed adhesives can provide adhesives suitable for high-frequency curing.

Kaylo Division
OWENS-ILLINOIS
GLASS COMPANY
Toledo 1, Ohio

How to Get the Most Out Of Your Insulating Dollars



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. K-370, Owens-Illinois Glass Company,
Kaylo Division, Toledo 1, Ohio.



KAYLO

... first in calcium silicate

... pioneered by OWENS  ILLINOIS Glass Company

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EXHIBIT II

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AFFIDAVIT

STATE OF OHIO)
)
COUNTY OF LUCAS)

PHILIP M. RICE, being first duly sworn, 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 Answers of Owens-Illinois, Inc. to Male Plaintiffs' Interrogatories are true and correct to the best of his knowledge, information and belief.



PHILIP M. RICE

Sworn to and subscribed before me this 5th
day of October, 1984.



NOTARY PUBLIC

PATRICIA DEBO
NOTARY PUBLIC - STATE OF OHIO
MY COMMISSION EXPIRES MAY 24, 1988

United States v. Pighetti, 898 F.2d 8, 4 (1st Cir.1990).

Affirmed.



Marion GEORGE, Individually and as
Executrix of the Estate of Stuart
George, Deceased, Plaintiff-Appellee,

The CELOTEX CORPORATION, Individ-
ually and as successor in interest to
Philip Carey Corporation, Defendant-
Appellant.

No. 1339, Docket 90-7144.

United States Court of Appeals,
Second Circuit.

Argued May 22, 1990.

Decided Sept. 13, 1990.

Manufacturer appealed from judgment of the United States District Court for the Eastern District of New York, Eugene H. Nickerson, J., which awarded damages for injuries resulting from exposure to asbestos-containing products. The Court of Appeals, Walker, Circuit Judge, held that: (1) 20-year-old unpublished report was admissible to establish dangers of asbestos which manufacturer could have discovered, and (2) apportionment of liability was supported by the evidence.

Affirmed.

1. Federal Courts ¶823

District court's determination of relevance will not be disturbed unless it evidences an abuse of discretion.

2. Products Liability ¶9, 75

Manufacturer is held to the knowledge of an expert in its field and therefore has a duty to keep abreast of scientific knowl-

edge, discoveries, and advances, and is presumed to know what is imparted thereby.

3. Products Liability ¶13

Manufacturer has a duty to test fully and inspect its products to uncover all dangers that are scientifically discoverable.

4. Products Liability ¶13

Manufacturer may not rest content with industry practice in fulfilling its duty to test fully and inspect its products for dangers, as the industry may be lagging behind it in its knowledge about a product, or as to what, in exercise of reasonable care, is knowable about a product.

5. Products Liability ¶81

Fact that report offered by plaintiffs in products liability action to show that dangers in product were knowable by the manufacturer had not been published did not preclude finding that it was part of the state of the art and that the dangers which it set forth were reasonably foreseeable or scientifically discoverable.

6. Products Liability ¶81

Unpublished scientific report setting forth dangers of asbestos was relevant, not to show what manufacturer of asbestos-containing products knew or even what manufacturers of such products knew generally, but to show what the manufacturer reasonably should have known had it conducted its own tests or been in contact with others in the industry.

7. Evidence ¶266

Out-of-court statement offered not for the truth of the matter asserted but merely to show that the defendant was on notice of a danger is not hearsay.

8. Evidence ¶318(4)

Report of which manufacturer of asbestos-containing products was unaware and which was not published was not admissible over hearsay objection on theory that it was not offered to prove its contents but merely to show that manufacturer was on notice of particular dangers where there was no proof that the manufacturer had ever seen the report, which was unpublished.

9. Evidence ¶372(1)

Document which had been in existence more than 20 years and whose authenticity was established at trial was admissible under the ancient document exception to the hearsay rule to establish the dangers of asbestos-containing products despite alleged need to test the document's conclusions. Fed. Rules Evid. Rule 803(16), 28 U.S.C.A.

10. Evidence ¶146

Court properly determined that report published some 20 years earlier setting forth dangers of asbestos-related products had a probative value in action to recover for asbestos-related injuries which outweighed its potential for prejudice. Fed. Rules Evid. Rule 403, 28 U.S.C.A.

11. Products Liability ¶62

Jury could have apportioned liability for asbestos-related injuries to manufacturer of asbestos products based on the percentage of its products handled by the worker's employers in the 1930s and 1940s, in view of evidence that the mesothelioma from which the worker suffered might not surface until after a latency period of up to 40 years; based on evidence that the employer handled manufacturer's products almost exclusively, jury could have apportioned 90% of the liability to the manufacturer.

Donald I. Marlin (Perry Weitz, P.C., New York City, of counsel), for plaintiff-appellee.

Rosanne C. Kemmet (McCarter & English, Newark, N.J., of counsel), for defendant-appellant.

Before VAN GRAAFEILAND, MESKILL and WALKER, Circuit Judges.

WALKER, Circuit Judge.

The Celotex Corporation ("Celotex") appeals from a judgment awarding plaintiff Marion George, on her own behalf and as executrix of her husband Stuart George's estate, damages in strict liability arising from her husband's exposure to asbestos manufactured by Celotex. Celotex argues

that the district court (a) improperly admitted a certain scientific report into evidence on the issue of the current state of the art, and (b) erroneously let stand a jury allocation of 90 percent liability against Celotex in the face of contrary evidence. Because we disagree with both assertions, we affirm the judgment of the district court.

BACKGROUND

Stuart George, plaintiff's Marion George's decedent, was employed for 58 years as a purchasing agent by the Robert A. Keasbey Company ("Keasbey"), an asbestos insulation contractor and distributor. From approximately 1931 until his retirement in 1975, George would leave his office on a daily basis to visit the warehouse where asbestos was unpacked, stored on open racks, packed and shipped, and was thus exposed to asbestos dust. From 1903 until 1965, Keasbey was the New York area's exclusive distributor for the full line of asbestos products manufactured by Celotex's predecessor, the Philip Carey Company ("Philip Carey"). Keasbey's former president, who was employed with the company from 1931 to 1989, testified that while in more recent years Keasbey distributed the products of other manufacturers, "in the early years" Keasbey handled "almost all Carey products."

In 1976, Stuart George died of mesothelioma, a lung cancer caused by the inhalation of asbestos dust. Mesothelioma has a latency period between exposure to asbestos dust and the occurrence of the disease of up to forty years.

Plaintiff initially sued sixteen defendants, all of whom, save Celotex, had settled or otherwise obtained dismissals by the time the jury reached a verdict in this case. Accordingly, the jury returned a verdict against Celotex alone in the amount of \$700,000 with liability apportioned 90% against Celotex and 10% spread among four other manufacturers. On November 3, 1989, after reducing the award to account for settling defendants, Judge Nickerson entered judgment against Celotex in the amount of \$588,000. On January 4,

1990, Judge Nickerson denied Celotex's motions for a judgment notwithstanding the verdict or, in the alternative, a new trial that raised, *inter alia*, the two issues now before us. This appeal followed.

DISCUSSION

A. The Hemeon Report

Celotex argues that Judge Nickerson erred by receiving in evidence a report written in 1947 known as the Hemeon Report as it was both hearsay and irrelevant to the issue of liability. Even if relevant and admissible, Celotex argues, the district court abused its discretion by refusing to exclude it as unfairly prejudicial pursuant to Fed.R.Evid. 403.

[1] The district court's determination of relevance will not be disturbed unless it evidences an abuse of discretion. See *McNeilab, Inc. v. American Home Products Corp.*, 848 F.2d 34, 38 (2d Cir.1988). Our inquiry into the relevance of the Hemeon Report begins with plaintiff's theory of liability at trial. Plaintiff sought to prove that Philip Carey breached its duty to warn users of its asbestos products, such as the plaintiff, of latent dangerous defects of which it "ha[d] knowledge or by the application of reasonable developed human skill and foresight should have [had] knowledge..." Restatement (Second) of Torts § 402A comment J (1966).

[2, 3] "We agree with the plaintiff that a manufacturer such as Philip Carey is held to the knowledge of an expert in its field, *Borel Fibreboard Paper Products Corp.*, 493 F.2d 1076, 1089 (5th Cir.1973), *cert. denied*, 419 U.S. 869, 95 S.Ct. 127, 42 L.Ed.2d 107 (1974); see also *Dartez v. Fibreboard Corp.*, 765 F.2d 456, 461 (5th Cir.1985); *Wright v. Carter Products*, 244

1. New York law is not to the contrary. New York's "doctrine of strict products liability generally follows the guidelines set forth in § 402A." *Farina v. Niagara Mohawk Power Corp.*, 81 A.D.2d 700, 438 N.Y.S.2d 645, 646 (3d Dep't 1981), including the expansion of the doctrine that has occurred in both federal and state courts. *Id.* 438 N.Y.S.2d at 646; see also *Baker v. St. Agnes Hospital*, 70 A.D.2d 400, 421 N.Y.S.2d 81, 85 (2nd Dep't 1979) (it is the obligation of a drug manufacturer to "keep abreast of

F.2d 53, 59 (2d Cir.1957), and therefore has a duty "to keep abreast of scientific knowledge, discoveries, and advances and is presumed to know what is imparted thereby." *Borel*, 493 F.2d at 1089 (citing Keeton, *Product Liability—Problems Pertaining to Proof of Negligence*, 19 S.W.L.J. 26, 3033 (1965)); see also 1 L. Frumer & M. Friedman, *Products Liability* § 2.22[1] at 2-1062-64 (1990) (collecting cases) ("manufacturer must keep abreast of scientific advances and is under a duty to make tests to ascertain the nature of its product." In this scientific age the manufacturer undoubtedly has or should have superior knowledge of his product."). In addition, a manufacturer has a duty to test fully and inspect its products to uncover all dangers that are scientifically discoverable. *Id.* at 1089-90; *Dartez*, 765 F.2d at 461.

[4] In fulfilling its duty, a manufacturer may not rest content with industry practice, for the industry may be lagging behind in its knowledge about a product, or in what, with the exercise of reasonable care, is knowable about a product. *T.J. Hooper*, 60 F.2d 737, 740 (2d Cir.), *cert. denied*, 287 U.S. 662, 53 S.Ct. 220, 77 L.Ed. 571 (1932); *Eaton v. Long Island Rail Road Company*, 898 F.2d 738, 742 (2d Cir.1968); *Kane v. Branch Motor Express Co.*, 290 F.2d 503, 507 (2d Cir.1961); *Hall v. E.I. DuPont De Nemours and Co.*, 345 F.Supp. 353, 378 (E.D.N.Y.1972); *Bolm v. Triumph Corp.*, 71 A.D.2d 429, 422 N.Y.S.2d 969, 975 n. 2 ("state of the art refers to what is realistically capable of achievement, not merely industry custom.") As Judge Learned Hand wrote in the venerable *T.J. Hooper*,

[a] whole calling may have unduly lagged in the adoption of new and available devices. It never may set its own

knowledge of its products as gained through research, adverse reaction reports, scientific literature and other available methods, and to warn the medical profession); *Wolfgruber v. Upjohn Co.*, 72 A.D.2d 59, 423 N.Y.S.2d 95, 97 (4th Dep't 1979), *aff'd*, 52 N.Y.2d 768, 436 N.Y.S.2d 614, 417 N.E.2d 1002 (1980) (manufacturer must notify the medical community as to those risks which manufacturer has, or in the exercise of due diligence, should have knowledge).

tests, however persuasive be its usages. Courts must in the end say what is required; there are precautions so imperative that even their universal disregard will not excuse their omission.

T.J. Hooper, 60 F.2d at 740 (citations omitted).

[5] Defendants challenge neither the applicability of the foregoing principles of law to the facts of this case nor Judge Nickerson's instructions to the jury setting them forth. Rather, Celotex argues that the Hemeon Report is irrelevant to the issue of liability because, since the company never saw the report, it could not have been on notice of the information contained therein. Furthermore, Celotex contends that because the report was not published, it was not part of the state of the art. These arguments miss the point. The state of the art, as embodied in Judge Nickerson's jury instructions, was defined in terms of whether the dangers of asbestos were reasonably foreseeable or scientifically discoverable at the time of plaintiff's exposure. "The actual knowledge of the individual manufacturer is not the issue." *Dartez v. Fibreboard Corp.*, 765 F.2d 456, 461 (5th Cir.1985).

At trial, Celotex defended on the ground that it reasonably thought plaintiff's workplace to be safe since it operated its facilities below the threshold limit value ("TLV") which established a presumably safe level of exposure to asbestos dust of five million particles per cubic foot of air. Operation of a plant at this TLV was, Celotex maintains, the so-called "state of the art" since that TLV had been recommended by the American Conference of Governmental Industrial Hygienists ("ACGIH") in 1946 and was based upon the conclusions of a 1938 study of asbestos workers published by the United States Government known as the Dreesen Study. Celotex argued to the jury, both in opening and in summation, that in the context of the ACGIH recommendation, the dangers of relatively low levels of asbestos exposure, such as those experienced by the plaintiff, were both unknown and unknowable by Philip Carey during the relevant period of

plaintiff's exposure to Philip Carey's asbestos products.

It was in this context that plaintiff offered and the court received in evidence the unpublished July, 1947 report containing a study of asbestos plants that was prepared by W.C.L. Hemeon, the head engineer of the Industrial Hygiene Foundation of America ("IHF"), for the Asbestos Textile Institute ("ATI"). The Hemeon Report expressed doubts as to the safety of the five million particle TLV. It explained that "scientific evidence is obscure" on the point and questioned "present dust count methods." Hemeon recommended "that studies be initiated aimed to develop another yardstick." Philip Carey was not a member of the Asbestos Textile Institute, to whose members the report was distributed, and there was no evidence presented that anyone at Philip Carey was aware of the Hemeon Report during the relevant period.

[6] The document was relevant in plaintiff's direct case not to show what Celotex knew, or even what manufacturers knew generally, but what, if the jury so determined, Celotex reasonably should have known had it either conducted its own tests or been in contact with others in the industry, such as IHF or ATI, that were testing. The relevance of the Hemeon Report was elevated by Celotex's reliance at trial on the five million particle TLV recommended in 1946 by ACGIH that Hemeon then criticized the following year in his report. Judge Nickerson plainly did not abuse his discretion in finding the Hemeon Report relevant.

Bolm v. Triumph Corp., 71 A.D.2d 429, 422 N.Y.S.2d 969 (3rd Dep't 1980), upon which the defendant relies, is distinguishable. There the court excluded evidence of post accident studies and safety tests employing methodology that had not been developed at the time an allegedly defective motorcycle was manufactured. The court deemed the evidence inadmissible because the plaintiff had not established that the post accident tests were within the state of the art at the time of manufacture. The Appellate Division found error in the trial court's admission of the evidence on the

ground that the tests were "technically" or "ultimately" possible at the time of manufacture. *Bolm*, 422 N.Y.S.2d at 975, 71 A.D.2d 429. By contrast, the information contained in the Hemeon Report was not only "technically", or "ultimately" possible during the relevant time period, but was in fact set forth in a report that existed at that time. Judge Nickerson, therefore, correctly left it to the jury to decide whether Celotex reasonably should have known of the information comprising the contents of the report, not of this one specific report itself.

[7, 8] Celotex next claims that even if the report is relevant, it was improperly admitted as it is hearsay not within any of the exceptions to the hearsay rule. In response, plaintiff first argues that the report was admitted "not for the truth or falsity of its suggestion that the TLV was improper . . . but merely to show that someone said it was wrong in 1947" and, thus, plaintiff argues, it is not hearsay. To be sure, an out of court statement offered not for the truth of the matter asserted, but merely to show that the defendant was on notice of a danger, is not hearsay. See *Gardner v. Q.H.S. Inc.*, 448 F.2d 238, 244 (4th Cir.1971); *Webb v. Fuller Brush Co.*, 378 F.2d 500, 502 (3rd Cir.1967); *Emich Motors Corp. v. General Motors Corp.*, 181 F.2d 70, 82 (7th Cir.1950); *remanded on other grounds*, 340 U.S. 558, 71 S.Ct. 408, 95 L.Ed. 534 (citing *Greater New York Live Poultry, etc. v. U.S.*, 47 F.2d 156, cert. denied 283 U.S. 837, 51 S.Ct. 486, 75 L.Ed. 1448 (1931)). But if this basis were the only one upon which the report could have been offered, its receipt would have been improper. Philip Carey could not have been put on notice by the Hemeon Report because there was no proof at trial that Philip Carey ever saw the unpublished report or that it reasonably should have seen it as part of the published literature in the industry. Celotex is quite correct that before plaintiff can argue non-hearsay notice

2. Rule 901(b)(8) provides that an ancient document may be authenticated by evidence that the document

(A) is in such condition as to create no suspicion concerning its authenticity, (B) was in a

she must show that the defendant was at least inferentially put on notice by the report. This plaintiff has not done.

Plaintiff's better argument is that the Hemeon Report was hearsay as Celotex contends, but that it is nonetheless admissible under either of two exceptions to the hearsay rule—as a business record of the American Textile Institute or as an ancient document.

[9] While we have some doubts as to whether the Hemeon report meets the requirements of Fed.R.Evid. 803(6) as a record of regularly conducted business activity, we need not decide that question because, in our view, the document is admissible as a statement in an ancient document pursuant to Fed.R.Evid. 803(16). The document had been in existence more than twenty years and its authenticity was established at trial as contemplated by the rule. Its authenticity was established in accordance with Fed.R.Evid. 901(b)(8).² Indeed, defendant does not dispute that plaintiff met these requisites for admitting the Hemeon Report as an ancient document. Rather, Celotex argues that the need to test the reliability of the report's conclusions makes it inadmissible as an ancient document. Defendant cites neither case law nor commentary in support of its argument, nor could we find any that limit the scope and application of the ancient documents exception to the hearsay rule in the manner suggested by the defendant. Accordingly, we conclude that the report was properly admitted as an ancient document pursuant to Fed.R.Evid. 803(16).

[10] Finally, Judge Nickerson did not abuse his discretion in refusing to exclude the Hemeon Report pursuant to Fed.R.Evid. 403 which allows a court to exclude relevant, admissible evidence if its probative value is outweighed by the danger that

place where it, if authentic, would likely be and (C) has been in existence 20 years or more at the time it is offered.

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it will unfairly prejudice or confuse the jury. Because Rule 403 permits the exclusion of probative evidence, it is an extraordinary remedy that must be used sparingly. *Dartez*, 765 F.2d at 461. In this case, the Hemeon Report presented a more complete picture of the state of the art at the time of the plaintiff's exposure to asbestos. Any prejudice to Celotex was derived from the Hemeon Report's probative force and thus it did not unfairly prejudice Celotex. Accordingly, it was within the district court's discretion to admit it.

B. Allocation of Liability

[11] Celotex also argues that the jury's allocation of 90% liability against Celotex was wholly unsupported by the evidence. Although the decedent was a Keasbey employee from 1931 until 1975, Celotex contends, Keasbey ceased distributing Carey products in 1965 and thereafter distributed only other manufacturer's products. Thus, Celotex reasons, the percentage responsibility attributed to Philip Carey could not exceed 78% as George was exposed to Philip Carey products for only 35 of the 45 years he worked for Keasbey.

In the first place, Celotex is factually in error. Testimony at trial indicated that the decedent retired in 1975 after 58, not 45, years of service with Keasbey during 48 of which Keasbey distributed Carey products. More significantly, however, the jury heard evidence that mesothelioma surfaces after a latency period of up to 40 years. Thus, the non-Philip Carey products to which George was exposed in the last nine years of his employment probably played little or no role in the disease process. The jury could reasonably have apportioned liability based on the percentage of Carey products handled by Keasbey in the 1930's and 1940's at a time when Keasbey was Philip Carey's exclusive distributor in the New York area and, as one witness testified, Keasbey handled "almost all Carey products." Thus, there was ample evidence to support the jury's apportionment of liability.

CONCLUSION

For the reasons set forth above, the judgment of the district court is affirmed in all respects.



William David PHILLIPS; William E. McKinney; J.C. Simpson; Lawrence F. Lovato; Harold Atkins, Individually and as representatives of a class of plaintiffs similarly situated, Plaintiffs-Appellees,

Herbert R. BEBBER; Edward W. Erkel; B.B. Scarborough; Walker Kellog; John Litzler; Lawrence Wagner, as trustees of the Trailways Lines, Inc.—Trailways, Inc. Joint Council, A.T.U. Retirement and Disability Plan, and Walker Kellog, John Litzler, Lawrence Wagner, William Ginn, James D. Wood and William Dize, Jr., as trustees of the Trailways Lines, Inc.—Trailways, Inc. Joint Council, U.T.U. Retirement and Disability Plan, Defendants-Appellants,

Pension Benefit Guaranty Corp.,
Amicus Curiae,

and

Greyhound Lines, Inc.; Jerry M. Hatalla; Jim Cushing Murray; Rafael Rivera; Edward Strait; Robert M. Tucker; Smith Williamson; Kevin Bolton; J. Michael Doyle; P. Anthony Lannie; Judy Collins; L.L. Petrie; Robert Tancos, as trustees of GLI-A.T.U. Mirror Image Trailways Lines, Inc.—Trail-