



INTERNAL CORRESPONDENCE

DEPOSITION
EXHIBIT
Dep. Peck
Ex No 6

RECEIVED
NO. 6 8/20/30
b2

UNION CARBIDE CHEMICALS COMPANY

INSTITUTE PLANT

P. O. BOX 2831, CHARLSTON, WEST VIRGINIA

(Name)
Company
Address

R. J. Sexton, M.D.
Medical Department

Date

3 December 1962

Originating Dept.

Industrial Hygiene - Plant 512

Answering letter date

Subject

Johns Manville "Thermobestos"

On 21 March 1962, an Industrial Hygiene Report, i.e., 62-IH-1-6-1, identified the existence of a hazard to health in the Construction Insulation Shop during such times as when insulation blocks manufactured by the Johns Manville Company are being fabricated with exhausted band saws. It was recommended at that time that 18" x 36" x 4" "Thermobestos" insulation blocks* should not be fabricated with the existing equipment unless--

- (a) The atmospheric dust problem could be reduced to below 20 mppcf of air through the use of ventilation, etc., or
- (b) The producer of this product begins manufacturing an insulation block which will not release upon fabrication with a band saw, dust concentrations in excess of 20 mppcf of air.

In accordance with these recommendations, the Construction Insulation Shop discontinued almost immediately the purchase of "Thermobestos" insulation blocks.

On 20 July 1962, a second Industrial Hygiene Report, i.e., 62-IH-2-G-1, was submitted subsequent to an evaluation of three new insulation materials supplied by the Johns Manville Company. This report concluded that these materials were improved over the original. However, the dust concentrations produced upon fabrication of these insulation blocks were substantially in excess of the recommended safe concentrations of 20 mppcf of air. Therefore, the recommendations contained in this report remained exactly as those stated in the initial report of March, 1962.

On 20 November 1962 the author was contacted by Mr. D. R. Matheny, General Foreman of the Insulation Shop, who stated that three Johns Manville representatives, i.e., Messers. F. E. Saxer, N. Gordon, and H. E. Kaufman, were present and had requested a meeting with the Plant Industrial Hygienist. This meeting was held in the lobby of Building 2, at which time Mr. Saxer produced the accompanying copy of portions of a report submitted by the Johns Manville Industrial Hygiene Laboratory located at Manville, N.J. Mr. Saxer stated that, in accordance with this report, they were not able to produce results which agreed with those contained in the reports submitted by this department. Therefore, they were concerned and interested in learning if their methods of reproducing

*The Johns Manville trade name for their insulation blocks

Deposition Exhibit No 5
5-14-87

R. J. Sexton, M.D.
3 December 1962
Page 2

our environmental conditions, sampling and evaluating the dust concentrations contained therein were subject to question. At this point he stated also that this conclusion was promoted on the basis of their analysis of the atmospheric dust conditions produced by their competitors product, (i.e., Kaylo or Item # SAT in the report) which in no way agreed with the data submitted in the Industrial Hygiene Report - IH-62-I-G-I.

It was explained at this point, that this department's interest in this problem is always confined solely to the environmental conditions as they effect the health of our workers, and that no part of the investigation should be construed as an attempt to arbitrarily promote the use of one company's product over that of another.

Upon completion of this statement, Mr. Saxer proposed that Mr. D. R. Matheny and the Plant's Industrial Hygienist make a trip to Manville, New Jersey, at Johns Manville's expense and at a time selected by Union Carbide. This visit would be for the specific purpose of observing, scrutinizing and comparing their method of atmospheric dust evaluation with that as utilized by the Institute Plant's Industrial Hygiene Department. It was Mr. Saxer's opinion that such a visit would permit a more positive approach to the problem and remove the possibility of misunderstandings, etc., that results from written correspondence. At this point, Mr. Saxer was assured that there would be no personal objection on my part to the performance of such a service. However, a proposal of this nature would have to be submitted to the Plant Manager, Mr. L. N. Dickinson, through appropriate channels before a final decision could be made.

In conclusion, it should be stated that a phone call was received from Mr. F. G. Comerford of Design and Construction on the morning of 21 November 1962, who requested that he be brought up to date on this specific problem. This request was immediately satisfied both by verbal explanation and by the promise that copies of both reports, i.e., 62-IH-I-G-I and 62-IH-2-G-1, would be mailed to him immediately. Mr. Comerford further stated that we should not back down on our requirements, but that it probably might be wise to consider their proposal in light of the many ramifications of the problem as it affects the whole company structure, i.e., purchasing, sales, manufacturing, etc.

Very truly yours,

Robert E. Peele

Robert E. Peele
Industrial Hygienist

REP:gh

Enclosure



INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY

INSTITUTE PLANT

P. O. BOX 2831, CHARLESTON, WEST VIRGINIA

To (Name) Mr. S. C. Giambruno
Company
Location Industrial Relations

Date 4 December 1962

Originating Dept. Medical Department - Plant 512

Answering letter date

Copy to
Mr. L. N. Dickinson
Mr. G. H. Daniels
Mr. N. S. Eastman
Mr. R. A. Huber
Mr. B. F. King
Mr. F. B. Snyder
Dr. E. M. Best, Jr.

Mr. E. G. Heinz
Mr. P. E. Henry
Mr. R. A. Neal
Mr. D. R. Matheny
Mr. N. H. Ketcham
Dr. C. U. Dernehl

Subject
Insulation Block Dust Survey
Construction Insulation Shop
Plant 511

Two reports by Mr. R. E. Peele have been issued on this subject (21 March 1962 and 20 July 1962) and sent out under my signature. On 16 May 1962, a copy of a letter from Doctor Nale to the UCC Central Purchasing Department in New York pertaining to this subject was sent to some of the people on the above distribution list. Undoubtedly, Johns Manville is extremely interested in having our Construction Department use their "Thermobestos" blocks. However, I believe that possibly unnecessary pressure is being applied to us from several sources.

The enclosed report by Mr. Peele includes information on an invitation for Mr. Peele to visit Manville, New Jersey, at Johns Manville's expense to evaluate their industrial hygiene studies. Mr. Peele points out in this report also that he has been contacted recently by the Design and Construction Department at the Technical Center who have implied that Mr. Peele should comply with Johns Manville's proposal.

It is my opinion that we should continue to do surveys, with limitations, on samples of "thermobestos" blocks that are of a new formula and are submitted to our Construction Insulation Shop at the Institute Plant for evaluation. However, I am not in favor of Mr. Peele accepting Johns Manville's invitation and would appreciate approval or disapproval for this trip from my supervision so that Mr. Peele can be informed accordingly.

Very truly yours,

R. J. Sexton, M.D.
Plant Medical Director

RJS:gh
Enclosure

Deposition Exhibit No 6
5-14-87

UCC 010547



INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY

INSTITUTE PLANT

P. O. BOX 2831, CHARLESTON, WEST VIRGINIA

To (Name) R. J. Sexton, M.D. Date 3 December 1962
 Company
 Location Medical Department Originating Dept. Industrial Hygiene - Plant 512
 Answering letter date
 Copy to Subject Johns Manville "Thermobestos"

On 21 March 1962, an Industrial Hygiene Report, i.e., 62-IH-1-6-1, identified the existence of a hazard to health in the Construction Insulation Shop during such times as when insulation blocks manufactured by the Johns Manville Company are being fabricated with exhausted band saws. It was recommended at that time that 18" x 36" x 4" "Thermobestos" insulation blocks* should not be fabricated with the existing equipment unless --

- (a) The atmospheric dust problem could be reduced to below 20 mppcf of air through the use of ventilation, etc., or
- (b) The producer of this product begins manufacturing an insulation block which will not release upon fabrication with a band saw, dust concentrations in excess of 20 mppcf of air.

In accordance with these recommendations, the Construction Insulation Shop discontinued almost immediately the purchase of "Thermobestos" insulation blocks.

On 20 July 1962, a second Industrial Hygiene Report, i.e., 62-IH-2-G-1, was submitted subsequent to an evaluation of three new insulation materials supplied by the Johns Manville Company. This report concluded that these materials were improved over the original. However, the dust concentrations produced upon fabrication of these insulation blocks were substantially in excess of the recommended safe concentrations of 20 mppcf of air. Therefore, the recommendations contained in this report remained exactly as those stated in the initial report of March, 1962.

On 20 November 1962 the author was contacted by Mr. D. R. Matheny, General Foreman of the Insulation Shop, who stated that three Johns Manville representatives, i.e., Messers. F. E. Saxer, N. Gordon, and H. E. Kaufman, were present and had requested a meeting with the Plant Industrial Hygienist. This meeting was held in the lobby of Building 2, at which time Mr. Saxer produced the accompanying copy of portions of a report submitted by the Johns Manville Industrial Hygiene Laboratory located at Manville, N.J. Mr. Saxer stated that, in accordance with this report, they were not able to produce results which agreed with those contained in the reports submitted by this department. Therefore, they were concerned and interested in learning if their methods of reproducing

*The Johns Manville trade name for their insulation blocks

R. J. Sexton, M.D.
3 December 1962
Page 2

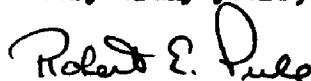
our environmental conditions, sampling and evaluating the dust concentrations contained therein were subject to question. At this point he stated also that this conclusion was promoted on the basis of their analysis of the atmospheric dust conditions produced by their competitors' product, (i.e., Kaylo or Item # 5AT in the report) which in no way agreed with the data submitted in the Industrial Hygiene Report - IH-62-I-G-I.

It was explained at this point, that this department's interest in this problem is always confined solely to the environmental conditions as they effect the health of our workers, and that no part of the investigation should be construed as an attempt to arbitrarily promote the use of one company's product over that of another.

Upon completion of this statement, Mr. Saxer proposed that Mr. D. R. Matheny and the Plant's Industrial Hygienist make a trip to Manville, New Jersey, at Johns Manville's expense and at a time selected by Union Carbide. This visit would be for the specific purpose of observing, scrutinizing and comparing their method of atmospheric dust evaluation with that as utilized by the Institute Plant's Industrial Hygiene Department. It was Mr. Saxer's opinion that such a visit would permit a more positive approach to the problem and remove the possibility of misunderstandings, etc., that results from written correspondence. At this point, Mr. Saxer was assured that there would be no personal objection on my part to the performance of such a service. However, a proposal of this nature would have to be submitted to the Plant Manager, Mr. L. N. Dickinson, through appropriate channels before a final decision could be made.

In conclusion, it should be stated that a phone call was received from Mr. F. G. Comerford of Design and Construction on the morning of 21 November 1962, who requested that he be brought up to date on this specific problem. This request was immediately satisfied both by verbal explanation and by the promise that copies of both reports, i.e., 62-IH-I-G-I and 62-IH-2-G-1, would be mailed to him immediately. Mr. Comerford further stated that we should not back down on our requirements, but that it probably might be wise to consider their proposal in light of the many ramifications of the problem as it affects the whole company structure, i.e., purchasing, sales, manufacturing, etc.

Very truly yours,



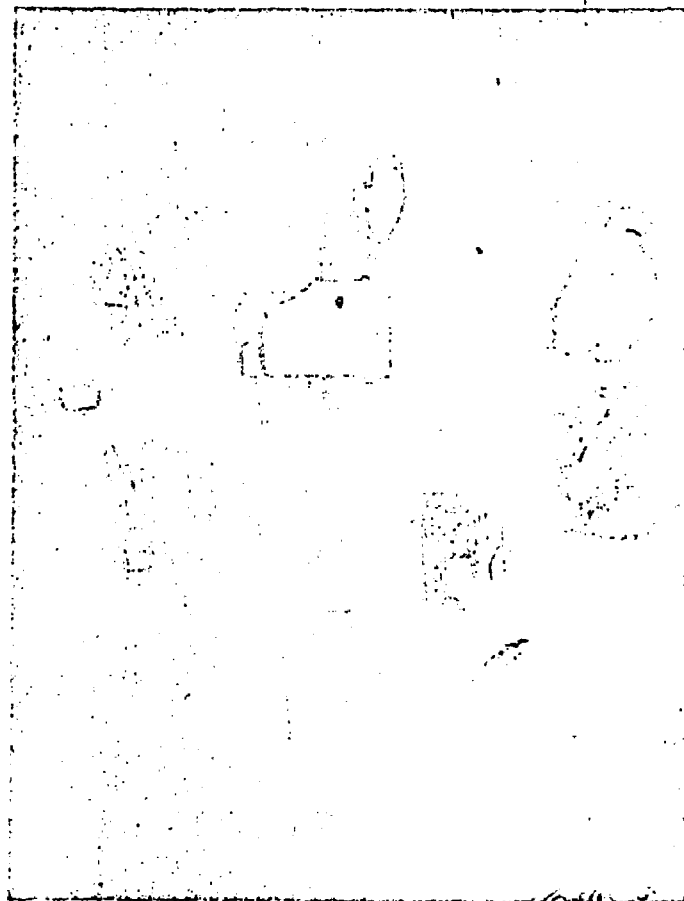
Robert E. Peele
Industrial Hygienist

REP:gh

Enclosure

DISCUSSION

Atmospheric dust concentration tests were made on October 30, 1962, during the fabrication of insulation blocks on the DO-ALL Model L-H-V band saw in the Research Center Materials Testing Laboratory sample preparation room. The National Conference of Governmental Industrial Hygienists Test Method was followed using the Greenburgh-Smith impinger. Tests were conducted by Mr. T. F. Ednarchuk of the J-M Industrial Hygiene Laboratory at Manville. To obtain comparative data, the room ventilation was adjusted to give more than the usual amount of atmospheric dust. The test set up is shown in the photograph below.



In addition to the room ventilating system, air was removed from directly above the block at a rate of 37 cu ft per min and from the metal housing surrounding the saw at a rate of 15 cu ft per min. The saw blade was standard and had six teeth per in. and a lineal speed of 2500 ft per min. The blocks were 18 x 11 x 4 or 6 in. and were cut so that the blade entered the 11-in. edge.

Five types of insulation were tested including standard Thornobestos, and three experimental pan cast blocks. Formulas are given in Appendix I. Prior to testing, blocks of each were conditioned by: a) drying a minimum of seven days at 250°F; b) drying at 250°F and conditioning for 15 days at 70 per cent RH, 70°F; c) drying at 250°F and conditioning for 15 days at 95-100 per cent RH, 95°F.

The test data are given in Appendix II. The dust concentration tests were analyzed and indicated that the superiority reported by Union Carbide of over standard Thornobestos and the experimental pan cast blocks submitted to them is subject to question. The results also indicated that the slate dust composition, 2-A7, caused less atmospheric dust than the other types of blocks.

The effect that conditioning of the blocks had on the dust concentration in air was not apparent. This is attributed to the limited amount of material tested and the possibility that an equilibrium condition of dust concentration in the sampling area may not have been reached in some cases. In order to definitely establish the effect moisture content of the blocks has on atmospheric dust a more extensive series of tests would be required. Such tests would also serve to more definitely establish the relative dustiness of the formulas investigated.

APPENDIX II

TEST DATA

ATMOSPHERIC DUST CONCENTRATION DATA

	Experimental Pan Cast 6-in. Blocks			Std. 4-in. Taperometer	Std. 4-in.
	1-AT	2-AT	3-AT	4-AT	5-AT
Concentration in mg/m ³ of Air					
Dried at 250F	110.3	19.9	16.4	34.2	52.0
Conditioned at 70% RH, 70F	39.3	14.3	17.1	15.8	36.4
Conditioned at 95-100% RH, 95F	<u>92.6</u>	<u>10.6</u>	<u>31.4</u>	<u>104.0</u>	<u>97.6</u>
Avg. of three conditions	83.2	15.1	31.6	51.3	62.0
Moisture Absorbed During Conditioning - %					
Dry to 70% RH, 70F	2.7	2.0	2.5	6.8	3.9
Dry to 95-100% RH, 95F	13.6	12.3	17.2	15.6	12.8

*This formulation was used for samples submitted to Union Carbide for evaluation.
Refer to formula No. 58, samples 21, 22, 23, Research Report No. 10000, p 1.

Bob. Peck



INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY • INSTITUTE PLANT P. O. BOX 2831, CHARLESTON, WEST VIRGINIA

To (Name) Mr. S. C. Giambruno
Company
Location Industrial Relations

Date 23 October 1963

Originating Dept. Medical Department - Plant 512

Answering letter date

Copy to	Mr. L. N. Dickinson	Mr. J. W. Perry	Subject	Insulation Block Dust Survey
	Mr. N. S. Eastman	Mr. P. E. Henry		Construction Insulation Shop
	Mr. R. A. Huber	Mr. R. A. Neal		<u>Plant 511</u>
	Mr. B. F. King	Mr. D. R. Matheny		
	Dr. E. M. Best	Mr. N. H. Ketcham		
	Dr. C. U. Dernehl	Mr. L. B. Weddell - Safety Dept.		

Enclosed is a very excellent and very complete Industrial Hygiene report on the potential hazardousness of "Thermobestos", "Kaylo" and "Carey-Temp" insulation blocks which have been processed in the Construction Department's Insulation Shop. The report points out definitely that "Thermobestos" and "Carey-Temp" insulation blocks cannot be fabricated safely with existing equipment, but that "Kaylo" insulation blocks can be fabricated safely. Mr. Peele's recommendations are quite definite and I am sure that you will wish to comply with them. I believe this particular project should be considered completed.

If there are any comments, suggestions or criticism, please direct these to me.

Very truly yours,

R. J. Sexton, M.D.
Plant Medical Director

RJS:hl

Enclosures

Deposition Exhibit No 7
5-14-87

INDUSTRIAL HYGIENE SURVEY

Construction Insulation Shop - Building 511-2018

Report 63-IH-3-G-1

SUMMARY: The Construction Insulation Shop (Building 2018), Plant 512 location, routinely fabricates large quantities of insulation block with ventilated band saws. This more efficient procedure of fabrication has replaced an older, time honored, practice of using simple handsaws to do the job. However, it has, at the same time, created a health hazard resulting from exposure to excessive concentrations of atmospheric dust.

The hazard to health has been evaluated and reported previously* with the result that one material, "Thermobestos" was clearly identified with the hazard (exceeded TLV) and another material, "Kaylo", was safe to fabricate (within TLV). The present report (the third on this subject) was initiated in an attempt to supply answers to three basic questions: (1) was there any error in the original evaluation of "Kaylo", (2) can supplementary exhaust ventilation reduce the "Thermobestos" hazard to within safe acceptable limits, and (3) is a hazard to health produced in the fabrication of a third material, i.e., "Carey-Temp".

The information uncovered in the present evaluation reveals the following facts:

1. "Kaylo" insulation blocks can be safely fabricated with the existing equipment.
2. "Thermobestos" insulation blocks cannot be safely fabricated at the present time with existing equipment, but could be safely fabricated if the exhaust ventilation is improved.
3. The TLV (Threshold Limit Value) for "Carey-Temp" is identical with that established for both "Kaylo" and "Thermobestos", i.e., 20 mppcf (million particles per cubic foot) of air.
4. "Carey-Temp" also cannot be safely fabricated with the existing equipment, but could be if improvements are made in the ventilation system.
5. The original "downdraft" exhaust ventilation rates, on either band saw, do not meet the recommended capture velocity rate of 4,000 fpm (feet per minute).
6. The supplementary "overhead" exhaust ventilation on both band saws, is an improvement and the rates do meet the recommended capture velocity rate of 4,000 fpm.

* I.H. Reports 62-IH-1-G-1 and 62-IH-2-G-1

INTRODUCTION: A report, submitted in March 1962, stated that an inhalation hazard to health was produced in the Construction Insulation Shop whenever "Thermobestos" insulation blocks were fabricated. In July 1962, a second survey was conducted in order to evaluate three new "Thermobestos" materials which had been supplied by the manufacturer for evaluation. This survey revealed that, although the inhalation hazard to health had been substantially reduced from that encountered during the first survey, the atmospheric dust concentrations being emitted during fabrication of these new products, were still in excess of the Threshold Limit Values as designated in the first report. Therefore, all recommendations should remain exactly as stated in the initial report of March 1962.

The manufacturer and Union Carbide's Purchasing Department expressed a great deal of concern about the findings revealed in this initial report when it was uncovered that the manufacturer's Research Department also had evaluated these materials and was not able to produce results comparable with those contained in the report of March 1962. That is to say, the atmospheric dust concentrations reported by the manufacturer, when processing "Thermobestos" insulation blocks, were substantially higher than those revealed in Report 62-IH-1-G-1. This revelation disclosed the need for a more extensive evaluation of this problem so as to resolve all differences of opinion relative to the atmospheric dust exposures in this environment.

This decision in favor of further evaluation, promoted the production of a much more extensive study than was originally planned, a study which eventually encompassed three separate intervals of dust sampling, analysis, and evaluation before all of the unanswered health problems could be resolved.

DISCUSSION: These three investigations were actually initiated for the general purposes of both clarification and identification - purposely for clarification of the actual hazard to health (if any) connected with the fabrication of three different insulation materials and identification of acceptable measures for use in reducing all exposures to within safe acceptable limits. However, each investigation occurred for clearly identifiable reasons as explained below:

The investigation of 24 Jan 63 was conducted because:

1. The Johns Manville Company submitted a report, compiled by their Research Department, which contained data that conflicted with that submitted by this department in Report 62-IH-1-G-1.
2. This department desired to clarify the reasons for the discrepancy between the two reports and to identify positively, the actual conditions as they exist in the working environment.

The investigation of 25 and 26 Feb 63 was conducted because:

1. In the preceding investigation, the two insulation materials in question, i.e., "Thermobestos" and "Kaylo" were evaluated inadvertently during the same afternoon, a procedure which was not in keeping with an attempt to simulate the conditions of the original report. In the original report, each material was evaluated on separate occasions so as to preclude the possibility that any one sample might contain dust produced by both operations.

2. The "Kaylo" insulation material had to be re-evaluated.
3. The Construction Insulation Shop requested that a new insulation material, i.e., "Carey-Temp", be evaluated.

The investigation of 6 Mar 1963 was conducted because

1. The Construction Insulation Shop recently had installed supplementary exhaust ventilation on both band saws and desired to know if this additional control method would reduce the "Thermobestos" dust concentrations to within safe acceptable limits.

A comparison of the reasons listed above discloses that each was different in content and concerned actually with different investigations but all were interrelated in part, i.e., each was concerned with the same environment, the same location and the same specific methods of fabrication. Consequently, the sampling procedures, utilized in each instance, basically were identical and in accordance with the following condensed explanation:

- First: Two methods of fabrication, i.e., cutting and edging, and cutting a radius, were evaluated at each band saw since this is standard practice followed in the fabrication of any insulation material.
- Second: The environmental conditions of both preceding reports, i.e., 62-IH-1-G-1 and 62-IH-2-G-1, were duplicated in that all outside doors to the building were closed.
- Third: Each dust sample was collected in the operator's breathing zone as he worked in the fabrication process.
- Fourth: The complete fabrication of "Carey-Temp" insulation blocks was evaluated in two ways: First, with all available ventilation in operation and second, with only the original downdraft ventilation in operation.

Specialized sampling procedures were utilized also during portions of the latter two investigations, in an endeavor to evaluate the supplementary exhaust ventilation system which had been installed as recommended. These were as follows:

- First: The complete fabrication of "Thermobestos" insulation blocks was evaluated in two ways: First, with all available ventilation in operation and second, with only the original downdraft ventilation in operation.
- Second: The complete fabrication of "Carey-Temp" insulation blocks was evaluated while utilizing all available exhaust ventilation.

It is necessary to explain that "Kaylo" insulation blocks were not included as a part of this evaluation since the initial investigation, (performed without supplementary exhaust ventilation) disclosed only one exposure exceeding the TLV of 20 mppcf of air and, therefore, it could be assumed that any ventilation that might be added should be more than adequate in controlling the hazard.

EVALUATIONS:

A. Atmospheric dust exposures:

1. The concentrations of inhalable dust, present in the breathing zone when fabricating any one of the three types of insulation materials, were determined in accordance with the following procedure:
 - a. Three locations and nine different conditions of exposure, as described on Page 9, were selected for evaluation.
 - b. Atmospheric dust samples were collected through the use of the impingement* principle of air sampling. The midget impinger apparatus (described on Page 5) served as the instrument of use.
 - c. The concentration of dust collected in each sample was established through the use of standard light field microscopic counting techniques as described on Page 5.
2. The size of the particles of inhaled dust was determined, for both "Kaylo" and "Thermobestos", in the initial survey of 1962 in accordance with the procedure described on Page 5. Consequently, no effort was expended to repeat the determination for any of the insulation materials since the sawing techniques as well as equipment, i.e., saw blades with three teeth to the inch operating at 2200 linear feet per minute, were identical on both occasions and, therefore, the size of the particles should not be expected to deviate to any great degree from the prior recorded values.
3. The composition of the dust, i.e., percentage crystalline free silica or percentage asbestos was determined for both "Kaylo" and "Thermobestos" in the initial survey of 1962. Consequently, no effort was expended to repeat this determination since the materials used on both occasions, were reported as being identical in composition. However, since the composition of "Carey-Temp" was not established at any earlier date it was deemed imperative that it be determined and reported at this time. This was accomplished as described on Page 5.

B. Local exhaust ventilation controls:

1. The velocity of the air being exhausted through the ventilation hood openings on both band saws (#1 and #2) was measured through the use of a Model 60 Anemotherm air meter.
2. Four variable conditions of interest were evaluated:
 - a. The velocity of air through the downdraft hood on both saws with all other hoods on the system closed off.

* This means to strike against, as (in this application) the striking or dashing of atmospheric dust particles against the bottom of a small impinger flask containing a specific volume of dust-free water as a collecting medium.

- b. The velocity of air through the downdraft hood on both saws with all other hoods on the system open.
- c. The velocity of air through the supplementary overhead hood on both saws with all other hoods on the system closed off.
- d. The velocity of air through the supplementary overhead hood on both saws with all other hoods on the system open.

PROCEDURES: Both sampling and analytical methods were as follows:

SAMPLING:

- 1. All samples used in determining the actual concentrations in air were collected with a midget impinger apparatus, sampling 0.1 cubic feet of air per minute through impinger flasks containing 15 milliliters of double distilled dust-free water.
- 2. All samples used in obtaining particle size distribution data were collected on millipore filters connected to a small battery-operated pump.

ANALYTICAL:

- 1. Each dust sample was evaluated through the use of a counting procedure referred to as the light field microscopic counting technique.*
- 2. The particle sizing techniques were derived from two separate sources. First, the sample was prepared for sizing in accordance with a permanent mounting method.+ Second, the actual sizing was accomplished in accordance with the recommended technique depicting the use of a filar micrometer and a standard microscope while using both the 43X (high and dry) and the 97X (oil immersion) objectives.†
- 3. The evaluation and free silica determination of "Carey-Temp" material was accomplished through the use of two methods. First, through information supplied by Mr. E. D. Ermenc, Director of Research of the Philip Carey Manufacturing Company and second, through contracted analysis performed by Mr. Thomas M. Durkan, Chief Chemist for the Trudeau Foundation, Inc., Saranak Lake, N. Y.

RESULTS: See Pages 8, 9, 10 and 11.

Drinker and Hatch: "Industrial Dust", 2nd Edition, pp. 152-153, McGraw-Hill Book Company, Inc., New York, 1954.
 Pautus, H. J., Talvitie, N. A., Fraser, D. A., and Keenan, R. G.: "Use of Membrane Filters in Air Sampling", A.I.H.A. Quarterly, Vol. 18, p. 269, September, 1957.
 Drinker and Hatch: "Industrial Dust", 2nd Edition, pp. 166-179, McGraw-Hill Book Company, Inc., New York, 1954.

CONCLUSIONS:

Relative to dust exposures from Graph #1 & Tables on Pages 8 & 9:

1. "Thermobestos" insulation blocks should not be fabricated when using only the original downdraft exhaust ventilation.
2. "Kaylo" insulation blocks could be fabricated safely when using only the original downdraft exhaust ventilation if existing leaks, observed on the #1 band saw, are corrected.
3. "Kaylo" insulation blocks definitely may be safely fabricated when using the entire exhaust ventilation facilities now available, i.e., hoods above the blocks as well as below.

From Graph #2 & Tables on Pages 8 & 9:

1. Methods of handling "Thermobestos" blocks (preparatory to sawing) and scraps (after sawing) contribute greatly to specific individual exposures as demonstrated by the following facts:
 - a. The fabrication process, which always begins at the #2 band saw with the simple cutting of each 18" x 36" x 4" block into three smaller blocks about 18" x 12" x 4", is normally the least dusty of all the fabrication operations as revealed by the samples taken on 24 Jan 1963.
 - b. However, on 6 Mar 1963, this operation was revealed as being one of the dustiest, regardless of the ventilation being used.
 - c. There was only one major variable between the samples taken on the two dates, i.e., the method of handling the blocks preparatory to sawing. Consideration of the procedure used on these dates reveals: (1) that on 24 Jan 1963, the blocks were rolled up to the saw after having been removed from their shipping cartons and stacked on a "dolly" for easy individual removal and (2) on 6 Mar 1963, the blocks were not removed from their shipping cartons until needed by the worker. A large amount of dust is produced when blocks are removed individually from the cartons as a result of the natural abrasion produced when one block is pulled over the surface of the other. Consequently, the dust concentrations on this date at this location were greater than normal.
2. The supplementary overhead ventilation (added since the time of the preceding two reports) does successfully reduce the dust exposures. However, it does not reduce "Thermobestos" dust exposures to within safe acceptable limits when cutting radii.

From Graph #3 & Table on Page 9:

1. "Carey-Temp" dust concentrations for each exposure was substantially greater than the comparable "Thermobestos" dust concentrations and in excess of even the most lenient TLV established for human exposures, i.e., 50 mppcf of air.

2. The existing exhaust ventilation system as installed on both band saws is incapable of reducing the dust hazard, associated with the fabrication of "Carey-Temp", to within safe acceptable limits, i.e., 20 mppcf of air.

Relative to the exhaust ventilation system:

1. The duct velocity in the downdraft ventilation system on both band saws is far below the recommended value of 4000 fpm.
2. The duct velocity in the overhead ventilation system on both band saws is equal to or more than the recommended value of 4000 fpm.
3. The velocity in the downdraft ventilation systems for both band saws could be increased by patching all holes, leaks, etc., now in existence.

RECOMMENDATIONS:

1. Do not fabricate 18" x 36" x 4" "Carey-Temp" or "Thermobestos" insulation materials unless:
 - a. The atmospheric dust problem can be reduced to below 20 mppcf of air through the use of improved ventilation techniques or repairs to the existing system, or
 - b. The manufacturers of the two makes of insulation materials are able to produce a product which will not release, upon fabrication with a band saw, dust concentrations in excess of 20 mppcf of air.

Submitted by:


R. E. Peele
Industrial Hygienist

REP:hl

23 October 1963

INDUSTRIAL HYGIENE SURVEY
 Evaluation of Atmospheric Dust Conditions at the Construction Insulation Shop
 Table #1
 Atmospheric Dust Concentration Data
 Collected When Using Only Partial
 Ventilation, i.e., Only Below the Blocks

Cutting & Edging Insulation Blocks

Date	Type of Material	Description of Location	Concentration in mppcf
25 Feb 63	Kaylo	#1, i.e., South Side of the #2 Band Saw	9.32
24 Jan 63	Thermobestos	#1, " " " " " " " " "	10.00
6 Mar 63	"	#1, " " " " " " " " "	51.50
25 Feb 63	Kaylo	#2, i.e., South Side of the #1 Band Saw	17.92
24 Jan 63	Thermobestos	#2, " " " " " " " " "	26.36
6 Mar 63	"	#2, " " " " " " " " "	42.70

Cutting a Radius on Insulation Blocks

Date	Type of Material	Description of Location	Concentration in mppcf
Mar 62	Kaylo	#3, i.e., South Side of the #2 Band Saw	17.10
25 Feb 63	"	#3, " " " " " " " " "	3.39
Mar 62	Thermobestos	#3, " " " " " " " " "	101.40
24 Jan 63	"	#3, " " " " " " " " "	69.59
6 Mar 63	"	#3, " " " " " " " " "	36.82
Mar 62	Kaylo	#4, i.e., South Side of the #1 Band Saw	3.06
25 Feb 63	"	#4, " " " " " " " " "	29.35
Mar 62	Thermobestos	#4, " " " " " " " " "	83.30
24 Jan 63	"	#4, " " " " " " " " "	66.69
6 Mar 63	"	#4, " " " " " " " " "	70.00

Table #2
Atmospheric Dust Concentration Data
Collected When Using All Available
Ventilation, i.e., Both Above & Below the Blocks

Cutting & Edging Insulation Blocks

Date	Type of Material	Description of Location	Concentration in mppcf
6 Mar 63	Thermobestos	#1a, i.e., South Side of the #2 Band Saw	30.20
26 Feb 63	Carey-Temp	#1a, " " " " " " " "	51.70
6 Mar 63	Thermobestos	#2a, i.e., South Side of the #1 Band Saw	17.59
26 Feb 63	Carey-Temp	#2a, " " " " " " " "	68.20

Cutting a Radius on Insulation Blocks

Date	Type of Material	Description of Location	Concentration in mppcf
6 Mar 63	Thermobestos	#3a, i.e., South Side of the #2 Band Saw	22.42
6 Mar 63	Thermobestos	#4a, i.e., South Side of the #1 Band Saw	51.70
26 Feb 63	Carey-Temp	#4a, " " " " " " " "	85.40
26 Feb 63	Carey-Temp	#5a, i.e., North Side of the #1 Band Saw	100.90

Index for Graphs #1, #2 & #3

#1	=	South Side #2 Band Saw - Cutting Blocks - Ventilation Only Below
#2	=	" " #1 " " - Edging " " " "
#3	=	" " #2 " " - Cutting a Radius - " " "
#4	=	" " #1 " " - " " " - " " "
#1a	=	" " #2 " " - Cutting Blocks - " Both Above & Below
#2a	=	" " #1 " " - Edging " " " " "
#3a	=	" " #2 " " - Cutting a Radius - " " " "
#4a	=	" " #1 " " - " " " - " " " "
#5a	=	North Side #1 Band Saw - Cutting a Radius - Ventilation Both Above & Below

Table #3
Determination of Percentage Crystalline Free Silica
Present in "Thermobestos", "Kaylo" & "Carey-Temp"
as Quartz by the "Talvitie" Method

"Thermobestos"
(As Contained in Report 62-IH-1-G-1)

Trial #	W ₁ in Grams	W ₂ in Grams	W ₃ in Grams	% Free SiO ₂
1	0.5002	0.0390	0.0069	6.42
2	0.5000	0.0347	0.0068	5.58
3	0.5002	0.0396	0.0082	6.28
Average Percentage Crystalline Free SiO ₂ = 6.4				

"Kaylo"
(As Contained in Report 62-IH-1-G-1)

Trial #	W ₁ in Grams	W ₂ in Grams	W ₃ in Grams	% Free SiO ₂
1	0.5000	0.0807	0.0433	7.48
2	0.5000	0.0730	0.0364	7.32
3-	0.5000	0.0563	0.0190	7.46
Average Percentage Crystalline Free SiO ₂ = 7.4				

"Carey-Temp"
(As Reported by Mr. Thomas M. Durkan)
4 October 1963

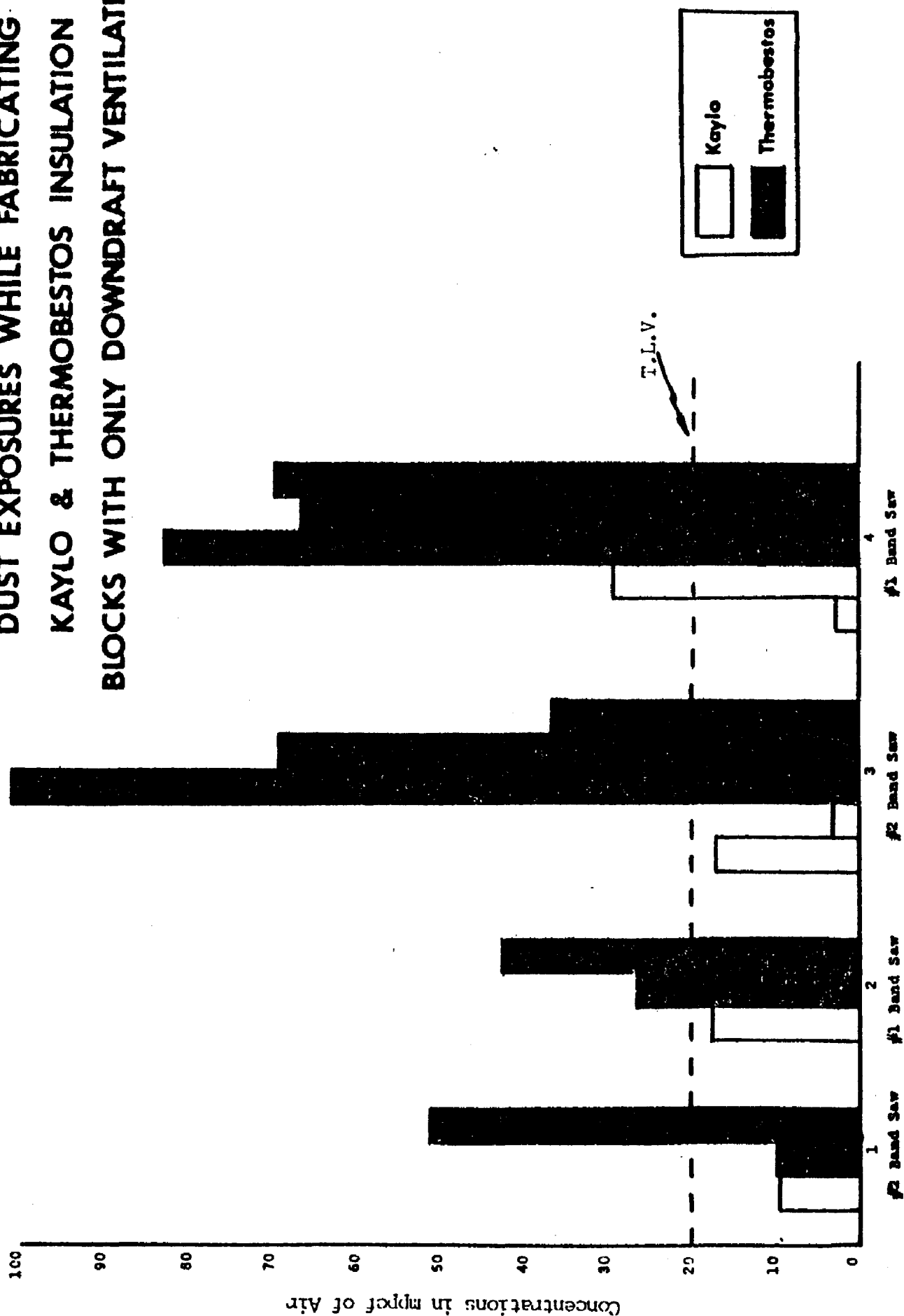
Components Soluble in HCl	10.8%
Other Components Soluble in Phosphoric Acid	<u>88.8%</u>
	99.6%
Percentage Crystalline Free SiO ₂ as Quartz	00.4%

Table #4
Ventilation Rates on Two Band Saws

Date	Band Saw	Hood Being Checked	Description of Condition	Ventilation Rate in fpm
25 Feb 63	#2	Downdraft	Only Downdraft System in Operation	1500
6 Mar 63	#2	"	" " " " "	1450
25 Feb 63	#2	"	Downdraft & Overhead System in Operation	1200
6 Mar 63	#2	"	" " " " "	1200
25 Feb 63	#2	"	Every Hood in the System Open	950
6 Mar 63	#2	"	" " " " " "	900
25 Feb 63	#2	Overhead	Downdraft & Overhead System in Operation	6500
6 Mar 63	#2	"	" " " " " "	4800
25 Feb 63	#2	"	Every Hood in the System Open	4000
6 Mar 63	#2	"	" " " " " "	
25 Feb 63	#1	Downdraft	Only Downdraft System in Operation	2100
6 Mar 63	#1	"	" " " " "	1500
25 Feb 63	#1	"	Downdraft & Overhead System in Operation	1600
6 Mar 63	#1	"	" " " " " "	1150
25 Feb 63	#1	"	Every Hood in the System Open	1100
6 Mar 63	#1	"	" " " " " "	
25 Feb 63	#1	Overhead	Downdraft & Overhead System in Operation	5500
6 Mar 63	#1	"	" " " " " "	4500
25 Feb 63-	#1	"	Every Hood in the System Open	4200
6 Mar 63	#1	"	" " " " " "	

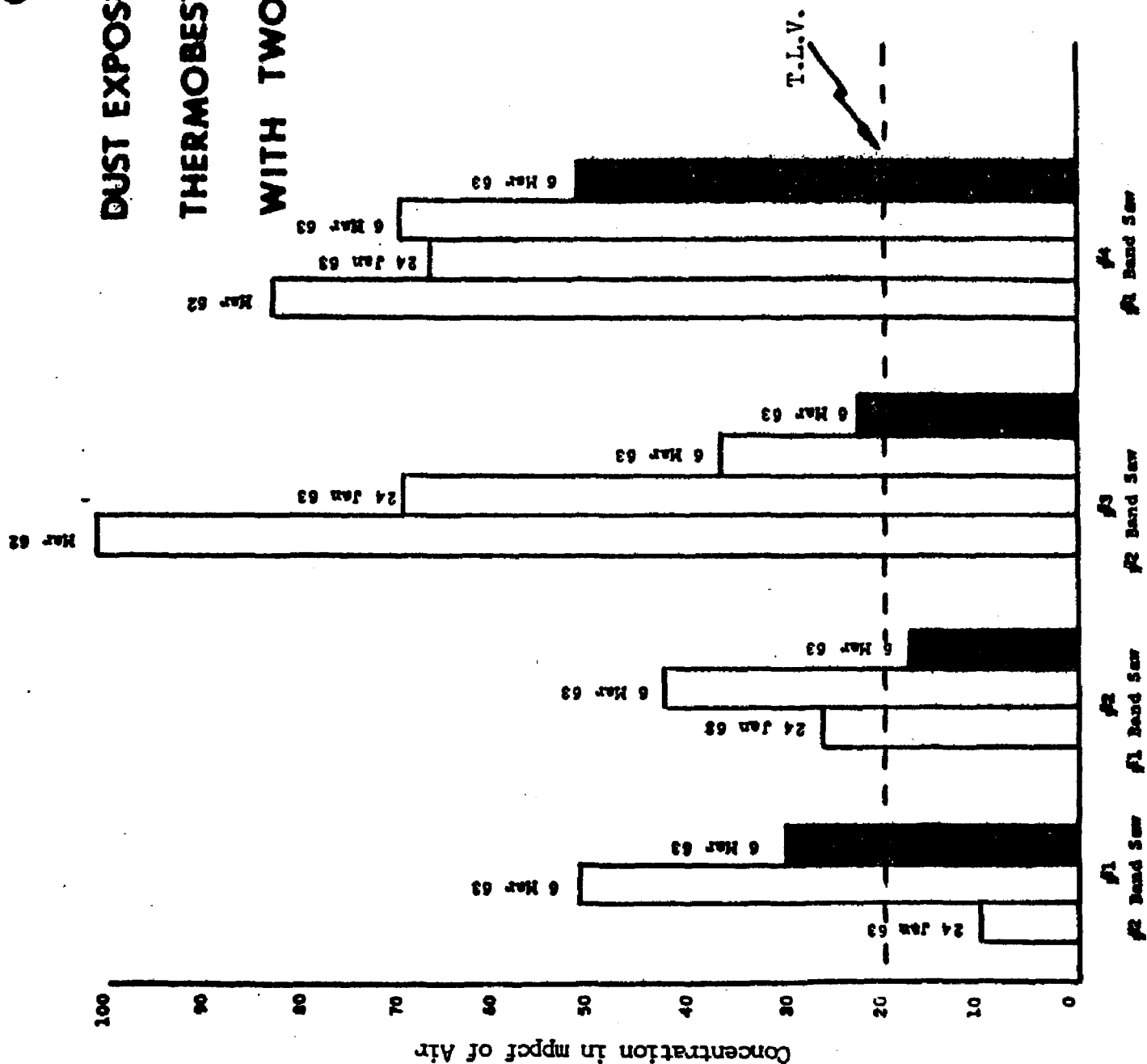
GRAPH NO. 1

DUST EXPOSURES WHILE FABRICATING KAYLO & THERMOBESTOS INSULATION BLOCKS WITH ONLY DOWNDRAFT VENTILATION



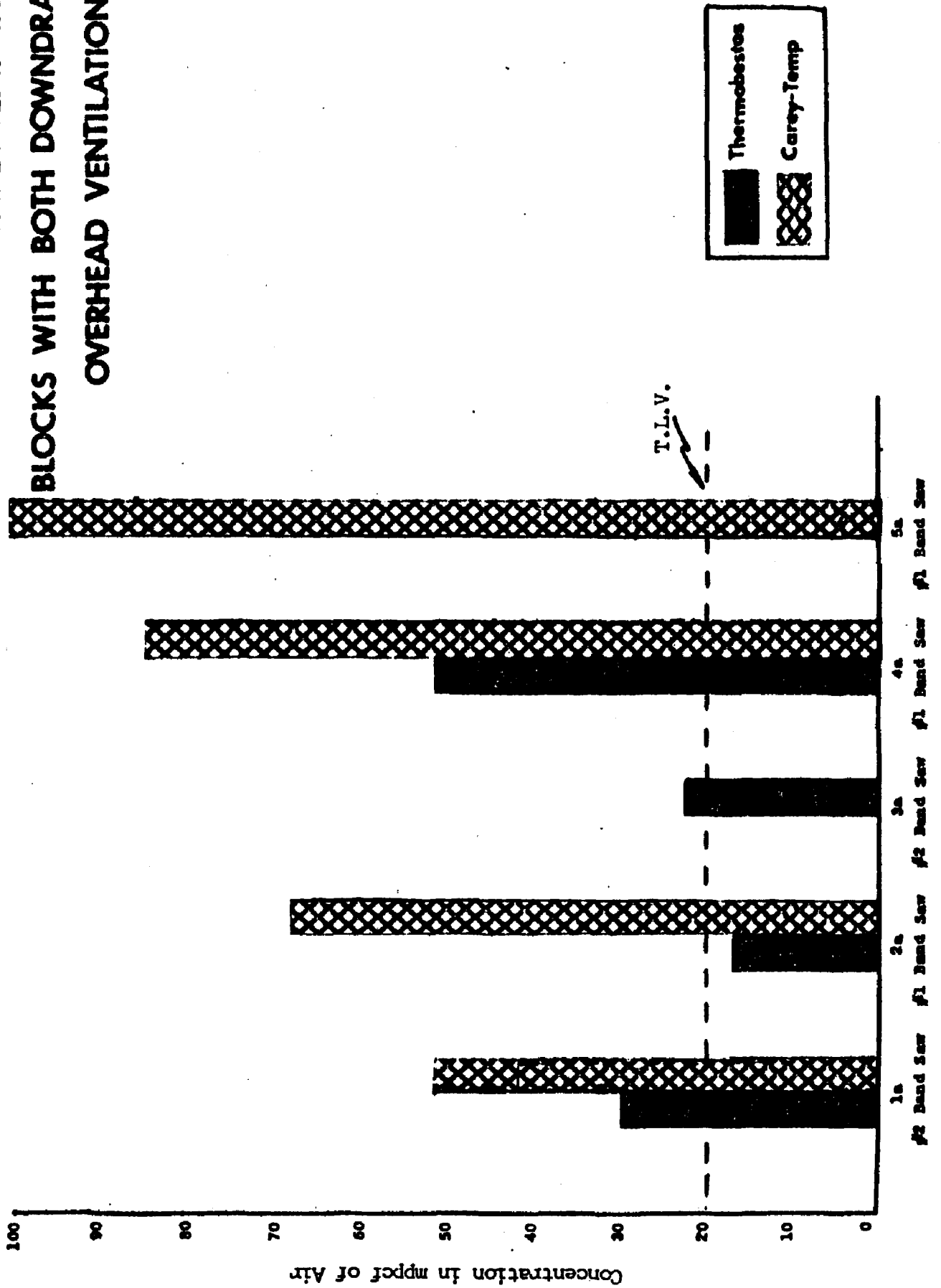
GRAPH NO. 2

DUST EXPOSURES WHILE FABRICATING THERMOBESTOS INSULATION BLOCKS WITH TWO TYPES OF VENTILATION



DUST EXPOSURES WHILE FABRICATING

THERMOBESTOS & CAREY-TEMP INSULATION BLOCKS WITH BOTH DOWNDRAFT AND OVERHEAD VENTILATION





INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY • INSTITUTE PLANT P. O. BOX 2831, CHARLESTON, WEST VIRGINIA

To (Name) R. J. Sexton, M.D.

Date 29 November 1963

Company

Location Medical Department - Plant 512

Originating Dept. Industrial Hygiene - Plant 512

Answering letter date

Copy to Mr. L. N. Dickinson Mr. J. W. Perry Subject Construction Insulation Shop
 Mr. N. S. Eastman Mr. P. E. Henry Building 511-2018
 Mr. S. C. Giambruno Mr. R. A. Neal
 Mr. R. A. Huber Mr. D. R. Matheny
 Mr. B. F. King Mr. N. H. Ketcham
 Dr. E. M. Best Mr. L. B. Weddell - Safety Dept.
 Dr. C. U. Dernehl Mr. F. G. Comerford

In accordance with Mr. P. E. Henry's request of Thursday, 7 Nov 63, I have investigated the fabrication of "Carey-Temp" pipe covering. This operation is carried out with band saws and, on the basis of visual observation alone, it has been decided that there should be no health hazard associated with this particular type of operation.

This investigation took place during the morning of Thursday, 14 Nov 63, in the company of Mr. K. B. Lanham, Foreman of the Fabrication Insulation Shop, and consisted merely of observing the process of the cutting of half sections of eight inch diameter "Carey-Temp" pipe covering with a band saw. No effort was made, at that time, to determine the actual concentration of atmospheric dust being produced during this operation. It should not be necessary to perform this specific test so long as working conditions are not altered appreciably from those observed on this date. However, a more thorough evaluation of these conditions will be performed if (1) it is specifically requested, (2) employees begin complaining about reactions such as nose bleed, etc., (3) a thicker material, i.e., more than two inches in diameter is substituted for fabrication, or (4) the fabrication shop begins cutting each curved half-section from large blocks of "Carey-Temp".

Very truly yours,

R. E. Peele
Industrial Hygienist

REP:hl

Deposition Exhibit No 8
5-14-87

Murray
8/4/77
2000

Mr. D. C. Willard

April 28, 1967

Building 8-96-2

E. Q. Hull, M.D.

Particulate Matter in Air
Asbestos Dust
Project No. IH-PAR-76-67

Dear Don:

As per our telephone conversation today, I am attaching a resume' of our determinations of dust breathed by the employees while cutting and installing "kale" insulation.

We feel that further air sampling is needed to give you more meaningful conclusions as to the best protection for the employees handling this material.

At your convenience, we will be glad to discuss these findings with you. In the meantime, if you would keep us informed of jobs pertaining to cutting, installing and removing "kayle" insulation, it would be helpful in scheduling the air sampling work.

Thanks,

Bert Murray
Bert Murray

Deposition Exhibit No 10
5-14-87

DISTRIBUTION:

Mr. Peter Barna

Mr. J. N. Dermitt

C. U. Dernehl, M.D.

E. Q. Hull, M.D.

Mr. N. H. Ketcham

Mr. R. J. Murphy

Mr. R. A. Neal

Mr. R. E. Peele

Mr. V. C. Seguin

R. J. Sexton, M.D.

Mr. F. J. Sheets

Mr. Fred Williams

General Foremen's Office

PARTICULATE MATTER IN AIR

Dust Breathed by the Employees While Cutting and Installing "Kaylo" Insulation

Plant-wide Survey - Plant 514

Authors: H. H. Warwick
B. L. Murray

Date: September 21, 1965
Project No.: IH-1G-65

Doctor Hull, Plant Medical Director, requested a plant-wide industrial hygiene study to determine the potential exposure of insulators to asbestos fiber dust concentrations. Table I gives the results of seven separate tests, including 24 breathing zone level air samples and shows an average dust concentration of 5.2 million particles per cubic foot of air. A "threshold limit value" of 20 mppcf of air has been suggested.¹

When three employees, or less, hand-cut and apply "Kaylo" insulation, the concentration of dust is considered safe from the health standpoint; however, with 6 men the dust count exceeds the TLV. It is at this phase of the operation that exhaust ventilation should be used. Excessive dust concentrations can be expected when the insulation is removed from piping and tanks. Again, exhaust ventilation should be used to move the dust away from the employees, if possible; otherwise, respirators are advised.

"Kaylo" insulation contains 12 to 13% asbestos and 5.6 to 7.4% crystalline-free silica.² This material is received in block and pipe form and the insulator measures and marks the material into appropriate sizes and cuts it with a hand saw. The insulation material is wired into position around the tank or pipe. The tasks of cutting and applying the "Kaylo" insulation are shown in Figures 1 and 2.

The air samples were collected with a midget impinger and a Uni-jet sampler, drawing 0.1 cubic foot of air per minute through impinger flasks containing 10 milliliters of distilled water. Dust counts, made by the Light Field Microscopic Counting Technique, appear in Table I.

This study has revealed that further research work is needed to:

1. Attain an established figure for the "threshold limit value".
2. Utilize exhaust ventilation to remove the dust from the work area.
3. Determine the particle size of the asbestos fiber where the dust count exceeds 5 mppcf.
4. Obtain Range Finding Tests on animals exposed to different percents of asbestos fiber.
5. Continue our plant-wide study in support of these conclusions.

1. Cook, Warren A., and Peole, Robert E., Letter dated February 12, 1962 - The University of Michigan School of Public Health.
2. Peole, R. E., Industrial Hygiene Survey - Construction Insulation Shop, Building 511-2018. Report 62-IH-1-G-1 (March 21, 1962).

TABLE I
PARTICULATE MATTER IN AIR
Dust Breathed by Employees While Cutting and Installing
"Kaylo" Insulation

Date	Sample Number	Sampling Conditions at Breathing Level	Number of Employees	Dust Count MPPCF (1)
11-16-64	1	5-min. cutting, 5-min. application inside building	2	2.1
	2	Same	2	2.6
	3	Same	2	1.7
	4	7-min. cutting, 3-min. application	2	3.0
1-19-65	5	Cutting and application during entire sampling period - inside building	6	22.5
	6	Same	6	17.0
	7	Same	6	22.5
2-16-65	8	Same	2	3.6
	9	Same	2	1.6
	10	Application of insulation - no hand saw cutting	2	0.3
	11	Same	1	0.1
3-1-65	12	Cutting and application during sampling period - outside building	2	7.6
	13	Same	2	2.4
	14	Same	2	4.0
3-22-65	15	Application of insulating - no cutting - inside building	3	1.9
	16	Same	3	13.0
	17	7-min. cutting; 3-min. application	1	7.3
5-26-65	18	Clean up of insulation from floor - sweeping and shoveling - inside bldg.	2	0.8
	19	Same	2	0.1
	20	Same	2	2.5
6-14-65	21	Cutting and application during sampling period - inside building	2	1.0
	22	Same	2	5.0
	23	Same	2	2.5
	24	Same	2	1.1

(1) Million particles per cubic foot of air.

10-14-65

PARTICULATE MATTER IN AIR

Dust Breathed by the Employees while Cutting and Installing
"Kaylo" Insulation

Plant-wide Survey - Plant 514



Figure 1. Sawing block sections. Breathing zone level
air sample being collected in the background.

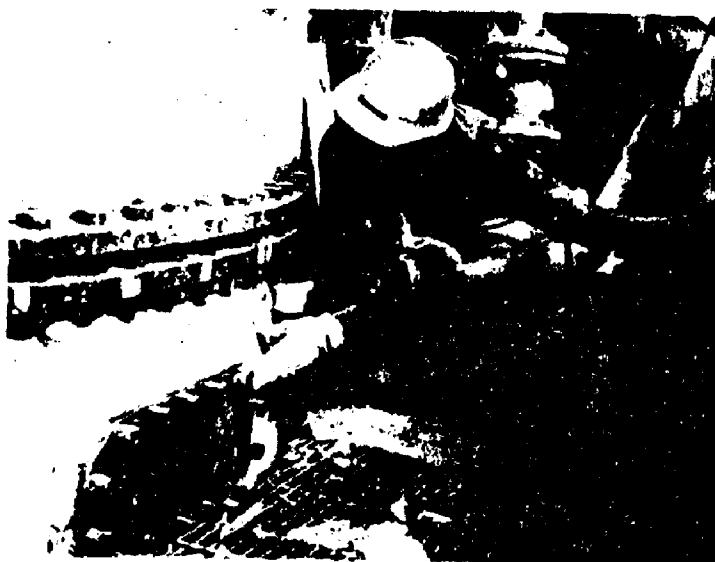


Figure 2. Applying insulation block. Breathing zone level
air sample being collected in the foreground.

BLM-

Form 501

INDUSTRIAL HYGIENE EVALUATION AND SURVEY

PROJECT NO. 711

Date 7-11-66 Time 11:00 AM Project Asbestos Insulation Dust in Air

Department Maintenance Location Cell 13 & 14 Bldg. No. 427

Requested by Reason Survey

General Conditions: Type insulation being cut, fitted and secured to frame in cell 13 & 14

Sampling Method and Equipment Model sampling pump containing 16 no. 100 mesh filter and 100 mesh filter

Shift: Day Eve. Mid No. Employees Sampled by 11/11/66 CGC

Sample Number	Zone	Sampling Time-Min.	Flow Rate	CONCENTRATION		
				CFM	CFM	CFM
1		10	2.8	1.0	<0.1	<0.25
2		10	2.8	1.0	0.6	1.5
3		10	2.8	1.0	0.8	2.0
4		10	2.8	1.0	0.2	0.5

Special Conditions

Breathing level inside cell 14 (1st floor) 2nd solution being cut fitted and secured to frame. Cutting time approximately 2 min. Same as for No. 1 cutting time 5 min. Same as for No. 1 cutting time 8 min. Breathing level inside cell 13 - 1st solution being cut fitted and secured to frame. Cutting time approximately 2 min. Same as for No. 1 cutting time 8 min.

Calculation:

5 10 2.8 1.0 <0.1 <0.25 Same as for No. 4

Remarks:

Not count $1 \times 10 \times 250 \times 10^3$ CFM 10^6

Sketch - See Reverse Side. Reference No. 711ND 45 Analyzed by Gene R. Date 9-22-66

152 14

PLANT 514

INDUSTRIAL HYGIENE EVALUATION AND SURVEY

PROJECT NO. I.H. 66

Date 4-13-66 Time 10:00 am Project Dust in Air (Asbestos Insulation)
 Department Maintenance Floor (North end) Bldg. No. 156
 Requested by Surve nature of Concentration
 General Conditions: locks (2' in, being cut (scored))
application

Sampling Method and Equipment Direct impingers containing 10 ml's
dist. water. wet Net sampler

Shift: Day Eve. Mid No. Employees 5 Sampled by HHW-C6C

Sample Number	Zone	Sampling Time-Min	Flow Rate	CONCENTRATION		
				ft ³ /min	Net	PPCF
1		10	2.8	1.0	<0.1	<0.25
2		10	2.8	1.0	0.8	2.0
3		10	2.8	1.0	2.2	5.5

Special Conditions

Breathing level of employee as he cut insulation
 him. Some. Another employee cutting nearby intermittently
 Ditto

Ditto

Calculation:

$$\frac{\text{Net Count} \times 250 \times 10^3}{6} = \text{PPCF}$$

Remarks:

Sketch - See Reverse Side. Reference No. 6JND10 Analyzed by J. Rowe Date 4-15-66

MEMO

AVOID ORAL INSTRUCTIONS

DATE 1/31 1973

TO

R. H. Steinberg

The attached is a good summation about asbestos in insulation.
Also, attached is a copy of Asbestos results from air sampling that was done
by Harold Frazer (Institute I.H.) in your area last year.

I need to discuss a program with you and your key supervisors. If
you will let me know when such a meeting can be scheduled, I will present
the program that will put us in compliance with OSHA.

We will definitely have to improve dust removal from the rollers and while
placing blocks in cartons.

RECEIVED

FEB 1 1973

514-886-D



DO IT THE SAFE WAY



SIGNED

Fred Williams

R. H. STEINBERG

ph. 5129



INTERNAL CORRESPONDENCE

CHEMICALS AND PLASTICS

INSTITUTE PLANT P. O. BOX 2331, CHARLESTON, WEST VIRGINIA 25330

• (Name) ✓ Mr. Fred Williams

Date January 24, 1973

Division

Originating Dept. Employee Relations
Hygiene/Safety

Location

Answering letter date

Copy to Mr. R. O. Midkiff
Mr. R. E. PeeleSubject Asbestos Sampling Values
511 Insulation Fabrication Shop

Ray: The maximum exposure allowable until 1976 without respiratory protection is 10 fber/ml; after 1976 the limit is 2 fber/ml. Federal Standard is the TLV (Threshold Limit Value) until 1976.

Asbestos fiber counts for samples we have collected at the Plant 511 Insulation Fabrication Shop are submitted for your information. They may serve as guidance for any sampling program you may initiate and they should be valid as part of a records program.

Sample No.	Date	Sampling Time, min	Fiber Count/ml	Sample-Job Description
✓ 512-HHF-01	3-8-72	15	Too heavy to count	S. E. Painter - Dust collection removal for disposal.
✓ 512-HHF-02	3-8-72	5	61.5 ✓	S. E. Painter - Dust collector <u>wearing</u> respirator. <i>Job Done Once EVERY TWO HOURS</i>
✓ 512-HHF-03	3-8-72	15	24.5 min. ✓	S. E. Painter - End of dust removal job.
✓ 512-HHF-04	11-21-72	6	4.1	L. I. Mitchell - Butt sawing.
✓ 512-HHF-05	11-21-72	6	23.4 ✓	L. I. Mitchell - Placing pairs of sawed blocks in cartons.
✓ 512-HHF-06	11-21-72	9	4.1	H. Stanley - Janitor broom sweeping.
✓ 512-HHF-07	11-21-72	15	3.9	H. E. Samples - Cementing pre-formed blocks.
✓ 512-HHF-08	12-4-72	15	0.05	L. I. Mitchell - Off bearing south saw 1st cut.
✓ 512-HHF-09	12-4-72	15	5.3	H. E. Witt - Separate sawed block - apply glue.
512-HHF-10	12-4-72	9	-	Bad filter - not counted.
✓ 512-HHF-11	12-4-72	15	11.8 min. ✓	H. E. Samples - Removing glued blocks from stack-edging.
✓ 512-HHF-12	12-4-72	4	27.8 ✓	H. E. Samples - Sawing block.
✓ 512-HHF-13	12-4-72	13	6.5	L. I. Mitchell - Off bearing second cut - placing in carton.
✓ 512-HHF-14	12-4-72	1½	9.8	L. I. Mitchell - Unpacking a single carton - sawed 22 pcs.
✓ 512-HHF-15	12-4-72	1½	48.3 ✓	L. I. Mitchell - Filling carton with sawed blocks.

Deposition Exhibit No 11
5-14-87

UCC 010577

January 24, 1973

All samples were collected on the person of the employee and each of them represents a peak exposure for the various work tasks. All work was involved with asbestos containing KAYLO block materials.

The problem area most deserving corrective measures is obviously the dumping procedure of the shop dust collecting facility. Excessive exposures are encountered in the handling, especially packing, of sawed block material.

Exposure values have not been reported to the employees nor to shop supervision.

Very truly yours,

A handwritten signature in cursive script, appearing to read "H. H. Frazier".

H. H. Frazier

HHF:11h



INTERNAL CORRESPONDENCE

CHEMICALS DIVISION

INSTITUTE PLANT P. O. BOX 2831, CHARLESTON, WEST VIRGINIA 25330

(Name) Mr. K. B. Lanham
Company Insulation Fabrication Shop
Address Bldg. 511 - Room 2018

Date 24 August 1965

Originating Dept. Industrial Hygiene - Plant 512

Answering letter date

cc to Mr. F. G. Comerford
Mr. J. M. Fallon
Mr. P. E. Henry
Mr. N. H. Ketcham
Mr. D. R. Matheny
Dr. R. J. Sexton
Mr. Frank Shaffer
Mr. L. B. Weddell
Mr. Fred Williams

Subject DUST SAMPLING OF "CAREY-TEMP" INSULATION

We have received results from the dust sampling series conducted in your shop while the head grinder machine was being used to cut "Carey-Temp" insulation block.

These results indicate that the hazard to health from dust exposure during this operation is very slight and should not present any serious respiratory problems to the machine operator if conducted in a similar manner to the test runs.

During our conversation, you mentioned that you anticipate moving the machine to another location in the shop and also making certain modifications to the machine and dust exhaust system. It is our recommendation that these changes be carried out to their completion in the near future so as to further add to the adequacy of the system.

In order to completely finalize this investigation, we would like to do another series of sampling when more "Carey-Temp" insulation is available and after the above changes and modifications have been made.

If, in the interim period, you have any questions relative to these tests, please notify this department.

Very truly yours,

J. D. Young
J. D. Young

JDY:hl

Deposition Exhibit No 12
5-14-87



INTERNAL CORRESPONDENCE

CHEMICALS AND PLASTICS

RIVER ROAD, BOUND BROOK, NEW JERSEY 08805

From: Mr. D. R. Albright
To: Chemicals and Plastics
Location: Bound Brook, New Jersey

Date: November 8, 1972
Originating Dept.: Environmental Protection

Answering letter date

To: Mr. R. W. Cope - SC
Mr. R. A. DeCoudres - BB
Mr. J. L. Goodson - BB
Mr. N. L. Ketcham - SC
Dr. C. S. McKinley - BB
Mr. R. A. Rimicci - BB
Mr. F. A. Schillinger - BB
Mr. J. M. Swalm - BB
Mr. J. P. Zuccarelli - BB

Subject: Asbestos Dust Measurements

The September and October samplings of the Unit B and C work areas have afforded the opportunity of measuring the maximum concentrations of airborne asbestos expected when these units are running products of 29 to 33% asbestos content. The following are my conclusions and recommendations as the result of my samplings and observations to date.

1. Airborne asbestos concentrations to which molding materials mixer operators on the third floor are exposed while charging asbestos do not exceed 6 fibers/cc compared with the OSHA ceiling limit of 10 fibers/cc when sampled for 15-minute periods. The eight-hour time-weighted averaged concentrations measure under 3 fibers/cc compared with the present OSHA limit of 5 fibers/cc. When proper precautions are followed in the dumping and put-away of empty bags, it appears that airborne concentrations can be maintained below the 2 fiber/cc eight-hour TWA limit to be effective July 1, 1976.
2. Although the third floor operation appears "clean" by our measurements, there are conspicuous situations which could provoke citations under the "general duty" clause if observed by the compliance officer. It is recommended that departmental programs aimed at these items be intensified, not only to improve our margin of safety, but also to improve the morale of operators, some of whom see sources of asbestos contamination as a threat to their health despite the measurements taken. These situations are as follows:

A. Handling of Empty Bags:

This remains a visible dusting problem. Although operators can exercise due care in gathering empty bags and placing them in the gaylord liner bin, there is great variability between operators. Unless firmer supervision can be given to this area, it would appear that the installation of hoods over the two disposal bin locations will be required to minimize this source.

Deposition Exhibit No 14
5-14-87

B. Condition of Incoming Asbestos Bags:

The palletized packages of asbestos bags are prone to being torn open from loading, shipping, and subsequent handling in our plant. The condition appears to have improved during recent sampling, evidently the result of attention to this problem. Close monitoring must be maintained to avoid spillage of asbestos, not only in the third floor area but in the warehouses and areas traversed by persons not aware of or protected from exposure to asbestos.

C. Work Habits of Personnel:

Operators have been observed using the air hose that hangs by the wall between Units B and C to blow dust from their clothing and gloves. Obviously, this fills the area with a cloud of dust. Use of vacuuming and/or disposable coveralls is recommended. Also, one operator was observed to dump asbestos without wearing a respirator, claiming inability to breathe through the "Dustfoe" respirator. All other operators wore their respirators while discharging asbestos.

D. General Housekeeping

Although the third floor appears to be swept frequently, there are accumulations of dust on equipment, ledges, and in corners which detract from the general appearance of the area. Additional vacuum connections with brushes and hoses should facilitate clean-ups.

3. Airborne asbestos concentrations in the areas of the first floor charge rolls present no problem, as indicated by the maximum measurement of 1.4 fibers/cc from the September samples. However, operators should be encouraged to wear respirators during malfunctions when they are shovelling quantities of raw mix for highly-loaded products.
4. Another (probably non-asbestos) dust source which could subject us to the "general duty" clause is the Tote Bin filling station at Unit C where heavy dusting has been observed during the filling operation. Whether or not dust from BMN 6935 Bk 25 product contains free asbestos fibers remains to be investigated; however, the nuisance factor to operators in the vicinity is high and could draw undue attention during a compliance inspection. An improved dust hood or better vacuum source should alleviate much of this dust.

Future plans call for additional sampling during production of high asbestos products to further measure sources. Meanwhile, we have arranged for a visit on November 13 by an industry consultant, Mr. W. Bradley, whose wide experience in asbestos testing will afford the opportunity of "shoulder-to-shoulder" comparisons with our test methods to further establish our measuring accuracy.

W.D. Neal
W. D. Neal

WDN:gb

ASBESTOS DUST MEASUREMENTS - OCTOBER 1972

Date	Unit	Product	Asbestos Loading		Area Sample Fibers/cc	Mixer Man Sample	
			%	No. Bags		15 Minute Fibers/cc	8 Hour TWA Fibers/cc
10-18-72	B	BMMA 5303	28.6	12	0.7	4.5	2.1
10-19-72	B	BMMA 5303	28.6	12	0.3	1.1	1.2
10-20-72	B	BMMA 5303	28.6	12	0.2	1.1	1.2
10-18-72	C	BMN 6935	30.0	25	1.1	6.0	2.4
10-19-72	C	BMN 6935	30.0	25	-	5.4	2.3
10-20-72	C	BMN 6935	30.0	25	0.8	3.8	1.9

NOTES: All samples taken over 15 minute intervals.

Eight hour TWA based on 8 mixes/8 hours for total of 2 hours at 15 minute concentration, 5 hours at 1.5 fibers/cc, maximum area concentration measured in September, and 1 hour at 0 concentration for time off station.

-Example: For Unit C, 10-18-72 sample:

2 hours	@	6.0 fibers/cc	=	12.0 fibers-hour/cc
5 hours	@	1.5 fibers/cc	=	7.5 fibers-hour/cc
1 hour	@	0 fibers/cc	=	0 fibers-hour/cc
8 hours				19.5 ÷ 8 hours = 2.4 fibers/cc

WDN:GB
11/8/72