10-7-81 TTC

INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY • INSTITUTE PLANT P. O. BOX 2231, CHARLESTON, WEST VIRGINIA

To Mr. S. C. Giambruno
Industrial Relations

Date 4 December 1962

Originating Dept. Medical Department - Plant 512

Answering letter date

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

PLAINTIFF'S EXHIBIT UC-1441

AU3075

Union Carbide trial exhibit UC-1441: R. J. Sexton to S. C. Giambruno on Johns Manville Thermobestos Insulation Bl...
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ACL Doc 16572 · Page 1 of 14
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UC 1441

12-7-81 7769

UNION CARBIDE INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY • INSTITUTE PLANT P. O. BOX 2231, CHARLESTON, WEST VIRGINIA

To (Name) R. J. Sexton, M.D. Date 29 November 1963

Agency Location Medical Department - Plant 512 Originating Dept. Industrial Hygiene - Plant 512

Answering letter date

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

Subject: Construction Insulation Shop Building 511-2018

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

R. E. Peele
Industrial Hygienist

REP:hl

A03070

Plaintiff's Exhibit
10-7-81 MCF

INTERNAL CORRESPONDENCE

CHEMICALS DIVISION

INSTITUTE PLANT P. O. BOX 1241 CHARLESTON, WEST VIRGINIA 25314

Mr. R. B. Lanham
Insulation Fabrication Shop
Bldg. 511 - Room 2018

Date: 24 August 1965

Organization, Dept.: Industrial Hygiene - Plant 512

Answering letter date:

Subject: DUST SAMPLING OF "CAREY-TEMP" INSULATION

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

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 respirator problems to the machine operator if conducted in a similar manner to the test runs

During our conversation, you mentioned that you anticipate moving t machine to another location in the shop and also making certain modifications to t achine 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 t 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

JDY:hl

AU3077

INTERNAL CORRESPONDENCE

UNION CARBIDE CHEMICALS COMPANY • INSTITUTE PLANT P. O. BOX 2231, CHARLESTON, WEST VIR.

(name) R. J. Sexton, M.D.

(dept) Medical Department

Date 3 December 1962

Originating Dept. Industrial Hygiene - Plant 512

Answering letter date

Subject Johns Manville "Thermobestos"

(file)

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 concentration 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. Mathen 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 agr 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

A03078

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 utilitized by the Institute Plant's Industrial Hugiene 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 satisified 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

AU307

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DISCUSSION

Atmospheric dust concentration tests were made on October 30, 1963, during the fabrication of insulation blocks on the DC-11 Model L-H-V grind saw in the Southern 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. Bodmerbuk 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.



AU3030

[illegible] 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 bearing 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 blade speed of 5100 ft per min. The blocks were 18 x 12 x 4 or 6 in. and were cut so that the blade entered the 12-in. edge.

Five types of insulation were tested including standard Thermobestos, [illegible] 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 250F; b) drying at 250F and conditioning for 10 days at 70 per cent RH, 70F; c) drying at 250F and conditioning for 10 days at 95-100 per cent RH, 95F.

The test data are given in Appendix II. The dust concentration tests were analyzed and indicated that the superiority reported by Union Carbide of [illegible] over standard Thermobestos and the experimental pan cast blocks submitted to them is subject to question. The results also indicated that the plate dust composition, 2-12, 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 relative 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 hardness of the formulas investigated.

AU3081

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PROJECT NO. 7 11

INDUSTRIAL HYGIENE EVALUATION AND SURVEY

Date 7-11 [illegible] Time [illegible] Project Asbestos Insulation [illegible]

Department [illegible] Location [illegible] Bldg. No.

Requested by _____ Reason Survey

General Conditions: [illegible]

Sampling Method and Equipment [illegible]

Shift: Day ___ Eve. ___ Mid ___ No. Employees ___ Sampled by [illegible]

Sample Number	Zone	Sampling Time-Min.	Flow Rate	CONCENTRATION		
				[illegible]	[illegible]	[illegible]
1		11	2 L	1.1	<0.1	<0.25
2		11	2 L	1.0	0.6	1.5
3		11	2 L	1.1	0.8	2.0
4		11	2 L	1.1	0.2	0.5

Special Conditions

[illegible]

Calculation:

[illegible]

Remarks: [illegible]

Watch - See Reverse Side. Reference No. 7JND 45 Analyzed by [illegible] Date [illegible]

3082

PLANT 54 PROJECT NO

INDUSTRIAL HYGIENE EVALUATION AND SURVEY

Date 4-13-66 Time 10.00 am Project Dust in Air (Asbestos Insu

Department Maintenance Location 2nd floor (north end) Bldg

Requested by Survey Reason Determination of Concentrat

General Conditions: 3" blocks (2" x 6") being cut (sewed) by application.

Sampling Method and Equipment midget impinger containing 10 dist. water. Uni Jet Sampler

Shift: Day ___ Eve. ___ Mid ___ No. Employees 5 Sampled by HHK-C

Sample Number	Zone	Sampling Time-Min.	Flow Rate L/min	CONCENTRATION- c/cft	Count	f/cc 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 an as per Outline of Operation in first Semi. Another em cutting nearby inter

Ditto

Ditto

Calculation:

$$\frac{\text{Net Count} \times 10 \times 250 \times 10^3}{1.0 \times 10^6} = \text{f/cc PCF}$$

Remarks:

Sketch - See Reverse Side. Reference No. 6JND10 Analyzed by J. Sexton

AU3083

PARTICULATE MATTER IN AIR

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

Plant-wide Survey - Plant 514

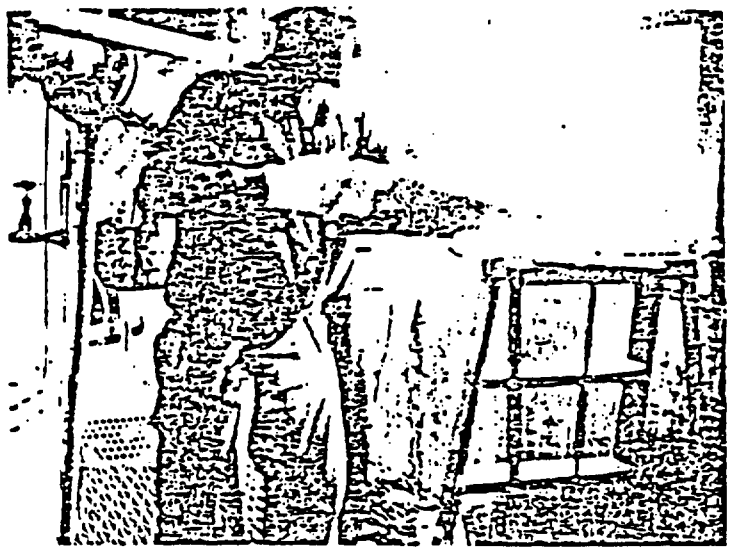


Figure 1. Sawing block sections. Breathing zone level air sample being collected in the background.

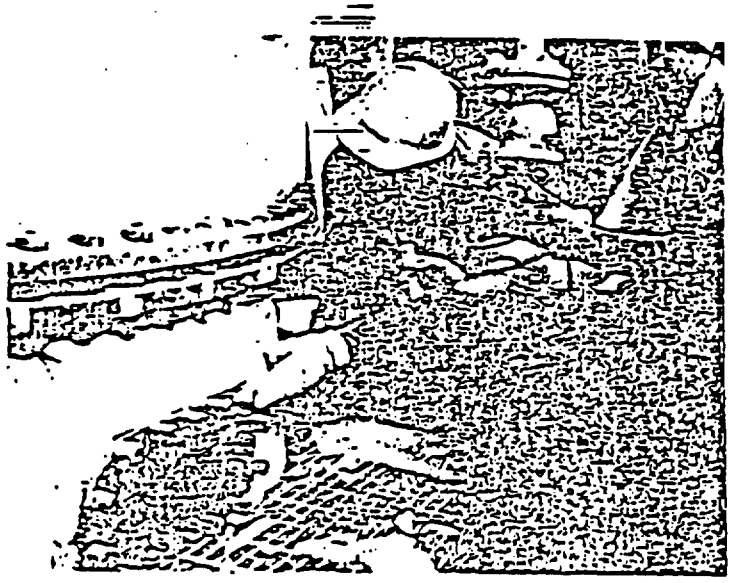


Figure 2. Applying insulation block. Breathing zone level air sample being collected in the foreground.

BLK

AU3084

TABLE I

PARTICULATE MATTER IN AIR

Dust Breathed by Employees While Cutting and Installing "Zaylo" Insulation

Date	Sample Number	Sampling Conditions at Breathing Level	Number of Employees	Dust Count MPPCF (1)
11-18-64	1	5-min. cutting, 5-min. application inside building	2	3.1
	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
2-18-65	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	7.5
	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

A03085

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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 Poole, Robert E., Letter dated February 12, 1960 - The University of Michigan School of Public Health.

2. Poole, R. E., Industrial Hygiene Survey - Construction Insulation Shop, Building 511-2018. Report 62-IH-1-G-1 (March 21, 1962).

A03081

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Friday, February 8, 1963

39th day – 326 days follow

WENT STRAIGHT TO S. CHARLESTON @ 7:30 TO CHANGE DUST

(1) COUNTED ALL SAMPLES RECEIVED ON THURSDAY

(2) CALLED DON MAHONEY & SET UP NEW DUST SURVEY FOR WEEK OF 2-18-63 TO CHECK PLANT THEN RICHMOND LATER

(3) TALKED TO HERB KAUFMAN

LEFT @ 6:00 & WENT TO INSTITUTE TO PICK UP DATA FOR DUST CHART

File X-9
10-7-81 MCF

AO 30 87

P-10
9-9-?
I.G.

Part 10

P-10

Tuesday, March 12, 1963

71st day – 294 days follow

Arr 7:30 Ply

1) Called Tom Higgins for Cost Info on Aqueous Waste Incineration but Got No Answer.

2) Called Golden Hinton for Cost Info. on Service Maintenance but Got No Answer

3) Talked to Tillman Nelson Reflection on AIHA Result

4) Went to Tech Center for Tie Tok Meeting with Bob Murray and Creation of CD Hodges on S. Charleston Waste Disposal Dump Problem. Finished Meeting & Lunch & Ate @ Cafeteria. Then Met with Nelson – Filled Him In On Meeting & Discussed AIHA Reflection.

5) Returned to Plant & Met with Ed Slauer To Obtain Info. on Vinyl Poundage & Cubage. Dispose Material – Also Sent Copy of Form Per Info to Doug Bess

6) Discussed Visit To Chicago on Bird Problem with Dave Steinmetz – To Go Tomorrow

7) Saw Howard Combs About Vapor Problems 3 D.O.P. & Questioned Him About Possible Substitution of Different Type of Plastic.

8) Talked to Hilb. Thurman About Resins & Put Check with Purchasing Dept

AU3088