

1 IN THE CIRCUIT COURT OF THE 11TH
2 JUDICIAL CIRCUIT IN AND FOR DADE
COUNTY, FLORIDA

3 GENERAL JURISDICTION DIVISION

4 No. 86-28655-CA-19

5 PAUL KAY and SYLVIA KAY,
6 his wife,

7 Plaintiffs,

8 vs.

9 PITTSBURGH CORNING
10 CORPORATION, etc., et al.,

11 Defendants.
12 ----- x

13 Second Floor
14 100 Southeast 4th Street
Miami, Florida
15 Monday, April 27, 1987
16 10:05 a.m. - 2:45 p.m.

17 VIDEOTAPE DEPOSITION OF JAMES P. VERHALEN

18
19 Taken before KENNETH SELLINGER, Notary Public in
20 and for the State of Florida at Large, pursuant to a
21 Re-Notice of Taking Deposition filed in the above
22 cause.
23
24
25 -----

RECORDED
JUN 09 1987
REGISTRE

H. ALLEN BENOWITZ & ASSOCIATES, INC.



1 Minerals Products were completely free of asbestos?

2 A. Yes.

3 Q. When was that, please, sir?

4 A. 1971.

5 Q. And when did U.S. Minerals take steps to
6 free its products of asbestos? When did that work
7 start?

8 A. Our first development work on non-asbestos
9 products was in the middle 1960's, '64-65.

10 Q. How long does it take to develop--how long
11 did it take, at that time, to develop an asbestos free
12 product, sir?

13 A. The product development is a bit easier
14 for the acoustical and thermal insulating products.

15 For the fireproofing products, there is a
16 substantially longer time required in order to do fire
17 testing and to get the required approvals in order to
18 market a fireproofing product.

19 In general, a year or more for the less
20 complex products; and generally a couple of years,
21 normally, for a fireproofing product.

22 Q. What about the public--when I say "the
23 public"-- Strike that.

24 What about the marketing acceptance of
25 non-asbestos products, sir? What can you tell us about

1 orientation towards commercial hi-rise buildings.

2 And, essentially, the products were
3 designed to satisfy that market; and the skills of our
4 people were in that market area.

5 We were remarkably unsuccessful in
6 marketing to any other markets.

7 Q. Are your products that used asbestos, are
8 they spray only?

9 A. They were spray applied only.

10 Q. So, anything in a drywall or a
11 cementitious form would not be a U.S. Minerals'
12 product; is that correct?

13 MR. ERICKSON: Objection. (10:57 a.m.)

14 THE WITNESS: No.

15 BY MR. WELCHER:

16 Q. What would basically be the way that the
17 U.S. Minerals' product would be applied?

18 A. Well, the CAPCO products are spray
19 applied.

20 U.S. Minerals made other products from
21 mineral wool only generally for house insulation.

22 Q. Okay. I am now limiting my questions only
23 to the asbestos products.

24 Sir, did you ever make asbestos products--
25 when I say "you," I am referring to U.S. Minerals--for

1 paints?

2 A. No.

3 Q. How about thickeners, lacquers, anything
4 of that nature?

5 A. No.

6 Q. Did you ever have any dealings with
7 Associated Paint & Plastics?

8 A. No.

9 Q. Violet Paint Company?

10 A. No.

11 Q. Federal Paint Company?

12 A. No.

13 Q. Apco Paint Company?

14 A. No.

15 Q. Gypsum Paint Company?

16 A. No.

17 Q. Okay. If I enumerated more paint
18 companies, would the answer be the same; that is,
19 basically did-- Strike that. Would your answer be the
20 same?

21 A. The answer would be the same.

22 MR. ERICKSON: I object to that question.

23 (10:58 a.m.)

24 BY MR. WELCHER:

25 Q. Okay. Did you ever sell any asbestos

1 product as a binder for paints to anybody that you are
2 aware of?

3 A. We did not make any asbestos product.

4 And the blended product that we made
5 designed for spraying would be remarkably
6 unsatisfactory as a filler or binder in paint.

7 Q. And does U.S. Minerals have a record of
8 the distributors that its products were directed to,
9 its asbestos containing products that it was
10 distributed to in the 1950's and the 1960's?

11 A. Yes.

12 Q. Would that be in Florida as well as other
13 states?

14 A. Yes.

15 Q. Have you had an opportunity to review them
16 in connection with the activities and companies that
17 Mr. Kay contends that he came in contact with or was
18 exposed to or utilized asbestos producing products?

19 A. Yes.

20 Q. Do you find that there is any correlation
21 between any of them, sir?

22 A. None whatever.

23 Q. How about pipefitters and boilers? Was
24 U.S. Minerals' products used in pipefitting or in
25 boilers?

1 A. Well, pipe covering--
2 Q. Pipe covering is what I am trying to refer
3 to.
4 A. No. The spray applied product would not
5 be suitable for that application.
6 Q. Okay. Where primarily was U.S. Minerals'
7 products utilized, the asbestos producing products?
8 A. Well, substantially more than ninety
9 percent of our products were used as coating on
10 structural steel and steel floor decks of hi-rise
11 buildings for fireproofing the steel members and the
12 steel deck.
13 Q. Okay. Did you ever make a mastic called
14 Dum-Dum?
15 A. No.
16 Q. Did you ever hear of it?
17 A. No.
18 Q. Your product bore the designation CAPCO?
19 A. Correct.
20 Q. Are you aware whether or not there was a
21 product called Kaylo, K-a-y-l-o, which may have been
22 utilized by someone other than U.S. Minerals-- Strike
23 the question.
24 Did U.S. Minerals ever utilize a product
25 called Kaylo?

1 A. No.

2 Q. Was the CAPCO product marketed or sold
3 under that trade name in the years 1940 through 1947?

4 A. No.

5 Q. Have you been involved in the marketing,
6 substantially in the marketing of the CAPCO line of
7 products for the U.S. Minerals since their inception?

8 A. I have.

9 Q. Okay. In the marketing of the CAPCO line
10 of products in the period of time that they were
11 marketed through the United States only and limited to
12 the asbestos products-- What period of time would they
13 cover, first of all?

14 A. From 1954 until 1971.

15 Q. All right. That, if my mathematics are
16 correct, is some seventeen years.

17 A. Correct.

18 Q. In that seventeen years, sir, those
19 products were marketed--and when I say "those
20 products," I mean the CAPCO line of products that
21 contained asbestos--what would you estimate would be
22 the amount of net sales you made in those seventeen
23 years?

24 A. Including rather important sales to
25 Canada, Europe--

1 Q. No, I am just talking about the U.S.

2 A. Worldwide, including sales to Canada and
3 Europe, it approximated seven million dollars.

4 Q. In seventeen years?

5 A. In seventeen years, cumulatively.

6 Q. How do you characterize U.S. Minerals'
7 share of the market at that time as it pertained to
8 asbestos?

9 A. Negligible.

10 Q. Are you satisfied from the documents that
11 you have reviewed that U.S. Minerals had no involvement
12 or connection with any product that it manufactured
13 containing asbestos which may have either been
14 utilized, sold to or which Mr. Kay may have come in
15 contact with from reviewing his deposition and answers
16 to interrogatories and your listing?

17 MR. ERICKSON: Objection. (10:58 a.m.)

18 THE WITNESS: I see no connection
19 whatever.

20 MR. WELCHER: You may inquire.

21 (Discussion off the record.)

22 CROSS EXAMINATION

23 BY MR. ERICKSON:

24 Q. Mr. Verhalen, you have been in the
25 asbestos construction business since 1954, as the chief

1 officer of U.S. Minerals Products; correct?

2 MR. WELCHER: Objection. (11:05 a.m.)

3 THE WITNESS: Yes.

4 BY MR. ERICKSON:

5 Q. And the main product which contained
6 asbestos during the time frame of 1954 to 1971 was a
7 product line called CAPCO; was it not?

8 A. Yes.

9 Q. And this included what we described as a
10 sprayed on fireproofing product that goes on the steel
11 beams of various hi-rise structures?

12 A. Yes.

13 Q. And it also included acoustical products
14 that were sprayed on the ceilings of various hi-rise
15 structures?

16 A. They would not normally have been used on
17 a hi-rise building.

18 Q. But it was not unusual for you to
19 manufacture an acoustical ceiling product?

20 A. A minor part of our business was an
21 asbestos containing acoustical spray.

22 Q. From the period of 1954 to 1971, your
23 CAPCO product contained asbestos or at least some of
24 the CAPCO products contained asbestos; did they not?

25 A. Some of them did, yes.

1 Q. And, in fact, your biggest seller during
2 this time frame was a product called Blaze Shield; was
3 it not?

4 A. Yes.

5 Q. And that contained about thirty percent
6 asbestos; didn't it?

7 A. Up until 1965, yes.

8 Q. And it still contained in the twenty to
9 thirty percent range, did it not, right up to 1970 or
10 1971 when you took asbestos out of that product?

11 A. The Blaze Shield Type D, which was a
12 second general product, contained a lesser quantity;
13 and I think you are about right at twenty percent
14 Chrisotile asbestos.

15 Q. And during this time frame you
16 manufactured other products, one I believe was called
17 Power Shield; was it not?

18 A. Yes.

19 Q. And another product called Heat Shield?

20 A. Yes.

21 Q. And prior to the split of the three
22 products, you manufactured a product called CAPCO
23 Spray?

24 A. The original product was CAPCO Spray.

25 Q. And all of these products sort of stemmed

1 A. I have.

2 Q. Have you also had an opportunity, at my
3 request, to review the answers to interrogatories from
4 Mr. Kay where he describes product identification and
5 places where he came in contact with asbestos?

6 A. I have.

7 Q. Have you had an opportunity to review U.S.
8 Minerals' distribution of its products that contained
9 asbestos during the period of time that U.S. Minerals
10 distributed and sold products containing asbestos?

11 A. Yes.

12 Q. Have you found any correlation between any
13 of the places that Mr. Kay talks about in his
14 deposition or in answers to his interrogatories and in
15 the places that U.S. Minerals sold and distributed its
16 product to?

17 A. None whatever.

18 Q. Sir, did U.S. Minerals ever distribute its
19 products to shipyards in Jersey or New York or anywhere
20 as far as shipyards are concerned?

21 A. No.

22 Q. Can you tell us why not?

23 A. Our entire CAFCO orientation is
24 architectural orientation where our technical people,
25 our product designers, our sales people all have an

1 Milwaukee, Wisconsin; was then, in about 1949, made
2 plant manager.

3 About 1950, assumed also the sales and
4 marketing responsibilities for the Midwest.

5 And then in 1952, with the re-organization
6 of the company, I moved to Stanhope, New Jersey, after
7 the South Milwaukee plant was closed.

8 During 1952, I was made vice-president and
9 a director; was promoted to executive vice-president,
10 oh, in the late 1950's.

11 And in 1967, as I recall, was made
12 president of United States Minerals.

13 Q. Sir, are you familiar and have you been
14 familiar since your association with U.S. Minerals with
15 the lines of products manufactured by U.S. Minerals
16 that contain asbestos?

17 A. Yes.

18 Q. When did U.S. Minerals start manufacturing
19 the line of products containing asbestos?

20 A. In 1954.

21 Q. And did those products have a particular
22 name?

23 A. They were marketed under the CAPCO trade
24 name.

25 Q. And did there come a time when U.S.

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APPEARANCES:

**BLATT & FALES,
By CHARLES ERICKSON, ESQ.,
on behalf of Plaintiffs.**

**LIPMAN & WEISBERG, P.A.,
By DAVID M. LIPMAN, ESQ.,
on behalf of Plaintiffs.**

**HENRY W. JEWETT, II, ESQ.,
on behalf of the Defendants.**

**KARL SANTONE, P.A.,
By BRIAN S. KEIP, ESQ.,
on behalf of Combustion Engineering.**

**SHUTTS & BOWEN,
By EDMUND T. HENRY, III, ESQ.,
on behalf of Kaiser Refractories.**

**WELCHER & CLARK,
ROGER G. WELCHER, ESQ.,
on behalf of U.S. Minerals.**

ALSO PRESENT:

VICKI SMITH, Legal Assistant.

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I N D E X

Witness	Direct	Cross	Red.	Rec.
James P. Verhalen				
By Mr. Welcher	5	--	118	--
By Mr. Erickson	-	18	--	136

EXHIBITS

PLAINTIFFS'

FOR IDENTIFICATION

⁸ No. 2	33
x No. 3	35
x No. 4	39
x No. 5	47
x No. 6	57
x No. 7	60
x No. 8	70
x No. 9	76
x No. 10	80
x No. 11	84
x No. 12	89
x No. 13	91
x No. 14	93
x No. 15	95
x No. 16	100
x No. 17	105
x No. 18	106
x No. 19	108
No. 20	110
No. 21	116
No. 22	139

1 A. James P. Verhalen. My address is Box 186,
2 Stanhope, New Jersey.

3 Q. And your position, please?

4 A. Chairman of the board of directors of
5 United States Mineral Products Company.

6 Q. How long have you enjoyed that position,
7 sir?

8 A. About two and a half years.

9 Q. And your residence--legal residence is in
10 New Jersey?

11 A. It is.

12 Q. Is the business office of U.S. Minerals
13 located in New Jersey?

14 A. Yes.

15 Q. Is that the only office and state in which
16 it does business?

17 A. No. We have operations also in Alabama
18 and Indiana and California.

19 Q. All right.

20 And, sir, how long have you been with U.S.
21 Minerals Company?

22 A. Since 1948.

23 Q. Could you tell us the positions that you
24 have occupied since 1948 with U.S. Minerals Company?

25 A. I started as plant engineer in South

1 MR. WELCHER: Objections will be made
2 simply with the word "objection" unless they are
3 anything other than form; in which case we
4 will--if anyone wants an explanation, if he'll
5 raise his hand, we'll stop the tape and go off
6 the record.

7 MR. ERICKSON: And by saying "objection,"
8 we will be allowed at a later date to inform the
9 person of what the form of the objection is,
10 unless they ask you at that specific time that
11 they want an explanation of the impropriety of
12 the form.

13 MR. WELCHER: Correct. Anything else will
14 be stated specifically.

15 THE COURT REPORTER: This is Videotape
16 No. 1.

17 For identification purposes, my name is
18 Kenneth Sellinger, Shorthand Reporter and Notary
19 Public for the State of Florida at large.

20 Our video technician is John Palma.

21 We are here today for the purpose of
22 videotaping the deposition of James Verhalen at
23 the River Parc Hotel, 100 Southeast 4th Street,
24 Miami, Florida, on Monday, April 27, 1987,
25 commencing at approximately 10:50 a.m., in the

1 case styled Paul Kay and Sylvia Kay vs.
2 Pittsburgh Corning Corporation, et al., pending
3 in the Circuit Court of the Eleventh Judicial
4 Circuit in and for Dade County, Florida, Case
5 No. 86-28655.

6 At this time, would counsel please state
7 your appearances for the record?

8 MR. WELCHER: Roger G. Welcher of the
9 offices of Welcher & Clark, representing U.S.
10 Minerals Company.

11 MR. ERICKSON: Charles Erickson of the
12 offices of Blatt & Fales, representing the
13 plaintiffs.

14 MR. LIPMAN: David Lipman of the offices
15 of Lipman & Weisberg, representing the
16 plaintiffs.

17 Thereupon--

18 JAMES P. VERHALEN
19 was called as a witness by the Defendants and, having
20 been first duly sworn, was examined and testified as
21 follows:

22 DIRECT EXAMINATION

23 BY MR. ERICKSON:

24 Q. Sir, for the record, would you give us
25 your full name and business address?

1 that as pertaining to U.S. Minerals?

2 A. Well, generally there was a resistance to
3 non-asbestos products until the late sixties and early
4 seventies.

5 Most architectural specifications required
6 asbestos in the product.

7 Q. How did they go about requiring asbestos
8 in the product? How did that take place, sir?

9 Was there specifications or contracts
10 requiring it or what do you mean by that?

11 A. Well, the particular architectural
12 specifications described the product they wanted used;
13 and the typical architectural specifications required
14 asbestos in the product.

15 Q. How did U.S. Minerals from 1954 to 1969 or
16 '70 conduct its operation, the modus operandi?

17 Did it sell to retailers or did it sell to
18 the public or how did it go about that?

19 A. Our only sales of CAPCO products were to
20 licensed contractors.

21 Q. And why was that, sir?

22 A. There were a number of business reasons.

23 Our principal concern had to do with the
24 quality of application, so that we could be sure that a
25 responsible contractor remained responsible to install

1 the correct thicknesses, the correct densities and
2 following our application recommendations.

3 Q. Did you intend or expect U.S. Minerals
4 Products to be used by the general public in the form
5 they came from the manufacturer?

6 MR. ERICKSON: Objection. (10:53 a.m.)

7 THE WITNESS: No.

8 BY MR. WELCHER:

9 Q. How would you go about shipping the U.S.
10 Minerals product containing asbestos that you
11 manufactured?

12 A. Well, we had only one plant in Stanhope,
13 New Jersey, during that period. All orders were
14 received in Stanhope.

15 The orders were received from our licensed
16 contractors. He would specify the products that he
17 wanted to receive and the destination to where it was
18 to be shipped.

19 Q. Is this product in the form so that it
20 could be used by someone other than a licensed
21 contractor at the time that it was shipped?

22 A. These products were all designed for spray
23 application and required specialized spray machinery in
24 order to use them.

25 Q. Did the product require specialized

1 training to be used?

2 A. Yes.

3 Q. Who would give that training?

4 A. We provided that service out of our
5 Research & Development Department--had a section that
6 we called Technical Service; and the technicians from
7 that department would provide the contractor training.

8 Q. Did you expect or intend that the general
9 public would be able to utilize the product in the form
10 that it came from the manufacturer?

11 MR. ERICKSON: Objection. (10:54 a.m.)

12 THE WITNESS: Never.

13 BY MR. WELCHER:

14 Q. To your knowledge, was the product sold to
15 anyone other than your licensed applicators?

16 A. No.

17 MR. ERICKSON: Objection. (10:54 a.m.)

18 MR. WELCHER: What is the basis for the
19 objection?

20 MR. ERICKSON: The question is leading.

21 (Discussion off the record.)

22 BY MR. WELCHER:

23 Q. Sir, at my request, have you had an
24 opportunity to review the deposition of Mr. Paul Kay
25 and Sylvia Kay?

1 from the product called CAPCO Spray?

2 A. They were modifications of the original
3 CAPCO Spray product, yes.

4 Q. And they all contained in the range of
5 twenty to thirty percent asbestos; did they not?

6 A. Generally, yes.

7 Q. And in 1971, you took asbestos out of
8 CAPCO Blaze Shield; didn't you?

9 A. Well, the first introduction was in late
10 '69 of an asbestos free CAPCO Blaze Shield Type D.

11 Q. Your principal--correct me if I am wrong,
12 but I believe your previous testimony indicates that up
13 until 1971 you were producing a CAPCO with asbestos.

14 A. In decreasing quantities following the
15 introduction of the non-asbestos product.

16 In early 1970, the volume moved towards
17 the asbestos free and away from the asbestos containing
18 product.

19 Q. Is it correct that the first major job in
20 the United States you did with an asbestos free Blaze
21 Shield product was the World Trade Center in New York
22 City?

23 A. Yes.

24 Q. And, in fact, weren't the first few floors
25 of the World Trade Center sprayed with a product that

1 contained asbestos?

2 A. They were.

3 Q. You were able to spray the completion of
4 that building with a non-asbestos containing product in
5 1971; weren't you?

6 A. Starting very early in 1970.

7 Q. So, in 1970, you were able to spray the
8 World Trade Center with a non-asbestos containing
9 product?

10 A. Yes.

11 Q. Would you agree with me that it would be
12 hard for a lay person to tell the difference from an
13 asbestos product on the first floors and the non-
14 asbestos products on the rest of the building?

15 A. In general for a lay person, yes.

16 Q. The products look about the same; don't
17 they?

18 A. Yes.

19 Q. And your asbestos free product has the
20 same fire rating as the product which you made which
21 contained asbestos; does it not?

22 A. There were some minor differences in fire
23 rating, but not of consequence.

24 Q. Now, prior to the World Trade Center being
25 constructed-- I believe at the time that it was

1 constructed, it was the largest building in the
2 country; was it not?

3 A. Yes.

4 Q. And I take it it surpassed the Empire
5 State Building, which I believe had been the largest
6 building in the country.

7 A. If you mean the tallest, I think that is
8 correct; not the largest.

9 Q. All right. We'll go with the tallest
10 skyscraper.

11 As I remember, it was the Empire State
12 Building and then that was passed by the World Trade
13 Center.

14 A. Yes.

15 Q. And, of course, the Empire State Building
16 is a pretty old building?

17 A. Yes.

18 Q. Somewhere between the construction of the
19 World Trade Center and the Empire State Building, there
20 was developed in America what was called a sprayed
21 mineral fiber fireproofing industry; was there not?

22 A. I think the sequence is reversed. I
23 believe the Empire State Building was built first.

24 The original spray fiber product was one
25 developed in England, a product called Linput.

1 It is my recollection that that product
2 line goes back to the late twenties or the 1930's.

3 Q. Now, that product is a little bit
4 different than the product that you make; isn't it?

5 A. Different only in the respect that it is
6 entirely asbestos and binders; it contains no mineral
7 fiber.

8 Q. And your product contains what is called a
9 mineral fiber or mineral wool?

10 A. Our product is essentially a mineral wool
11 product that had asbestos added.

12 Q. In 1954, it was a mineral wool product?

13 A. Correct.

14 Q. And in 1971, it was a mineral wool
15 product?

16 A. Well, understand that in 1971, we marketed
17 both asbestos free and asbestos containing products.

18 Q. I am talking about your asbestos free
19 products in 1971.

20 A. It was a mineral wool product.

21 Q. In fact, didn't you increase the mineral
22 wool when you took the asbestos out of the product?

23 A. Yes.

24 Q. Now, you will agree again during this time
25 frame from 1954 to 1971, that a lot of hi-rise

1 structures throughout America were sprayed with
2 products similar to your CAPCO product?

3 A. When you say "similar to our CAPCO
4 product"--there were many competing products, both
5 sprayed fiber and cementitious, yes.

6 Q. Okay. But pretty much both of those
7 products, the sprayed fiber and the cementitious,
8 generally contained asbestos; did they not?

9 A. To the best of my knowledge, yes.

10 Q. And your company was actively competing in
11 this fireproofing market during this time period in
12 1954 and, in fact, right on up into the present?

13 A. Yes.

14 Q. And when you started in 1954, your company
15 didn't have very much in the way of sales; did you?

16 A. No, we did not.

17 Q. And you went out and actively sought this
18 fireproofing market?

19 A. That's correct.

20 Q. And you marketed products right here in
21 Florida; is that not correct?

22 A. We sold some products in Florida, yes.

23 Q. And you will agree with me that during the
24 time frame when these asbestos containing products were
25 produced, there were a lot of buildings built in

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1 Florida--for instance, hotels in Miami and office
2 buildings in Miami where your product may have been
3 sprayed?

4 MR. WELCHER: Objection. (11:15 a.m.)

5 THE WITNESS: Hotels and condominiums are
6 generally concrete structures for which there is
7 no requirement for fireproofing.

8 Office buildings in Florida are most all
9 concrete and get no fireproofing.

10 It is rare that we get a hi-rise steel
11 structure in Florida that requires fireproofing.

12 BY MR. ERICKSON:

13 Q. Is it not true that your company marketed
14 about \$300,000 worth of CAPCO products in the State of
15 Florida during the time frame that you are talking
16 about?

17 A. Over that seventeen-year period, that
18 would be the high side of my estimate, yes.

19 Q. And some of your principal applicators
20 were located down here in Miami, Florida; weren't they?

21 A. No.

22 Q. Have you ever heard of a company by the
23 name of Lotspiech?

24 A. Yes.

25 Q. Are they an applicator of U.S. Minerals

1 Products?

2 A. They are. I just wouldn't call them "a
3 principal applicator."

4 Q. They do apply your product; is that not
5 correct?

6 MR. WELCHER: Objection. (11:16 a.m.)

7 THE WITNESS: They did; and, I believe,
8 they still are a customer.

9 BY MR. ERICKSON:

10 Q. And there is another company operating
11 down in the Miami area called Florida Insulation &
12 Fireproofing Company; is that correct?

13 A. Yes.

14 Q. And they also had a license with U.S.
15 Minerals Products to apply the CAPCO line of products;
16 did they not?

17 A. Yes.

18 Q. And I believe you mentioned that there was
19 another product in Florida called Acousti Engineering.

20 A. Another company.

21 Q. Another company?

22 A. Yes.

23 Q. And they had a license to apply your CAPCO
24 product in Florida; did they not?

25 A. Yes.

1 Q. And you will agree with me that you can't
2 tell for sure exactly where all of these various
3 applicators applied your product; can you?

4 MR. WELCHER: Objection. (10:58 a.m.)

5 THE WITNESS: I think I've indicated to
6 you that we know most all of the places where
7 our product was installed.

8 BY MR. ERICKSON:

9 Q. I believe we talked a little bit about
10 this earlier today and it is the case that sometimes
11 these applicators had warehouses; did they not?

12 MR. WELCHER: Objection. You're talking
13 about Florida? (11:16 a.m.)

14 THE WITNESS: Some of the contractors in
15 Florida had warehouse capability, yes.

16 BY MR. ERICKSON:

17 Q. And occasionally you would ship your
18 product to the warehouses; wouldn't you?

19 A. Occasionally.

20 Q. And if a product went to a warehouse and
21 not to a job site, there wasn't really any way for you
22 to tell where the product went after that; was there?

23 A. That's correct.

24 Q. So you will agree with me that there are
25 buildings in Florida which contain your product which

1 you don't know about?

2 MR. WELCHER: Objection. (11:17 a.m.)

3 THE WITNESS: That possibility exists,
4 yes.

5 BY MR. BRICKSON:

6 Q. Now, from 1954 right on through the
7 sixties, this fireproofing market was an expanding
8 market in America; wasn't it?

9 A. It was an expanding market in different
10 geographic areas.

11 Some markets, particularly the southern
12 markets, were characteristically concrete markets, not
13 steel markets; and there was a relatively small
14 potential for fireproofing in the southern markets.

15 Q. I believe you stated on your direct
16 examination that you sold--your company, U.S. Minerals
17 Products, sold almost seven million dollars worth of
18 asbestos containing products during the time period of
19 1954 to 1971.

20 MR. WELCHER: Objection. Not qualified as
21 to all states. (11:18 a.m.)

22 THE WITNESS: That was worldwide sales.
23 There was a substantial part outside of the
24 United States.

25 Over the seventeen-year period,

1 cumulatively, yes.

2 BY MR. ERICKSON:

3 Q. And all during this time frame, you were
4 the chief officer of U.S. Minerals Products Company; is
5 that not correct?

6 A. I was the chief operating officer, yes.

7 Q. You basically ran the show?

8 A. Yes.

9 Q. That included the time that you were vice-
10 president and the time that you were president?

11 A. Yes.

12 Q. And now you are chairman of the board?

13 A. Yes.

14 Q. And it was certainly not in your interest
15 during these years that the fireproofing market all of
16 a sudden collapsed?

17 A. We were so small a factory, I think we had
18 no influence whatever on that market.

19 Q. Let's put it this way: If that market
20 came to a sudden halt, U.S. Minerals Products would
21 have been severely affected; would they not?

22 A. No.

23 Q. Are you telling me that it was not a major
24 part of your business?

25 A. It was not a major part of our business

1 ever.

2 Q. Selling the CAPCO product line was never a
3 major part of your business?

4 A. Ever.

5 We are talking now about the asbestos
6 containing products.

7 Q. Were you concerned during the period 1970
8 on up through 1975 when health questions were raised
9 about asbestos that it might affect your company's
10 sales?

11 MR. WELCHER: Objection time-wise. (11:19
12 a.m.)

13 THE WITNESS: I'm not sure I understand
14 the question in terms of your meaning of the
15 word "concerned."

16 Even though this may have been a smaller
17 part of our total company business, I think one
18 would have a concern for each element of his
19 business.

20 The point I made earlier is that this,
21 during that period of time, was never a major
22 part of the company's business.

23 BY MR. ERICKSON:

24 Q. Mr. Verhalen, I would like, if you would,
25 to please review a document along with me which is a

1 March 3, 1966 letter.

2 MR. WELCHER: I'm not going to permit it
3 to be underlined and then review it.

4 If you have an unmarked copy, you can let
5 him look at that, but not that marked copy.

6 BY MR. ERICKSON:

7 Q. If you would, please--here is a copy of
8 that March 3, 1966 letter. I would like you to review
9 it along with me.

10 Would you agree with me that this is a
11 letter authored by you to Mr. D. T. Colton, as general
12 manager of Johns-Manville International Corporation?

13 A. It is. I just haven't had a chance to
14 read it yet.

15 (Witness reading.)

16 A. Yes.

17 Q. Would you agree with me that the subject
18 matter of this letter was some publicity that was being
19 raised with regard to the asbestos hazard?

20 MR. WELCHER: Excuse me. Before we do
21 that, may we have this marked, Mr. Reporter?

22 MR. ERICKSON: I think if we can, we can
23 agree to use the exhibit markers that are
24 already on here.

25 MR. WELCHER: I would prefer to have it

1 marked as a separate exhibit.

2 (Thereupon, Plaintiffs Exhibit No. 2 was
3 marked for identification.)

4 BY MR. ERICKSON:

5 Q. Would you agree with me that the document
6 which has listed down there in the corner an exhibit
7 sticker that was just handed to you is a Johns-
8 Manville--a document that you wrote to Johns-Manville
9 concerning asbestos dust publicity in the 1960's?

10 A. In 1966, and I believe I wrote this as the
11 president of the Sprayed Mineral Fiber Manufacturers
12 Association; and it was an expression in the interest
13 of the industry.

14 Q. And that, of course, is an industry in
15 which U.S. Minerals Products participated in; did it
16 not?

17 A. That's correct.

18 MR. WELCHER: Objection on the grounds
19 that it is outside the scope of direct
20 examination. (11:24 a.m.)

21 BY MR. ERICKSON:

22 Q. I would like you to please read to the
23 jury the second paragraph of what you state in this
24 document.

25 MR. WELCHER: Objection to your entire

21
1 line of questioning. It is outside the scope of
2 direct. (11:24 a.m.)

3 THE WITNESS: The second paragraph reads:

4 "Publicity of this sort can have a serious
5 adverse effect on the sprayed mineral fiber
6 industry, as well as other industries in which
7 your asbestos products are used."

8 BY MR. ERICKSON:

9 Q. If you would go on and read the next
10 paragraph.

11 A. (Reading)

12 "We are very much concerned to know what
13 action your company and the entire asbestos
14 industry might take to counteract this
15 publicity, and we ask specifically what
16 information or help our Association might obtain
17 in order to rebut or at least minimize the
18 unfavorable impression created by this article."

19 Q. Thank you, Mr. Verhalen.

20 I want to show you another letter dated
21 just about the same time.

22 If you would please review that.

23 MR. WELCHER: Would you mark it first,
24 please?
25

1 (Thereupon, Plaintiffs' Exhibit No. 3 was
2 marked for identification.)

3 BY MR. ERICKSON:

4 Q. This letter is also referring to the
5 publicity surrounding asbestos dust; isn't it?

6 MR. WELCHER: Let the witness finish
7 reading it.

8 THE WITNESS: I'm sorry, the question was?

9 BY MR. ERICKSON:

10 Q. The question is: This letter is also
11 about the publicity of the alleged health hazard of
12 asbestos in 1966; is it not?

13 A. Yes.

14 Q. And is it not true that in the last
15 paragraph of the document you state--

16 And this is a document written by you; is
17 it not?

18 A. Yes.

19 Q. And, again, this is as president of the
20 Sprayed Mineral Fiber Manufacturers Association, a
21 position you held in 1966; is that correct?

22 A. Yes.

23 Q. And you write in the last paragraph of
24 this document, do you not:

25 "The critical importance of this matter

70
1 need hardly be stressed. Your prompt attention
2 will be appreciated."

3 MR. WELCHER: Objection to the line of
4 inquiry.

5 All the questions pertaining to it are
6 outside the scope of direct. (11:27 a.m.)

7 THE WITNESS: Yes.

8 BY MR. ERICKSON:

9 Q. Would you agree with me that you were at
10 least concerned about the effect of publicity on
11 asbestos was having on the sprayed mineral fiber
12 industry?

13 A. Well, I think perhaps could have
14 eventually an effect, yes.

15 Q. Thank you.

16 And it is true that the CAPCO line of
17 products essentially were a sprayed mineral fiber
18 product line; was it not?

19 A. That's correct.

20 Q. Mr. Verhalen, I believe you described in
21 your direct examination that your involvement or U.S.
22 Minerals Products' involvement in the sprayed mineral
23 fiber industry was negligible--was that the word you
24 used?

25 A. In the sprayed fireproofing industry, it

1 was negligible.

2 Q. Is it not true that your company had
3 approximately forty percent of the market of those
4 companies which participated in the sprayed mineral
5 fiber industry?

6 MR. WELCHER: Objection. Outside of the
7 scope of direct. (11:29 a.m.)

8 THE WITNESS: You're talking now about our
9 asbestos containing product, and you're talking
10 now about only those members of the Sprayed
11 Fiber Association which together represented a
12 very minor part of the total fireproofing
13 industry.

14 BY MR. ERICKSON:

15 Q. Well, I am going to hand you a document.
16 Have you ever heard of a company called
17 Spraycraft?

18 A. Yes.

19 Q. And, in fact, Spraycraft was manufactured
20 by a company called Smith & Cansler in the 1960's; was
21 it not?

22 A. Spraycraft is both the trade name and a
23 company name.

24 Q. Spraycraft Product was a sprayed mineral
25 fiber product that competed against your CAPCO product

1 in the 1960's; didn't it?

2 A. Yes.

3 Q. And I believe that one of the principal
4 people at Spraycraft was a person by the name of Dr.
5 Lieff?

6 A. That's correct.

7 Q. And in 1969 or thereabouts, the Spraycraft
8 Company was bought, purchased by a company known as
9 Philip Carey; was it not?

10 MR. WELCHER: Objection to this whole line
11 of questioning. It is outside the scope of
12 direct.

13 So, I don't have to make it each time, it
14 is understood that I'm objecting to the entire
15 line of questioning. (11:30 a.m.)

16 THE WITNESS: I believe the Spraycraft
17 Company was sold before 1969, but I'm not sure
18 just what the date is.

19 BY MR. ERICKSON:

20 Q. That might be correct, but somewhere in
21 there it was sold to the Philip Carey Company; was it
22 not?

23 A. Some time after 1965 it was sold to the
24 Philip Carey Company.

25 Q. Have you ever heard of a man called A. P.

34
1 Mueller who worked with the Philip Carey Company?

2 A. No.

3 Q. I'm going to hand you here a document
4 which is from the Spraycraft Company discussing the
5 general industry.

6 And I would like you to take a look at it,
7 if you would.

8 We may be able to speed it up. I'm only
9 interested in a part of that on the third page.

10 (Discussion off the record.)

11 (Thereupon, Plaintiffs' Exhibit No. 4 was
12 marked for identification.)

13 BY MR. ERICKSON:

14 Q. Mr. Verhalen, you have now had a chance to
15 review a 1970 document that was created by one of your
16 competitors; have you not?

17 A. Yes.

18 Q. And would you agree with me that this
19 document characterizes the fireproofing industry, at
20 least as seen through the eyes of one of your
21 competitors?

22 A. It characterizes it, but I consider it
23 quite inaccurate.

24 Q. Would you please read to the jury the
25 first three paragraphs of Page 5, right on down through

1 CAPCO--

2 MR. WELCHER: We're going to object to
3 this because of the fact that the witness is not
4 the promulgator of the document, has not seen it
5 before, and it is outside the scope of direct
6 questioning. (11:40 a.m.)

7 THE WITNESS: And further does not believe
8 it at all to be accurate. The first three
9 paragraphs.

10 "The Sprayed Mineral Fiber Manufacturers
11 Association member producers probably account
12 for seventy percent of mineral fiber type market
13 which it is estimated to have an annual sales
14 volume of \$2,500,000 to three million dollars
15 depending on the level of business.

16 "The other non-member mineral fiber
17 producers such as Sprayed-On, Sealtite, et al.,
18 account for the remaining thirty percent.

19 "The annual sales volume of the non-
20 fibrous, wet applied, cementitious type is
21 estimated to be on the order of two million
22 dollars and is sold by W. R. Grace, CAPCO and
23 other small producers.

24 "The SMPMA producers of the mineral wool
25 type product, product names, compositions, et

1 cetera, are as follows: CAFCO, produced by U.S.
2 Minerals Wool of Stanhope, New Jersey (J.
3 Verhalen, president) accounts for about forty
4 percent of the Association market."

5 MR. ERICKSON: That's all I need for you
6 to read.

7 MR. WELCHER: He reads the entire
8 paragraph or not at all.

9 MR. ERICKSON: Go ahead.

10 THE WITNESS: (Reading)

11 "Product consists of mineral wool,
12 asbestos and binders."

13 MR. WELCHER: Again we renew our
14 objection.

15 It is inaccurate and it is not promulgated
16 by this witness, and outside the scope of
17 direct. (11:42 a.m.)

18 BY MR. ERICKSON:

19 Q. Mr. Verhalen, would you agree with me that
20 plasterers were not the only people who applied your
21 product?

22 MR. WELCHER: Objection to the form--
23 objection. (11:43 a.m.)

24 THE WITNESS: No, I would not agree with
25 you.

1 BY MR. ERICKSON:

2 Q. Do you recall having had your deposition
3 taken in a prior case; I believe it was Idella Kennell
4 vs. Pfizer, Inc., and various other defendants?

5 MR. WELCHER: He is not going to answer
6 the question unless he is first given the
7 deposition and give an opportunity to review it
8 and counsel for U.S. Minerals has an opportunity
9 to review it.

10 Otherwise, we are not going to permit it
11 (11:44 a.m.)

12 (Discussion off the record.)

13 BY MR. ERICKSON:

14 Q. Mr. Verhalen, we were discussing a
15 deposition which you had given previously at which--

16 You had been deposed on several occasions
17 in the past; have you not?

18 A. Yes.

19 Q. And a deposition is your sworn testimony
20 under oath; is it not?

21 A. Yes.

22 Q. Would you please read to the jury starting
23 on Page 77 the question and answer given which I have
24 highlighted there?

25 MR. WELCHER: That is not proper

1 impeachment.

2 You have to ask him first if he remembers
3 hearing the question and giving the answer, and
4 give him an opportunity to explain. That is the
5 way it is done down here.

6 BY MR. ERICKSON:

7 Q. Okay. Mr. Verhalen, do you remember this
8 deposition which you gave previously?

9 A. I do.

10 Q. And do you remember being asked the
11 question:

12 "Q. My question to you, sir, is what
13 other trades other than plasterers applied your
14 product?"

15 A. That's not what I recall your question to
16 be.

17 MR. WELCHER: Wait until he finishes and
18 reads the answer.

19 BY MR. ERICKSON:

20 Q. Mr. Verhalen, do you remember having
21 answered that question in the past?

22 A. I remember having answered that question,
23 but I think it is different from the question that you
24 raised earlier when we were talking about fireproofing.

25 Q. That's fine.

1 Well, just go ahead; and if you would--was
2 not your answer to this question:

3 "Carpenters, insulators, painters, and
4 non-union trades"?

5 A. My answer was in that deposition and here
6 today that fireproofing is essentially always installed
7 by plasterers.

8 Q. I understand that.

9 A. You do.

10 Q. But some of your other CAPCO products were
11 installed by other trades; were they not?

12 A. That's correct. Maybe I misunderstood
13 your question.

14 But I know of no case where a fireproofing
15 job, which is a hi-rise, major construction--I know of
16 no case where it is a non-union job and I know of no
17 case where any trade other than the plasterers is used
18 for spraying fireproofing.

19 Q. But more to the point, you do know of
20 cases where other products were applied by other
21 trades?

22 A. Thermal installations on smaller jobs
23 might be put on by non-union people or carpenters or
24 insulators--and acoustical products because they are
25 relatively small jobs--might be put on by non-union

1 people or by painters or by insulators.

2 Q. In fact, according to your testimony back
3 in this deposition, it often times was painters who
4 would apply acoustical products; was it not?

5 A. When you say "often times," the painters
6 trade would be used if there was texturing.

7 By that I mean a very thin coat would be
8 put on by a painter.

9 If there was an acoustical specification
10 and the coating was generally more than a quarter inch
11 thick, and it had to meet an acoustical specification,
12 it was quite probably put on by a plasterer.

13 The painters only put on very thin coats;
14 usually without an architectural specification.

15 Q. Now, you will agree with me that your
16 Sound Shield product was put on by painters on
17 occasion?

18 A. I said it might have been.

19 Q. Mr. Verhalen, let's talk a little bit
20 about the disease known as asbestosis, if we can.

21 There is a man in your organization by the
22 name of Frank Stumpf; is there not?

23 A. Yes.

24 Q. And he has been with you all the way back
25 to 1954 or even a little earlier than that; has he not?

1 A. '54 is when Frank joined the company.

2 Q. And Frank's job back then was vice-
3 president of Research, I believe.

4 A. Well, I don't know when he received the
5 office of vice-president.

6 It was several--a number of years after he
7 joined the company, but he organized and headed up our
8 research activity.

9 Q. And he has headed up that activity from
10 1954 right on up to the present; has he not?

11 A. Yes.

12 Q. And, of course, Mr. Stumpf was aware of
13 the disease asbestosis; was he not?

14 A. I think we, as I said earlier, had that
15 word in our vocabulary and understood it to be
16 impairment or illness that might result from long
17 exposure to large quantities of asbestos dust, usually
18 in relationship to an asbestos milling or asbestos
19 manufacturing operation.

20 Q. Now, Mr. Stumpf, before he came to work
21 for your company, worked for one of your competitors or
22 a product that competed with you that was produced by
23 the National Gypsum Company called Thermacoustic.

24 A. Yes.

25 Q. And a Thermacoustic product is a sprayed

47
1 mineral fiber product that contained asbestos much like
2 the CAPCO products made in the fifties; was it not?

3 A. It was quite different.

4 Q. Okay. It was a spray applied asbestos
5 containing product; was it not?

6 A. It was.

7 Q. I would like for you to please take a look
8 at a research report that Mr. Stumpf wrote while he was
9 working for National Gypsum Company on the
10 Thermacoustic product.

11 (Discussion off the record.)

12 (Thereupon, Plaintiffs' Exhibit No. 5 was
13 marked for identification.)

14 THE WITNESS: I don't believe anybody can
15 read all of this document.

16 MR. WELCHER: Based upon that statement, I
17 am not going to permit interrogation on it.

18 BY MR. ERICKSON:

19 Q. Okay, Mr. Verhalen, I want to talk about
20 Mr. Stumpf.

21 You will agree from looking at this
22 document that it is a research report that he wrote in
23 1949, when he was working at National Gypsum Company.

24 That is pretty clear from the document; is
25 it not?

1 A. I understand that, yes.

2 Q. And you know that Mr. Stumpf was doing
3 research, by reading this document, on various matters
4 about Thermacoustic.

5 And one of those things was something
6 called asbestos floats.

7 A. I know asbestos floats to be the very fine
8 powdered asbestos, yes.

9 Q. And they are really short fibers. That is
10 what an asbestos float is; is it not?

11 A. A real short fiber.

12 Q. So the jury understands, asbestos comes in
13 different size fibers and asbestos floats are the
14 smallest.

15 A. That's correct.

16 Q. And by that very nature, they also happen
17 to be the dustiest?

18 A. That's correct.

19 Q. And on the third page of Mr. Stumpf's
20 research report--and correct me if you can't read this
21 part--but he has a recommendation to the National
22 Gypsum Company.

23 And the recommendation says:

24 "The floats should be removed from the
25 formula, since the increase in dust, and the

1 possibility of asbestosis, outweigh the slight
2 increase in surface smoothness."

3 MR. WELCHER: Don't answer the question.
4 I am not permitting questions on the document
5 unless the document is legible in its totality.
6 (12:03 p.m.)

7 BY MR. ERICKSON:

8 Q. Mr. Verhalen, assume that Mr. Stumpf told
9 National Gypsum Company back in 1949 that the floats
10 should be removed from the Thermacoustic formula since
11 the increase in dust and the possibility of asbestosis
12 outweighed the slight increase in surface smootherness.

13 You would agree with me that Mr. Stumpf
14 was having some concern, not only about the mining and
15 milling of asbestos, but the actual application of
16 sprayed mineral fiber which contained asbestos floats.

17 MR. WELCHER: Objection to the form and
18 instruct him not to answer as it calls for
19 speculation about what is in another person's
20 mind when he wrote a memo, not being employed by
21 that company.

22 You don't answer it. (12:04 p.m.)

23 BY MR. ERICKSON:

24 Q. It is not exactly speculation what I am
25 talking about in this 1949 document; is it, Mr.

1 Verhalen?

2 MR. WELCHER: Don't answer that.

3 BY MR. ERICKSON:

4 Q. You have had a chance to review this 1949
5 document on many occasions in the past; have you not?

6 MR. WELCHER: Don't answer that.

7 MR. ERICKSON: Let me note an objection
8 for the record.

9 We are in here doing a proof deposition.
10 There is absolutely no reason in the world why
11 Mr. Verhalen cannot testify about this document.
12 He has seen it on many occasions and reviewed it
13 in the past.

14 He has given extensive testimony about
15 this document in the past. He knows what the
16 document says. (12:04 p.m.)

17 MR. WELCHER: He has indicated he can't
18 read it.

19 MR. ERICKSON: The document is clear as to
20 the matters which are important here today.

21 MR. WELCHER: Legible copy, we will be
22 glad to let him testify to the document.

23 No legible copy, no testimony.

24 MR. ERICKSON: Don't you believe that that
25 ought to be an opinion for the Judge as this is

1 the only copy here?

2 If the Judge believes that the copy is
3 illegible, he can certainly strike the testimony
4 as being inappropriate.

5 MR. WELCHER: I am not going to read this
6 document which he indicated is not readable in
7 its entirety.

8 BY MR. ERICKSON:

9 Q. Mr. Verhalen, can you read this portion of
10 the document which has been highlighted here?

11 MR. WELCHER: That's the same question,
12 asking him to take a portion of the document
13 without knowing the entire document.

14 I am not going to permit him to answer.

15 MR. ERICKSON: We can talk about that
16 portion of the document. There's no problem
17 with that.

18 MR. WELCHER: There is as far as my
19 concern. I am not going to permit him to do it.

20 Get a complete legible copy of the
21 document and he'll talk about anything you want
22 in the document.

23 Without a legible copy, he is not going to
24 talk about it or any portion of it. Unfair to
25 the witness.

1 BY MR. ERICKSON:

2 Q. Mr. Verhalen, let's move on to 1956.

3 At this point in time, Mr. Stumpf had
4 joined your company; had he not?

5 A. Yes.

6 Q. And I believe a James L. Kempthorne also
7 worked for your company in 1956; did he not?

8 A. No.

9 Q. James L. Kempthorne was, in some way,
10 associated with your company; was he not?

11 A. He was a consultant. He did not work for
12 us.

13 Q. He consulted with your company in 1956?

14 A. He did, yes.

15 Q. And in 1956, your company applied for a
16 patent with the United States Patent Office regarding a
17 process known as "pneumatic conveying"; did it not?

18 A. I don't remember the specific patent, but
19 there were, during those years, several patent
20 applications.

21 Q. Now, you will agree with me that your
22 CAPCO product is applied through a process called
23 "pneumatic conveying"; is that a correct statement?

24 A. Yes.

25 Q. And the transfer of particles from one

1 place to another through the air, that is essentially
2 what pneumatic conveying means; is it not?

3 A. Air conveyed, yes.

4 Q. You sent particles through the air from
5 Point A to Point B?

6 A. Yes.

7 Q. And would you agree with me that ever
8 since 1955, going right on up through the present, that
9 this process of pneumatic conveying is dusty in nature,
10 and the only real question is how much dust will be
11 associated with it?

12 MR. WELCHER: That's two questions in one.
13 Don't answer it the way it is phrased. (12:08
14 p.m.)

15 MR. ERICKSON: Let me rephrase the
16 question.

17 BY MR. ERICKSON:

18 Q. Will you agree with me, going back from
19 1955 to the present, that this product is, by its very
20 nature, a dusty process?

21 MR. WELCHER: When you say "this product,"
22 do you mean the CAPCO asbestos or CAPCO non-
23 asbestos or both?

24 MR. ERICKSON: I will rephrase the
25 question a third time.

1 BY MR. ERICKSON:

2 Q. Would you agree with me, going back from
3 1955 to the present, that this process of pneumatic
4 conveying is, by its very nature, a dusty process?

5 A. Pneumatic conveying is done within a hose.
6 Within the hose, whether or not there is dust, is not a
7 matter of concern. It is only the effect when the
8 product leaves the hose that causes a concern.

9 But it is not necessarily dusty because of
10 pneumatic conveying.

11 Q. Well, let's just talk more generally.

12 Spraying your product on to a steel beam
13 or a ceiling structure has--was a dusty process in the
14 fifties; was it not?

15 A. There was present some dust in varying
16 degrees, yes.

17 Q. And this dust has represented a limitation
18 on your product going back all the way from the 1950's
19 all the way up to the present; has it not?

20 A. It was an objection on the part of the
21 mechanics using it, yes.

22 Q. And because of this objection, your
23 company over time has taken some steps to cut down on
24 the dust if they could?

25 A. We worked on a continuing effort to reduce

1 the dust present on spraying after the material left
2 the hose.

3 Q. But even today there is some dust
4 associated with your product; is there not?

5 A. Even today there is some dust.

6 Q. Would you agree with me in 1956 there was
7 a whole lot of dust associated with your product?

8 MR. WELCHER: Objection to "whole lot."

9 (12:10 p.m.)

10 THE WITNESS: The answer is that it
11 depends on the rate on which the spraying would
12 take place. It depends on the velocity leaving
13 the hose. It depends on the type of blower that
14 was used for pneumatic conveying. It depends on
15 the type of nozzle used, the quantity of water
16 that was atomized, the quality of atomization,
17 the ratio of fiber to water--a whole number of
18 things impact on the appearance of dust in
19 pneumatic conveying.

20 BY MR. ERICKSON:

21 Q. And not all those things are in your
22 control?

23 In fact, a lot of those things are in the
24 control of the applicator; is that not correct?

25 MR. WELCHER: That's two questions in one.

1 Would you rephrase it? Objection to the
2 form.

3 Don't answer it. It is two questions in
4 one. (12:12 p.m.)

5 BY MR. ERICKSON:

6 Q. Is it not true that a lot of the things
7 that you just mentioned can't be controlled by U.S.
8 Minerals Products?

9 A. A lot of the elements impacting on dust
10 are controllable only by the contractor in the field,
11 yes.

12 Q. Now, in 1956 I believe you mentioned your
13 company applied or was given a patent with regard to
14 this pneumatic conveying process regarding the dust
15 applied by your--created by your product in
16 application; was it not?

17 MR. WELCHER: Objection. (12:12 p.m.)

18 THE WITNESS: I believe we received
19 patents in this area.

20 BY MR. ERICKSON:

21 Q. I would like for you to please review this
22 1956 United States patent.

23 MR. WELCHER: Again, this has underlining.

24 Do you have--

25 MR. ERICKSON: Those are underlinings

1 which came from the document as it was found in
2 the ordinary course of business in U.S. Minerals
3 Products' files.

4 MR. WELCHER: Okay. Mark it, Mr.
5 Reporter.

6 MR. ERICKSON: Stop the video for a
7 second.

8 (Discussion off the record.)

9 (Thereupon, Plaintiffs' Exhibit No. 6 was
10 marked for identification.)

11 BY MR. ERICKSON:

12 Q. Mr. Verhalen, you have now had a chance to
13 review the exhibit from the United States Patent
14 Office.

15 A. I have scanned it, yes.

16 Q. Now, are you aware that there are certain
17 areas of this exhibit which have been underlined--is
18 that not correct?

19 A. Yes.

20 Q. And is that your understanding, that this
21 exhibit was found in the U.S. Minerals Products' files
22 with those areas already previously underlined?

23 A. If you say so, I presume so.

24 Q. Do you know who did that underlining?

25 A. I have no idea.

1 Q. Would you please read to the jury the
2 portion that is underlined in the first paragraph
3 there?

4 A. On the left-hand side?

5 Q. That's correct.

6 MR. WELCHER: Start with the beginning of
7 the sentence.

8 THE WITNESS: (Reading)

9 "In fact, so much dust is normally
10 encountered in pneumatic spraying of light
11 weight particles that the dust problem is a
12 serious health hazard and production problem and
13 has considerably hampered the use of the
14 pneumatic conveyor system for spraying particles
15 in many applications for which it would be
16 otherwise well suited."

17 BY MR. ERICKSON:

18 Q. Thank you, Mr. Verhalen.

19 Now, in 1956, I ask if you recollect
20 having--

21 MR. WELCHER: Excuse me.

22 Before we go into that, would you also
23 read the next paragraph down there along with
24 it?

25 THE WITNESS: (Reading)

1 "The present invention overcomes these and
2 other deficiencies of the prior art by providing
3 a novel apparatus and method for use in
4 pneumatic spraying of light weight particles
5 though a conveyor; more particularly described
6 below and illustrated in the accompanying
7 drawings."

8 BY MR. ERICKSON:

9 Q. Now, Mr. Verhalen, you will agree with me
10 that your product at this time, at least Mr. Stumpf
11 states in this patent application, had inherent dust
12 creating a serious health hazard; did he not?

13 MR. WELCHER: Objection to the form.

14 (12:18 p.m.)

15 THE WITNESS: Well, I would suggest that
16 this patent had application way broadly beyond
17 even just the spraying of our own products.

18 It was contemplated that any dust in an
19 excessive quantity would be a health hazard, any
20 dust, any nuisance dust in an excessive quantity
21 would be a health hazard.

22 This was a very general preamble for a
23 patent application or a patent that had a wide
24 diversity of applications, had nothing
25 specifically to do with asbestos.

1 BY MR. ERICKSON:

2 Q. Well, it wasn't very long after this
3 application that your company became aware of health
4 hazards, if they did not know previously, specifically
5 related to asbestos dust.

6 A. We've approached all dust as a matter of
7 concern, a matter of practical concern; but all dust,
8 even nuisance dust in excessive quantity, is going to
9 prevent a person from operating efficiently.

10 Q. Well, let's talk a little bit about
11 asbestos dust.

12 I want you to review a document dated
13 December 23, 1957. It was sent to Mr. Stumpf by an
14 industrial hygiene engineer.

15 I believe you have seen this document
16 previously; have you not?

17 MR. WELCHER: First, would you mark it,
18 Mr. Reporter?

19 (Thereupon, Plaintiffs' Exhibit No. 7 was
20 marked for identification.)

21 MR. WELCHER: Secondly, it is addressed to
22 Mr. Stumpf.

23 Have you seen this document before or did
24 you get a copy of it?

25 THE WITNESS: I have seen it in connection

1 with other depositions.

2 MR. WELCHER: Did you get a copy of it at

3 the time?

4 THE WITNESS: No.

5 BY MR. ERICKSON:

6 Q. Mr. Stumpf is again the man who is in

7 charge of your Research Department; was he not?

8 A. Yes.

9 Q. And this document was sent to your

10 company, was it not, to Mr. Stumpf in that position?

11 A. Yes.

12 Q. And if you read along with me, doesn't it

13 state that this industrial hygienist--first he thanks

14 you for a previous letter which gave the composition of

15 CAPCO.

16 MR. WELCHER: Objection. He doesn't thank

17 him, he thanks Mr. Stumpf. (12:20 p.m.)

18 BY MR. ERICKSON:

19 Q. He thanks Mr. Stumpf; does he not?

20 A. Yes.

21 Q. And you have seen that whole series of

22 documents before; haven't you?

23 MR. WELCHER: Objection to the form.

24 (12:20 p.m.)

25 THE WITNESS: I believe I have.

6-
1 BY MR. ERICKSON:

2 Q. So, you were aware that this industrial
3 hygienist had previously written Mr. Stumpf, and Mr.
4 Stumpf had written him back and said:

5 "Our product contains several ingredients, and
6 one of those is asbestos"?

7 MR. WELCHER: Objection to the form.

8 Pre-supposes he was aware at the time of
9 this letter writing of previous correspondence.
10 The witness has not so indicated. (12:21 p.m.)

11 THE WITNESS: My knowledge about this has
12 come recently as in connection with various
13 depositions.

14 BY MR. ERICKSON:

15 Q. If you would please read to the jury what
16 the industrial hygienist says in the first paragraph.

17 MR. WELCHER: Don't do that because it is
18 not addressed to you.

19 If you want to publish the entire letter
20 to the jury, go ahead.

21 There is no showing that the witness had
22 any dealings with it at the time.

23 Don't read it.

24 MR. ERICKSON: Well, he is the chief
25 executive officer of the company.

1 MR. WELCHER: You haven't established that
2 he had knowledge of it at the time.

3 MR. ERICKSON: Well, if you want to
4 withdraw your objection after this--this is the
5 reply to that and you will notice that it is
6 carbon copied to Mr. Verhalen.

7 MR. WELCHER: Yes, I will withdraw my
8 objection.

9 You can read the first paragraph, if you
10 want, of that letter.

11 BY MR. ERICKSON:

12 Q. Would you please read that paragraph?

13 A. It says:

14 "Dear Mr. Stumpf:

15 "Thanks very much for your letter of
16 September 17, 1957, giving us the composition of
17 your CAFCO Spray.

18 "My interest in this material originated
19 when I saw a company applying this material to a
20 ceiling and noticed that considerable dust was
21 present.

22 "From my observations of the material, I
23 concluded that some asbestos was present; and
24 knowing of the possible harmful effects on the
25 lungs from breathing asbestos, I wrote you the

1 letter inquiring about the composition of this
2 material."

3 Q. Now, Mr. Verhalen, you are familiar with
4 what an industrial hygiene engineer is; aren't you?

5 A. I know the kind of work they do.

6 MR. WELCHER: Excuse me. Would you read
7 the next paragraph, too?

8 MR. ERICKSON: We will get into that. You
9 will have a chance to cross examine.

10 MR. WELCHER: I think, in fairness, if you
11 want a paragraph read, we are going to read the
12 next paragraph.

13 MR. ERICKSON: Well, I am-- Excuse me.

14 MR. WELCHER: I am not going to permit
15 these to be read--

16 MR. ERICKSON: Objection. (12:23 p.m.)

17 MR. WELCHER: --unless we read the entire
18 amplifying paragraph.

19 Read it--"I suspect"--

20 MR. ERICKSON: I have a right to cross
21 examine this witness in any manner that I want.
22 You can come back and do your redirect on this
23 witness and read any paragraph of the letter
24 that you want.

25 MR. WELCHER: It is going to be read at

68
1 the time or it is not going to be published in
2 the form of having him read a paragraph which is
3 misleading without the other one.

4 MR. ERICKSON: We will come back and talk
5 about the other one.

6 It is fine with me if you just read the
7 whole document to the jury, if you would like.

8 MR. WELCHER: I just want him to read that
9 paragraph.

10 BY MR. ERICKSON:

11 Q. Mr. Verhalen, we have decided that in the
12 interest of making sure that the jury fully understands
13 this document, it would be best for you to read the
14 whole document to the jury.

15 A. I have read the first paragraph.

16 MR. WELCHER: Start with the second.

17 THE WITNESS: (Reading)

18 "As industrial hygiene engineers, we need
19 to know the extent of the hazards so that we can
20 recommend proper medical and engineering
21 controls and prevent the dispersion of dust into
22 the atmosphere which would be in the breathing
23 zone of the man applying the material.

24 "We are well aware of the relatively inner
25 nature of mineral wool.

1 "I suspect that the percentage of asbestos
2 in the total mix is relatively small, but we
3 would like to know the percentage of asbestos in
4 this mix so that we can recommend the proper
5 medical and engineering controls.

6 "We have in mind the recommending of a
7 physical examination and chest X-ray for men
8 exposed to dust from this material, if the
9 asbestos content is high enough to justify such
10 a recommendation.

11 "Will you therefore give us additional
12 information on this material? Any information
13 which you give us will be kept confidential and
14 used only from an industrial hygiene point of
15 view.

16 "Very truly yours."

17 BY MR. ERICKSON:

18 Q. Now, we were discussing exactly what an
19 industrial hygiene engineer was before this.

20 Are you familiar with industrial hygiene
21 engineers?

22 A. Generally, yes.

23 Q. And you would agree that Mr. Lange here--
24 part of his job as an industrial hygiene engineer is to
25 go out and review sites for the people that he is

1 insuring to see if there are any safety problems?

2 A. I would think so.

3 Q. And it is pretty clear from this letter
4 that he was reviewing the problem--or an application,
5 excuse me, of your CAFCO Spray.

6 A. That is what he represents, yes.

7 Q. He wants to know the extent of the hazard
8 so he can recommend what safety precautions ought to be
9 taken while this material is being applied; is that not
10 correct?

11 MR. WELCHER: Objection as to form.

12 "Extent of the hazard," pre-supposing there is a
13 hazard. (12:26 p.m.)

14 BY MR. ERICKSON:

15 Q. I mean, isn't that what he states there in
16 the first sentence of the second paragraph:

17 "As industrial hygiene engineer, we need
18 to know the extent of the hazards so that we can
19 recommend proper medical and engineering
20 controls"?

21 A. Reason would tell me he wants to know the
22 potential.

23 Q. And he tells you in this document pretty
24 clearly that he understands mineral wool is an inert
25 product and he is not concerned with the hazards

1 connected with mineral wool spraying?

2 A. That's correct.

3 Q. But it is also pretty clear that he is
4 concerned about asbestos; isn't he?

5 A. Yes.

6 Q. And he wants to know the exact percentage
7 of asbestos so that he can determine what procedures
8 and controls ought to be implemented; is that correct?

9 A. I am presuming that that is what he wants
10 from the way that his letter is coached, yes.

11 Q. Then it says:

12 "We would like to know the percentage of
13 asbestos in this mix so that we can recommend
14 the proper medical and engineering controls."

15 That's what the letter states; isn't it?

16 A. Yes. He is not asking for the type of
17 asbestos or certain other data that he ought to ask for
18 in order to make a full evaluation.

19 Q. And he does talk about wanting to know
20 this so that he can recommend the proper procedures,
21 and they would include things such as physical
22 examinations and chest X-rays? Is that not what the
23 letter states?

24 MR. WELCHER: Objection. The letter will
25 speak for itself. It is the best evidence.

1 I think we are getting beyond the scope,
2 not only of direct, but of what the letter
3 contains.

4 Don't answer. The best evidence is the
5 letter. (12:28 p.m.)

6 BY MR. ERICKSON:

7 Q. Mr. Verhalen, does the letter not state
8 that he has in mind recommending physical examinations
9 and chest X-rays depending on the amount of asbestos
10 you tell him is in your product?

11 MR. WELCHER: Objection. The best
12 evidence is the letter. This is repetitious.

13 Don't answer it. (12:28 p.m.)

14 MR. ERICKSON: It is not repetitious.

15 MR. WELCHER: It has been published to the
16 jury. It has been read and it is self-
17 explanatory. It says what it says. Objection.
18 The best evidence is the letter.

19 Don't answer any further. It says what it
20 says. (12:28 p.m.)

21 BY MR. ERICKSON:

22 Q. Mr. Verhalen, he states in that letter
23 that he is going to keep that information confidential
24 and will only use it for an industrial hygiene point of
25 view; does he not?

1 A. That's what the letter says.

2 MR. WELCHER: Same objection. (12:28

3 p.m.)

4 BY MR. ERICKSON:

5 Q. Mr. Verhalen, did your company tell Mr.
6 Lange in 1957 the percentage of asbestos that was
7 contained in your product?

8 A. I don't believe we told him the exact
9 percentage in our product.

10 Q. What did you tell Mr. Lange about the
11 asbestos content of your products?

12 A. Well, you have a subsequent letter here.

13 Q. Would you read to the jury the first
14 paragraph?

15 MR. WELCHER: Let's mark it first.

16 (Thereupon, Plaintiffs' Exhibit No. 8 was
17 marked for identification.)

18 MR. WELCHER: I will object to the
19 editorial "you" since it was written by Mr.
20 Stumpf and not by Mr. Verhalen. (12:29 p.m.)

21 THE WITNESS: Your question again?

22 BY MR. ERICKSON:

23 Q. My question is: Would you please read to
24 the jury what you told Mr. Lange about the content of
25 asbestos in your product.

1 MR. WELCHER: Objection. It is not what
2 he told-- (12:30 p.m.)

3 BY MR. BRICKSON:

4 Q. "You" being U.S. Minerals Products.

5 A. The reply to Mr. Lange's letter confirms
6 his view that the asbestos content in CAPCO Spray is
7 relatively small.

8 It also went on to explain the factors
9 that caused dust and to indicate that respirators are
10 available from our company, the type supplied with the
11 applicator equipment, and suggesting what our
12 recommendations for respirators was.

13 Q. And, in fact, isn't it true that ten years
14 later in 19--nine years later in 1966, you got another
15 request from a person in a similar position and you
16 told him that the asbestos content in your product was
17 relatively small, too--"you" being U.S. Minerals
18 Products.

19 A. Well, this was essentially a mineral wool
20 product, not an asbestos product. A mineral wool
21 product to which asbestos and binders had been added.

22 So, essentially, in terms of description,
23 you would describe it as a mineral wool product.

24 Q. Isn't it a fact that the product ratio
25 contained approximately thirty percent asbestos?

12

1 A. The Type D down near twenty, the Blaze
2 Shield standard up there near thirty; in that range of
3 twenty to thirty percent.

4 Q. Thank you, Mr. Verhalen.

5 Now, Mr. Verhalen, the dust problems
6 didn't exactly go away with your patent in 1956, the
7 new patented process; did they?

8 A. I think our improvements continued
9 throughout our entire business activities related to
10 this business.

11 Q. Would you agree with me that in 1962 your
12 product was still considered dusty and there was still
13 concerns in 1962 about that being a serious health
14 hazard?

15 A. In 1962, as I recall, we put a warning
16 label on our products relative to the people using the
17 product wanting to use adequate protection.

18 Q. And that warning went on your products
19 some time in May or some time in that area of 1962; is
20 that correct?

21 A. Somewhere between January and May of 1962.

22 Q. And about that time you were discussing
23 the health hazard of your product--"you" being U.S.
24 Minerals Products--with Mr. Noel Henry of the Johns-
25 Manville Company; weren't you?

1 A. Well, the answer is probably.

2 I think that's a discussion that
3 re-occurred several times in our relationship with
4 Johns-Manville as a principal supplier.

5 Q. Isn't it a fact that your company was
6 informed in 1962 that the asbestos component is the
7 most dusty portion of any spray fiber and this can be a
8 serious health hazard?

9 A. That's perhaps too broad a statement to
10 make, but again it depends on the product and the
11 formulation and so forth.

12 But in its broadest general sense, the
13 asbestos dust was a concern, yes.

14 Q. And you were informed in 1962 that it is
15 possible to remove the dust. However, that it was
16 going to cost extra money to remove that dust; was it
17 not?

18 A. I really am not sure we're on the same
19 wavelength. There were different grades of asbestos.

20 Q. That's what I am talking about. Let me
21 give you--

22 A. And the cheapest grade was the dustiest
23 and the most expensive grade was the least dusty. I
24 think that is general knowledge.

25 Q. You were informed in 1962 that by spending

1 a little bit more money and getting a more expensive
2 grade of asbestos, you wouldn't have as much dust
3 associated with your application.

4 Isn't that a fair statement?

5 A. I think that's one approach to it and we
6 could have gone out of the business because we weren't
7 competitive.

8 In business you have to keep a balanced
9 relationship between performance--there were other ways
10 to satisfy the dust problem without adding to the cost
11 of the product and making it non-competitive.

12 Ideally, we would like to have removed all
13 of the asbestos as the most expensive ingredient. If
14 we could have removed it all, we would have saved the
15 most money.

16 Q. But you didn't do that in 1962; did you?

17 A. Could not have sold a pound of product
18 then.

19 Q. We'll talk about that later.

20 But you did not in 1962, when you were
21 informed that asbestos was the most dusty portion of
22 your product, remove asbestos from your product?

23 A. That was not the direction to solve the
24 problem.

25 We solve the problem through process

1 improvement.

2 Q. Now, isn't it a fact that in 1962, about
3 the time you put a warning label on your product, you
4 became aware that lung cancer was at least alleged to
5 have been caused by exposure to asbestos dust?

6 A. I don't recall that so early in the
7 sixties. I recall that in '66 or '67.

8 I don't know that I have any recollection
9 back in the early sixties of that being a generally
10 accepted allegation.

11 Q. Well, now, you had a person in your office
12 by the name of E. W. Fairweather; did you not?

13 A. Yes.

14 Q. And he was in charge of something called
15 National Accounts; was he not?

16 A. Yes.

17 Q. And did he not receive a letter or inform
18 you in 1962 about conversations that he was having with
19 Johns-Manville regarding caution labels?

20 A. We did have communication on that subject,
21 yes.

22 Q. And correct me if I read this incorrectly,
23 but is it not true that Mr. Fairweather says:

24 "Currently, they"--being Johns-Manville--
25 "are a party in a suit by several asbestos

1 workers who claim lung cancer was aggravated by
2 the asbestos materials with which they work."

3 If you would, please review this
4 document--

5 MR. WELCHER: First of all, I need to look
6 at it.

7 Mark it first, Mr. Reporter.

8 (Thereupon, Plaintiffs' Exhibit No. 9 was
9 marked for identification.)

10 MR. WELCHER: Take your time and read it.

11 BY MR. ERICKSON:

12 Q. Mr. Verhalen, was that a fair reading of
13 that sentence of that document?

14 A. There is an indication here that Johns-
15 Manville has got a problem; and that would not have
16 surprised us. They were millers and miners of
17 asbestos.

18 The possibility of there having a plant
19 dust problem was many times ours.

20 And these were only claims. There was no
21 proof, there was no recognition. This was just an
22 acquisition or a claim.

23 Q. You were at least aware in 1962 that
24 people were making claims, at least to Johns-Manville,
25 that their exposure to asbestos was causing lung

1 cancer?

2 That is pretty clear from that document;
3 isn't it?

4 A. That's a representation made to us by one
5 of JM's people, yes.

6 Q. And this was about the time that you did
7 put a warning label on your product?

8 A. The only thing we knew was that the
9 American Conference of Governmental & Industrial
10 Hygienists had fixed a dust level half as high as inert
11 or nuisance dust for asbestos dust.

12 That's what we knew. That's what provoked
13 our putting the warning label on the product.

14 It is relatively more hazardous than
15 mineral wool or cement or plaster or other nuisance
16 dusts.

17 Q. Mr. Verhalen, as we have reviewed a lot of
18 documents already this morning, you will agree with me
19 that in several of those documents there is at least a
20 reference to a serious health hazard from exposure to
21 asbestos.

22 A. To any dust. We treated--and I don't know
23 how to get it across--we treated dust as a hazardous--
24 dust was an objectionable--nuisance dust, asbestos
25 dust--dust was objectionable, and a basic objection to

1 our product.

2 So, our concern was to reduce the dust
3 level, the total dust level, however we could.

4 Q. I understand that. And you were aware
5 that asbestos dust, what you called the "threshold
6 limit value," was lower than that for other dusts.

7 A. As I remember, it was only five million
8 parts; whereas, ten million parts were allowed for
9 cement and plaster and mineral wool and so forth, yes.

10 Q. And at least by 1962, you were aware that
11 claims were being made that cancer could be associated
12 with asbestos dust.

13 A. Well, a claim by workers or employees can
14 often times be sponsored by attorneys and not be
15 sponsored by fact.

16 Q. You didn't perform any internal research
17 at this time with respect to the hazards of asbestos
18 dust; did you?

19 A. Health hazards, no.

20 Q. You didn't have a medical officer on your
21 staff to look into the health hazards of asbestos dust?

22 A. We were just a little company.

23 Q. You didn't make a review of the scientific
24 literature that was available to determine if there was
25 a health hazard associated with asbestos dust; did you?

1 Mark it, please.

2 MR. ERICKSON: This is a portion of the
3 Complaint listing the various manufacturers that
4 are involved in this case.

5 (Thereupon, Plaintiffs' Exhibit No. 10 was
6 marked for identification.)

7 BY MR. ERICKSON:

8 Q. If you would please review the list of
9 manufacturers.

10 Are you familiar with most of those
11 companies listed on that Complaint?

12 A. Most all of them, yes.

13 Q. Do you know any of those companies in 1962
14 that put a warning on their product like yours?

15 A. I know of none that had a label on their
16 product.

17 Q. Okay. Mr. Verhalen, you will agree with
18 me that as the sixties progressed, more and more
19 concerns were raised about lung cancer and its
20 association to asbestos; would you not?

21 A. My recollection in 1966-67 is when
22 publicity was given to the questions raised. That's
23 when it became more generally known.

24 Q. Are you aware that--you have heard of a
25 doctor, of course, called Dr. Irving J. Selikoff; have

1 you not?

2 A. Yes.

3 Q. And it is your understanding that he was
4 the one that was raising this publicity about asbestos
5 dust; wasn't he?

6 A. Yes.

7 Q. And you will agree with me that as this
8 publicity was being raised, U.S. Minerals Products was
9 not oblivious to the whole notion; were you?

10 A. I think we were consciously aware from
11 reading newspapers and magazines, as most people do.

12 Q. In fact, we have already looked at two
13 documents today where you talk about this matter being
14 of great concern to the sprayed mineral fiber industry;
15 is that correct?

16 MR. WELCHER: Objection. (12:49 p.m.)

17 THE WITNESS: We have looked at some
18 documents, yes, sir.

19 BY MR. ERICKSON:

20 Q. And you kept a pretty watchful eye on what
21 the various people in the medical profession were
22 saying at this time about the relationship of
23 inhalation of asbestos dust and the possibility of
24 various cancers being caused; didn't you?

25 A. I don't know how to characterize what you

1 mean by a "watchful eye."

2 We were constantly aware of what was
3 published and sometimes our customers or other trade
4 factors would tell us about what they learned; so that
5 I would say yes, we were aware.

6 Q. And would you agree with me that beginning
7 in 1966 that you kept up with the health reports that
8 Selikoff was publishing out of his Mt. Sinai Hospital?

9 A. I think by then our Sprayed Mineral Fiber
10 Association had been formed and communication with
11 Selikoff and the things he published--that thereafter
12 communications improved, yes.

13 Q. And I believe you will agree with me that
14 his 1964 medical article was, of course, sent to your
15 company, a medical article discussing--technically
16 entitled "Asbestos Exposure and Neoplasia"?

17 MR. WELCHER: Objection. Not quantified
18 as to when it was sent. (12:49 p.m.)

19 BY MR. ERICKSON:

20 Q. Are you aware of receiving that article?

21 A. I have seen it, yes.

22 Q. And I believe you received it in March of
23 1966; does that sound about right?

24 A. That was about the time when I think we
25 received it from Mr. Levine.

1 Let's mark it first.

2 (Thereupon, Plaintiffs' Exhibit No. 11 was
3 marked for identification.)

4 (Discussion off the record.)

5 BY MR. ERICKSON:

6 Q. Mr. Verhalen, have you had a chance to
7 review the medical article from Dr. Selikoff?

8 A. It is five pages of rather detailed
9 medical and statistical information.

10 I have scanned it. I wouldn't profess to
11 say I understand it.

12 Q. Would you agree with me that Dr. Selikoff
13 in 1964 was raising questions about other trades being
14 exposed to asbestos?

15 A. The whole article has a tone about a lot
16 of questions and the need for more study and so forth,
17 yes.

18 Q. Now, you weren't exactly impressed at this
19 time with the work that Dr. Selikoff was doing; is that
20 a correct characterization of how you felt in the
21 sixties?

22 A. I think the asbestos industry was not
23 convinced by the very preliminary work he had done at
24 that time and I was as much influenced, I think, by the
25 broad view of everything that was said.

1 Q. Is it true that you previously
2 characterized Dr. Selikoff's tactics as sort of
3 headline grabbing scare tactics?

4 A. He was seeking funds to do this research
5 and these many added studies and the publicity that he
6 got enabled him to obtain fairly large grants, usually
7 Government grants.

8 And I guess that's an appropriate way to
9 get answers to questions and get funds for studies is
10 to get publicity.

11 And to be sure, he did that quite
12 effectively.

13 Q. And you would agree with me that at least
14 it is your position at this time that no definitive
15 studies had been done?

16 A. I think he describes this work as
17 preliminary and indicates that much more studies is
18 needed; many questions remain unanswered.

19 Q. And you didn't think Selikoff had the
20 answers in 1964?

21 MR. WELCHER: It's getting to be
22 argumentative, Counsel.

23 Don't answer that question any further.

24 (1:06 p.m.)
25

1 Q. Mr. Verhalen, I have a copy of an article,
2 and I guess my question is--I want to read to you the
3 very last paragraph of the article speaking about
4 asbestos fibers. It states:

5 "Asbestos exposure in industry will not be
6 limited to the particular craft that utilizes
7 the material. The floating fibers do not
8 respect job classifications.

9 "Thus, for example, insulation workers
10 undoubtedly share their exposure with their
11 workmates in other trades.

12 "Intimate contact with asbestos is
13 possible for electricians, plumbers, sheetmetal
14 workers, steam fitters, laborers, carpenters,
15 boiler makers and foremans; perhaps even the
16 supervising architect should be included."

17 Now, is that an accurate representation of
18 the article which you received in 1966?

19 MR. WELCHER: You mean, is that what the
20 article says?

21 BY MR. ERICKSON:

22 Q. Is that what the article says, Mr.
23 Verhalen?

24 MR. WELCHER: He is going to have to read
25 it first--the last paragraph.

1 BY MR. ERICKSON:

2 Q. During the time that all of these
3 questions were being raised, your company went about
4 business pretty much as usual?

5 MR. WELCHER: Objection. That is
6 repetitious. (1:07 p.m.)

7 MR. ERICKSON: Could you please explain to
8 me which question that is repeated?

9 MR. WELCHER: It is repetitious of what he
10 has told you they were doing in 1966 when he got
11 the letter.

12 It is repetitious of indicating when they
13 changed their product formulation, what they
14 were doing up to that time.

15 That makes it completely repetitious. You
16 have been harping on this for the past thirty
17 minutes.

18 BY MR. ERICKSON:

19 Q. Did your company wait for Dr. Selikoff's
20 studies to be completed prior to making any
21 recommendations about asbestos?

22 A. No.

23 Q. Did your company take a position about
24 asbestos in 1966 when Dr. Selikoff was raising this
25 publicity?

1 A. In 1962, we put notice on our bags that
2 indicated asbestos was comparatively more hazardous
3 than the other nuisance dusts in our product.

4 Continuously from the time we entered the
5 business, we treated all dusts as a problem.

6 And we constantly, like Dr. Selikoff, from
7 the time we started until today, continued to work on
8 activities within our processing and within the
9 application that continuously reduced the dust levels
10 with the use of our product.

11 Q. Is it fair to say that John O'Rourke--who
12 I believe was a vice-president of sales in your
13 company; is that not correct?

14 A. He was.

15 Q. And he was concerned about the publicity
16 that was being generated in 1966; was he not?

17 A. I think we covered that the publicity had
18 an adverse effect on the entire spray fiber industry,
19 yes.

20 Q. And you were getting questions not only
21 from the Government, but from--excuse me, not only from
22 the press, but from industrial safety divisions of
23 various states and things like that; weren't you?

24 A. There were some such inquiries, yes.

25 Q. And in 1966, is it accurate to say that

1 BY MR. ERICKSON:

2 Q. Let me put it to you this way: You
3 certainly didn't have the answers to the questions he
4 was raising in 1964; did you?

5 A. I don't believe anyone had the answers.

6 Q. And it is your belief or your company's
7 belief that there was a little bit of ambiguity out
8 there raised by the Selikoff studies.

9 A. "Ambiguity" may not be a good word.

10 I think that there are more questions and
11 I think those are Dr. Selikoff's words.

12 I think I heard him correctly in saying
13 there are more questions than there were answers.

14 There was much more study needed before
15 there were definitive answers. I heard him say that
16 myself.

17 Q. Well, isn't it a fact that Dr. Selikoff
18 and the Mt. Sinai Hospital is still studying problems
19 with asbestos?

20 A. That's correct.

21 Q. And he was raising questions in 1964 and
22 hopefully providing some answers; was he not?

23 MR. WELCHER: Objection. It is
24 repetitious.

25 Don't answer it any further. (1:07 p.m.)

1 Mr. O'Rourke, at least, wrote you a letter regarding
2 this problem and he said:

3 "I don't think we should wait until tests
4 are run or test methods are developed since this
5 might take many years.

6 "I feel we have enough information at this
7 time at least to be able to neutralize the minds
8 of some individuals such as the Division of
9 Industrial Safety until more concrete
10 information can be established."

11 If you would please review that document.

12 Was that Mr. Verhalen's or U.S. Minerals
13 Products' position in 1966?

14 MR. WELCHER: First let the witness review
15 a document which you have read only a portion
16 of.

17 I would first like to get it marked.

18 (Thereupon, Plaintiffs' Exhibit No. 12 was
19 marked for identification.)

20 MR. WELCHER: I'm going to object to the
21 question the way it is phrased since the witness
22 hasn't even read the document.

23 After he has read the document, you may
24 ask him any questions you wish if he recognizes
25 the document and identifies it. (1:10 p.m.)

1 THE WITNESS: I have read the document.

2 BY MR. ERICKSON:

3 Q. Mr. Verhalen, is it true that Mr. O'Rourke
4 was telling you that you all couldn't wait around for
5 the results to come in--is that accurate?

6 A. Well, I'm not exactly sure what tests he
7 was referring to and what results he was waiting for.

8 I don't think that has anything to do with
9 waiting for Dr. Selikoff's results to come.

10 If that is what is implied by your line of
11 questioning, I think that has nothing to do with
12 waiting for Dr. Selikoff's studies to be completed.

13 What he is simply saying, I think, is just
14 good business practice. You can't ignore questions
15 that are raised on the subject. They need to be
16 answered.

17 And he is simply suggesting that our
18 counsel, John Boyer, help us formulate a reply.

19 "Don't wait for a lot of data."

20 Q. And you did, in fact, formulate a reply;
21 did you not?

22 A. The industry association developed a safe
23 practices bulletin that embarked on a program of
24 impressing contractors with housekeeping and safety
25 processes of dust control.

1 It undertook a program to reduce the dust
2 levels in the product through process improvements at
3 the time of manufacture and with nozzle and application
4 technique improvements.

5 The entire industry was working in a
6 positive way to reducing total dust levels.

7 Q. Are some of these things--the items that
8 you just mentioned--are they the things that are
9 referred to by Mr. Herbert Levine who was a member of
10 your Association, was he not, in an April (sic) 22,
11 1966 letter addressed to you, among other persons,
12 where he states:

13 "It was determined that the following
14 testing program be set up by the technical
15 committee as quickly as possible, to combat any
16 future developments of repercussion from Dr.
17 Selikoff's previous publicity concerning
18 asbestosis."

19 MR. WELCHER: First let's get the document
20 marked.

21 (Thereupon, Plaintiffs' Exhibit No. 13 was
22 marked for identification.)

23 MR. WELCHER: Let the witness have an
24 opportunity to review it and then he can answer
25 any questions about it.

1 A. No, we did not.

2 Q. And the information that you had regarding
3 warnings and the need--what you have discussed about
4 the threshold value--that was available to everybody in
5 the asbestos industry; was it not?

6 A. Yes.

7 Q. And every one of those manufacturers out
8 there had an opportunity to inspect your bags and see
9 that you put a warning on your bags; didn't they?

10 A. I don't know what others did.

11 Q. Would you agree with me that it was a
12 fairly common practice to every once in a while buy one
13 of your competitor's product to see how it was
14 performing?

15 A. We did that, yes.

16 Q. You wouldn't be surprised to find out that
17 some of your competitors did that, too?

18 A. It is possible.

19 Q. And if they did that, they would have seen
20 that you were putting a warning on your bag in 1962;
21 wouldn't they?

22 A. I presume so.

23 Q. Mr. Verhalen, I would like you to please
24 take a look at what is the Complaint in this action.

25 MR. WELCHER: A portion of the Complaint.

1 BY MR. ERICKSON:

2 Q. Have you had a chance to review the
3 document?

4 A. I have read the document.

5 Q. Is it an accurate statement that Mr.
6 Levine is suggesting that the industry set up, at least
7 undertake some testing to combat some repercussions
8 that the industry was feeling from Dr. Selikoff's
9 publicity?

10 A. Yes. He is proposing that testing be done
11 by the industry as a whole.

12 Q. And, in fact, didn't you go out in 1966
13 and hire an independent consultant by the name of
14 William Bradley to run dust testing on your industry
15 product?

16 A. We did.

17 Q. And the dust testing that Mr. Bradley
18 performed in December of 1966--to your recollection,
19 were those the very first testing that your industry
20 had ever done regarding how much dust was actually
21 being transmitted by your application process?

22 A. I thought it was early '67, but it might
23 have been December of '66. That would have been the
24 right time for this program to be implemented.

25 It was recommended in August, probably

1 approved in September--that would be as quickly as such
2 a program would go.

3 Q. So you will agree with me that even though
4 you knew back in--

5 First off, let me rephrase the question.
6 You knew back in 1962 at least that asbestos dust had a
7 lower threshold value than other dust; is that not
8 correct?

9 A. That's correct.

10 Q. And yet it wasn't until 1966 that you did
11 any testing of the dust levels of your product; is that
12 correct?

13 A. I don't have any recollection of dust
14 testing having been run before that time.

15 Q. Let's take a look at the tests that were
16 run in 1966.

17 I would like you to please review--this is
18 a letter from Mr. Stumpf to you, December 15, 1966,
19 regarding the first tests that Bradley performed.

20 MR. WELCHER: Have you got a copy without
21 underlining?

22 Could we mark it first?

23 (Thereupon, Plaintiffs' Exhibit No. 14 was
24 marked for identification.)
25

1 BY MR. ERICKSON:

2 Q. Mr. Verhalen, have you had a chance to
3 review this document?

4 MR. WELCHER: He is just reading it,
5 Counsel.

6 THE WITNESS: Not quite.

7 THE TECHNICIAN: Excuse me, I'm going to
8 have to go ahead and change tapes now.

9 (Thereupon, the following is now on Video
10 No. 2 of 2.)

11 THE TECHNICIAN: Back on the record.
12 Continuing on Videtape No. 2.

13 THE WITNESS: I have read the memorandum.

14 BY MR. ERICKSON:

15 Q. Now, you will agree with me that this is a
16 test of various Association products?

17 A. A test of two different Association
18 products.

19 Q. And from the results of these tests, it is
20 clear that the man making the tests was a Mr. Bradley
21 and he was "quite alarmed"?

22 A. That is what the memorandum says.

23 Q. And it shows at least one of these
24 products had a fiber count of twenty-six parts per
25 million at a spray gun nozzle; is that correct?

1 A. That is what it says.

2 But I don't know how to correlate parts
3 per million into different units.

4 Q. You are not an industrial hygienist, so
5 you don't know much about that?

6 A. Well, statistically they talk about
7 millions of parts per cubic foot and I don't know how
8 to correlate parts per million to millions of fibers
9 per cubic foot.

10 Q. You will agree with me that according to
11 this test, sixty feet away from the fiber gun, there is
12 still nine parts per million.

13 A. But I don't know what that means. That
14 may be a very low level.

15 Those weren't the units that were used in
16 the threshold limit values.

17 Q. Let's take a look at a test that Mr.
18 Bradley put together on all your Association products
19 in January 23rd of 1966 which was shortly after this
20 document.

21 MR. WELCHER: Mark it first.

22 (Thereupon, Plaintiffs' Exhibit No. 15 was
23 marked for identification.)

24 MR. ERICKSON: If you would please review
25 it.

1 MR. WELCHER: He will.

2 THE WITNESS: I have read the report.

3 BY MR. ERICKSON:

4 Q. Mr. Verhalen, you will agree with me that
5 that is a report of all Association products; is that
6 correct?

7 A. The four members, not the entire
8 industry--just four members out of the Association.

9 Q. And it included results from your company?

10 A. Yes.

11 Q. And that is expressed in terms of parts
12 per cubic foot, if you look at the table?

13 A. Yes.

14 Q. And please refer to the table.

15 There is not a single entry on that table
16 that is below the threshold limit value for parts per
17 cubic foot; is there?

18 A. Millions of particles per cubic foot.

19 Q. And those are all up in the teens; are
20 they not?

21 A. But if my recollection is correct, this is
22 measuring total dust.

23 It is measuring the cement dust, the
24 gypsum dust, any other binders, and the mineral dust,
25 as well as the asbestos dust; measuring total dust

1 particles in millions of particles per cubic foot.

2 That's my recollection. So, this isn't
3 all asbestos.

4 Q. Again, you are not an industrial
5 hygienist?

6 A. No, I am not.

7 Q. So you are not exactly sure what that
8 threshold limit value was meant--was aimed at when it
9 said five million parts per cubic foot; do you?

10 A. I am not.

11 Q. And it may very well be that you used that
12 whenever there is asbestos dust present, even though
13 there could be other dust present? Is that possible--
14 I mean you just don't know?

15 MR. WELCHER: Objection. He has no way of
16 answering that question.

17 Don't answer it. (1:26 p.m.)

18 MR. ERICKSON: Let me rephrase the
19 question.

20 BY MR. ERICKSON:

21 Q. Because you were not an industrial
22 hygienist, you don't really know if those results are
23 exceeding the threshold limit value as it was supposed
24 to apply at that time to your product; do you?

25 A. The only thing I know from the summary

1 report of Dr. Bradley is that the threshold limit value
2 for asbestos fiber is five million fibers per cubic
3 foot.

4 What I don't know is whether this is a
5 measurement just of asbestos fibers or whether it is
6 total dust content.

7 Q. Well, what does Mr. Bradley say in his
8 summary about whether or not you were above or below
9 the threshold limit value?

10 MR. WELCHER: Objection to the form.

11 (1:27 p.m.)

12 THE WITNESS: The dust he counted was in
13 excess of five million.

14 BY MR. ERICKSON:

15 Q. Would you please read what he says on
16 that? I believe there is a specific sentence on that.

17 A. It says, "All test"--

18 MR. WELCHER: Excuse me. That is not
19 addressed to him. That is addressed to someone
20 else.

21 I'm going to object to him reading
22 portions of it.

23 The best evidence would be the report,
24 which is in evidence.

25 Don't read it. It speaks for itself.

1 (1:28 p.m.)

2 He is not the author of it, nor was it
3 addressed to him.

4 BY MR. ERICKSON:

5 Q. You received a copy of this report; did
6 you not?

7 A. Yes, I did.

8 Q. And is it clear that his report says:

9 "All test results were determined to be in
10 excess of the five million particles per cubic
11 foot threshold limit value"?

12 A. For asbestos, yes, I understand that.

13 Q. Now, do you know how much these Bradley
14 tests cost you?

15 A. I really don't.

16 Q. Does \$500 seem like it is in the ballpark?

17 MR. WELCHER: Don't answer it unless you
18 know.

19 THE WITNESS: I don't know.

20 BY MR. ERICKSON:

21 Q. Have you ever seen a document referring to
22 the cost?

23 Let me refresh your memory, if I can.

24 If you would please refer to an exhibit
25 marked 3751.

1 I am principally interested in a
2 resolution which your company or your Association
3 passed with regard to the Bradley test.

4 MR. WELCHER: Mr. Reporter, do you want to
5 mark that first?

6 (Thereupon, Plaintiffs' Exhibit No. 16 was
7 marked for identification.)

8 BY MR. ERICKSON:

9 Q. You have had a chance to review it.

10 Is it fair to characterize that as the
11 minutes of the Sprayed Mineral Fiber Manufacturers
12 Association meeting?

13 A. Yes. They are not signed, but I am
14 presuming that they represent the business of the
15 meeting.

16 Q. And there is an entry in there which talks
17 about funding some Bradley tests; does it not?

18 A. It does.

19 Q. And doesn't it say that the Association
20 will spend but not to exceed \$500 on an additional
21 Bradley test?

22 A. That apparently reflects his quotation,
23 yes.

24 Q. And there are four members of that
25 Association, if I am correct--is that not right?

1 A. Yes.

2 Q. So that is about \$125 a company, if my
3 math serves me correctly?

4 A. If you divide the 500 by four, yes.

5 Q. I assume the Association got its money
6 from the companies; did it not?

7 A. That's correct.

8 Q. You will agree with me that \$125 to fund a
9 little testing didn't exactly break U.S. Minerals
10 Products Company's financial status; did it?

11 MR. WELCHER: I think the question is very
12 argumentative and I object.

13 You can answer it, if you can. It is a
14 very argumentative question. (1:33 p.m.)

15 THE WITNESS: This is only one of several
16 testing programs that were discussed.

17 It was my recollection that thousands of
18 dollars were paid to Dr. Bradley for a long
19 series of tests and there were other tests
20 besides that.

21 And our company individually, aside from
22 the Association, conducted some tests.

23 BY MR. ERICKSON:

24 Q. My point is this: He was willing to run
25 at least a series of tests for \$500.

1 A. I believe that was a second series.

2 Q. And the first time you asked for these
3 tests to be run was 1966; is that not correct?

4 A. I think it was a month or two before this.
5 It was late in '66--this is January of '77.

6 This is an immediate follow on from the
7 first test report, following which I think each of the
8 member companies had made some improvement in their
9 processing in an expectation in subsequent testing they
10 were going to show up better than they did on the first
11 test.

12 Q. You would agree with me that what I would
13 characterize as the cost of dinner for four at a fancy
14 New York restaurant, your Association was able to get
15 at least some grasp of the level of dust that was being
16 emitted by your product?

17 MR. WELCHER: Don't answer it the way it
18 is phrased. It is highly argumentative.

19 He has told you that there were a series
20 of tests conducted by the Association. He has
21 also indicated that his own organization, U.S.
22 Minerals, conducted their own tests.

23 The question is highly argumentative.
24 Don't answer it. It is really not a question.
25 (1:35 p.m.)

1 BY MR. ERICKSON:

2 Q. Mr. Verhalen, you mentioned previously in
3 1962 your company placed a caution on its bags.

4 A. Yes.

5 Q. And that caution, I assume, was hoped to
6 at least be read by the persons opening the bags and
7 spraying the material.

8 A. They were the people we were concerned
9 about.

10 Q. And this caution didn't say anything about
11 the inhalation of asbestos dust causing cancer; did it?

12 A. No, it did not.

13 Q. And it didn't say anything about the
14 inhalation of asbestos dust being possibly fatal; did
15 it?

16 A. Certainly not.

17 Q. And Mr. Kay is not an applicator or a
18 painter--

19 You've read his deposition. You are aware
20 that he is not an applicator or sprayer.

21 He is a person in the painting industry;
22 is that correct?

23 A. Mr. Kay probably had no contact whatever
24 with any of our products.

25 Q. Well, you agree with me that there is

104

1 nothing on your bags that would instruct the applicator
2 or the sprayer to post a warning in the area where
3 other trades were working so that they would know to
4 where a respirator or take some protective cautions if
5 they were in that area?

6 A. I've been in this business for a good
7 number of years, and I have been on many, many spraying
8 sites.

9 The practice in this industry--contrary to
10 what you read in Mr. Kay's deposition, you don't see
11 other trades active in an area where spraying is going
12 on, simply because the way they spray, the floors want
13 to be clear and you don't want other people or other
14 scaffolding in the way to spray efficiently. That
15 isn't the way it is done.

16 Q. You are not telling me that other trades
17 didn't ever work in the area where your materials were
18 being sprayed; are you?

19 A. At the time they were being sprayed?

20 Q. That's correct.

21 A. I would say probably a fair description is
22 "didn't ever." I have never seen other trades working
23 in the spray area.

24 Q. You never worked with Mr. Kay; did you?

25 A. I did not.

1 Q. Mr. Verhalen, if you would please review
2 what is a copy of the Sprayed Mineral Fiber
3 Manufacturers Association's June 17, 1966 minutes.

4 I'm interested in what is on Page 3.

5 MR. WELCHER: Mark it.

6 (Thereupon, Plaintiffs' Exhibit No. 17 was
7 marked for identification.)

8 THE WITNESS: I have read it.

9 BY MR. ERICKSON:

10 Q. Would you agree with me that reflected in
11 those minutes is a problem with an office building in
12 Cleveland, Ohio?

13 A. Yes.

14 Q. And, in fact, that there was a walk-out by
15 other trades at that office building that refused to
16 work on the same floor where your product was being
17 applied?

18 A. It doesn't indicate on the same floor.

19 Q. Well, I have got another document here and
20 I will let you look at it. It says:

21 "Attached is a copy of the letter I
22 discussed with you by phone last Friday, which
23 is the first instance where we have learned that
24 other trades have refused to work on the same
25 floor where our products are being applied."

1 If you read that document, I think you
2 will agree with me that it's referring to the Cleveland
3 office building.

4 MR. WELCHER: That is a comment, Counsel,
5 which I will move to strike.

6 I think the proper procedure is to have
7 the document marked and have the witness testify
8 concerning whether or not he recalls it and
9 whether or not it is related to the other
10 document.

11 Your comments, I think, are improper.

12 (1:41 p.m.)

13 MR. WELCHER: Mark it, please.

14 (Thereupon, Plaintiffs' Exhibit No. 18 was
15 marked for identification.)

16 BY MR. BRICKSON:

17 Q. Now, you have had a chance to review that
18 exhibit; have you not?

19 A. Yes.

20 Q. And it is pretty clear from that exhibit
21 that they were indeed working on the same floor that
22 your product--

23 MR. WELCHER: Objection to the form.

24 (1:42 p.m.)

25 MR. BRICKSON: Is that not correct?

1 MR. WELCHER: It pre-supposes that the one
2 letter refers to the minutes in which the matter
3 was discussed much later.

4 I don't see that there is a relationship
5 between them.

6 THE WITNESS: Let's see if I can explain
7 the way a spray job proceeds.

8 Now, you could be right or wrong on the
9 Cleveland Federal Office Building because I
10 don't know how large it is.

11 If it is a very large floor, a very large
12 floor--very large--floors sometimes will be as
13 big as thirty, forty, fifty thousand square
14 feet.

15 It is entirely possible that one can spray
16 effectively and productively in one area of such
17 a large floor.

18 And after that work has been completed
19 that the other trades could follow on while the
20 spraying continues uninterrupted.

21 That is possible on very large floor
22 areas.

23 I just don't happen to know that building
24 and it is not one that I have been on, so it
25 could be either way.

1 BY MR. ERICKSON:

2 Q. If you would, for a second, hand me back
3 that exhibit.

4 You will agree with me that you are
5 suggesting to Mr. Boyer in this document-- Let me
6 rephrase that.

7 It is an accurate characterization of this
8 document that you are asking Mr. Boyer if, perhaps, it
9 wouldn't be good for your Association to develop a
10 standard official statement of policy regarding these
11 type of incidents.

12 Is that not what you say in the second
13 paragraph?

14 A. That was the purpose for it.

15 Q. And, in fact, you got other complaints
16 about these type of matters; did you not?

17 A. A limited number of other complaints, yes.

18 Q. And, in fact, it got so far as to develop
19 a form letter of reply to a notice of walk-out in that
20 spray fiber is a health hazard; did you not?

21 A. I don't know that that is correct.

22 Q. I would like you to please review--

23 MR. WELCHER: Let's mark this first.

24 (Thereupon, Plaintiffs' Exhibit No. 19 was
25 marked for identification.)

1 MR. WELCHER: Could I look at this first?
2 It is undated. I don't know if you are
3 the author or not.

4 THE WITNESS: I have read it.

5 BY MR. ERICKSON:

6 Q. Would it be a fair characterization of
7 that document that it represents a form letter reply to
8 a notice of walk-out?

9 A. That's what it represents, and I believe
10 it was in response to our request for such a thing.

11 I just have no recollection of it ever
12 being used by the Association.

13 Q. Would you not agree that the contents of
14 that form letter is basically the same thing that was
15 contained in your June 3, 1966 response to the
16 Cleveland Office Building.

17 And I am going to hand you that document
18 to please review.

19 MR. WELCHER: When you're talking about
20 "your response," you're talking about Mr. John
21 F. O'Rourke's.

22 MR. ERICKSON: I'm talking about U.S.
23 Minerals' response.

24 MR. WELCHER: Mark it, please, Mr.
25 Reporter.

1 D for fireproofing air *plenums or exposed
2 acoustical ceilings."

3 Now, that is merely the report of what
4 that Association data is.

5 Q. And you didn't mention anything in that
6 brochure about any connection to asbestos and cancer;
7 did you?

8 A. That was a transition-- No, no. I don't
9 think we have ever taken on that medical era. We
10 haven't done that.

11 MR. ERICKSON: Thank you, sir. I don't
12 have any more questions.

13 REDIRECT EXAMINATION

14 BY MR. WELCHER:

15 Q. Sir, in the three hours that you have been
16 subjected to cross examination, have you in any way, by
17 anything that you have heard, changed your opinion as
18 to whether or not Mr. Kay was exposed to any product of
19 yours or came in contact with it in any occupation or
20 level of job that he was on?

21 A. I find no connection whatever.

22 Q. Sir, you have testified that U.S. Minerals
23 Products were utilized by licensed applicators; is that
24 correct?

25 A. Yes.

1 Q. Who trained these applicators in the use
2 of the product?

3 A. Technicians from our headquarters in
4 Stanhope.

5 Q. Why did you do that, sir?

6 A. We have a concern for our reputation.

7 The reason as well for the formal license
8 agreement with contractors was to exert every conscious
9 effort to see that the products were correctly
10 installed so they would perform after installation in
11 the manner that both we and the specifying agents
12 expected them to perform.

13 Q. Does that concern itself with what I
14 should term "product integrity"?

15 A. Yes.

16 Q. And how did you expect the product would
17 perform if it was installed in accordance with your
18 recommended procedures by licensed applicators?

19 A. I guess in the most general sense, it
20 would perform properly.

21 Q. What about its adhesion qualities?

22 A. The adhesion and cohesion qualities add
23 safety factors, substantial safety factors of twenty,
24 thirty, forty times the weight of the material.

25 Q. Can you elaborate on that?

1 A. Well, if a square foot of material weighed
2 one pound, it would take a force probably of forty or
3 more pounds to dislodge it or effect it adversely,
4 either cause it to be removed from the substrate or
5 to--cohesive failure would be to come apart within
6 itself.

7 Q. Would this be an advantage over the other
8 type of asbestos manufacturers that did not use spray
9 type applicators?

10 A. I think I should say generally that most
11 of the products we competed with, if they were
12 correctly installed, would perform similarly.

13 Q. Did you give these contractors--strike the
14 word "contractors"--did you give these applicators any
15 type of a booklet at the time you sold them the
16 product?

17 A. Upon licensing, they would have received
18 an application manual and would have receipted it for
19 it at the time the license was executed.

20 Q. And what was in the application manual
21 relative to the use of masks, if anything?

22 A. There was a caution provision in the
23 manual relative to dust levels and recommending certain
24 types of approved dust masks.

25 Q. Did that distinguish--was that one of the

1 distinguishing factors between U.S. Minerals licensed
2 applicators and other applicators who would be using
3 other types of spray products other than U.S. Minerals?

4 A. I don't know what other competitors did.
5 I only know what we did.

6 Q. You did not recommend in your application
7 manual that other people, other than spray applicators,
8 use masks; did you, sir?

9 A. We recommended that the people handling
10 the product at the machinery and at the nozzle wear
11 certain protective gear, including masks.

12 Q. Once the product was applied, did you find
13 any need or reason for a person to have a mask on after
14 it was applied?

15 A. No.

16 Q. In addition to the instruction in the
17 manual itself, what warnings were placed on the bags?
18 I assume they were transported in bags.

19 A. Yes.

20 Q. What warnings, if any, were placed on the
21 bags?

22 A. I forget the exact wording, but the gist
23 of the warning was that the product contained asbestos
24 and inhalation to high levels of asbestos dust can be
25 harmful to one's health and recommending that anyone

1 who was exposed to the dust on application wear
2 suitable protected gear.

3 Q. Did you expect or intend for any of these
4 products to be applied by anyone other than a licensed
5 applicator?

6 A. No.

7 Q. Did you sell or distribute this product at
8 any time--when I talk about "this product"--the CAPCO
9 product to anyone other than a licensed applicator?

10 A. No.

11 Q. Why?

12 A. We talked about it in general and--we
13 started out in this business requiring licensed
14 applicators because of a relatively poor reputation
15 that spray fiber had before our entry into the
16 business.

17 And our investigation determined that the
18 cause for the problem was not the product itself, but
19 rather the method of application.

20 It was a kind of specialized product that
21 couldn't be given to just anyone.

22 It was essential that the right machinery
23 for application, the right training, the right
24 application methods be applied in order for the product
25 to be correctly installed.

1 Q. In the process of attempting improvements
2 in your product, did you change the method of applying
3 the product insofar as the nozzle length or size?

4 A. There were many nozzle improvements over a
5 period of years and those improvements continue on even
6 today.

7 The most dramatic improvement was made in
8 our processing in the plant itself where the products
9 were blended to where a chemical additive to the
10 product caused the dust to be attached to the larger
11 particles so that there was a substantially reduced
12 level of fine dust.

13 Q. When was that chemical composition added
14 to the product?

15 A. That process started, as I recall, about
16 1959 or '60 and probably it has reached its most nearly
17 totally effective point perhaps only a couple of years
18 ago.

19 Q. Do I understand that it was a--excuse me,
20 an increasing formulation?

21 A. No. It was a method by which this
22 additive was introduced and the method by which these
23 fibers and binders are blended in the factory.

24 Q. There have been questions put to you about
25 the information supplied to architects by your company

1 U.S. Minerals as featured in the Sweat Catalog or
2 Sweat's Catalog I think it is properly called.

3 Do architects, in your understanding of
4 the building trade, have access to the same information
5 that your company has relative to the products?

6 A. Relative to asbestos, I believe they did.

7 Q. Do you believe that architects have a duty
8 to investigate any health hazards of the product that
9 they specify?

10 A. They certainly are aware of it now.
11 Whether they were as aware of it back then--I would
12 think that that consciousness level has increased as
13 time has passed.

14 Q. But of all of the people and all of the
15 concerns and all the professions, an architect is the
16 one most--supposedly most knowledgeable concerning the
17 type of product, its composition and its hazards, if
18 any--would that be fair, sir?

19 A. Those are the normal elements that the
20 architect investigates before he either specifies or
21 approves a product for use on a project that he
22 controls.

23 Q. And back in 1963, '64, and '65, and indeed
24 in 1970, when you were producing asbestos free
25 products, what were the architects specifying at that

1 time for their projects?

2 MR. ERICKSON: I object to the question.

3 (2:16 p.m.)

4 THE WITNESS: There were still
5 specifications requiring asbestos, which caused
6 us to continue to manufacture asbestos
7 containing products up into 1971.

8 BY MR. WELCHER:

9 Q. When you say "specifications"--
10 specifications by whom?

11 A. Architectural specifications.

12 Q. Would that include engineers as well?

13 A. Yes.

14 Q. Would that include contractors as well?

15 MR. ERICKSON: Objection. (2:17 p.m.)

16 THE WITNESS: Contractors usually didn't
17 have a specification voice.

18 Contractors might influence a
19 specification or a change in specification, but
20 they were not a specifying authority.

21 BY MR. WELCHER:

22 Q. Referring to Exhibit No. 6--it is marked
23 defendants', but it should be the plaintiff. These are
24 all marked incorrectly--which is the United States
25 Patent Office patent granted to Mr. Stumpf for the

1 (Thereupon, Plaintiffs' Exhibit No. 20 was
2 marked for identification.)

3 THE WITNESS: Much of the key phraseology
4 from the draft of form letter was used in our
5 letter to the contractor on the Federal Office
6 Building in Cleveland.

7 BY MR. ERICKSON:

8 Q. Thank you, sir.

9 Mr. Verhalen, I want to talk a little bit
10 about what you talked about as the asbestos market.

11 I believe you characterized earlier in
12 your testimony--and correct me if I am wrong when I say
13 this--but you didn't think there was any market for a
14 product that didn't contain asbestos in the early
15 sixties.

16 A. I believe it would have been difficult to
17 market such a product in competition with asbestos base
18 products when asbestos was commonly specified.

19 That was my statement.

20 Q. And you will agree with me that the
21 architect is the person that specifies a product?

22 A. Usually, yes.

23 Q. And in the sense the architect is your
24 consumer?

25 A. Sometimes it is the structural engineering

1 firm or the architect.

2 Q. Now, you will agree with me that a
3 consumer deciding about what product to use ought to
4 have the information he needs to make an informed
5 choice about that product; does that sound reasonable?

6 A. "Ought to have"--I'm not sure I
7 understand.

8 Q. Let me try again.

9 When a consumer wants to buy a product, is
10 it nice for him to have all the information about that
11 product which is available?

12 A. Well, that's an ideal circumstance.

13 Q. You wouldn't sell me a used car that had
14 faulty brakes without telling me that the car had
15 faulty brakes.

16 A. That would be a responsibility.

17 Q. And likewise don't you think that you
18 should tell the architect about any deficiencies
19 associated with your product before you sell it to him?

20 MR. WELCHER: Objection to--objection.

21 (1:53 p.m.)

22 THE WITNESS: We didn't believe--we didn't
23 then believe that our product had any
24 deficiencies.

25 And as we sit here today, except for the

1 exposure that the men had in application, I
2 don't believe there were or are any deficiencies
3 in the asbestos containing product.

4 Properly installed, that product will
5 perform well and be trouble free.

6 BY MR. ERICKSON:

7 Q. Well, you will agree with me that an
8 architect has a lot of responsibilities when it comes
9 to a construction job; doesn't he?

10 A. Yes.

11 Q. And included in those would be, he would
12 want to know what type of precautions ought to be taken
13 in regard to the product before he specified it.

14 Does that make sense?

15 A. With respect to the application, generally
16 the architect--generally the architect has a broad
17 interest in the way a product is installed, not only
18 the way it functions.

19 And, yes, the architect has a
20 representative on the job site.

21 And, yes, the architect's representative
22 had as much exposure to the warning labels that were on
23 our bags as the mechanics who handled our bags.

24 Q. Do you know what Sweat's Catalog is?

25 A. Yes.

1 Q. And it's a fair characterization to say
2 that that is where an architect turns when he decides
3 what product to specify for a particular construction
4 application; isn't it?

5 A. That's where he starts.

6 Q. And if he turned into Sweat's Catalog,
7 there would be a section there where he would find your
8 brochures; wouldn't that be correct?

9 A. Generally all the fireproofing brochures
10 would be in the same section, yes.

11 Q. And yours would be up there next to the
12 other fireproofing brochures?

13 A. Yes.

14 Q. For instance, it would be up there next to
15 W. R. Grace's brochure?

16 A. Yes.

17 Q. And it would be up there next to a
18 brochure produced by Jetsulation?

19 A. Yes.

20 Q. And it would be up there next to a
21 brochure put out by Albeclad?

22 A. Uh-huh.

23 Q. Mr. Verhalen, I took the liberty of going
24 to Washington to collect, as best I could, all your
25 brochures from 1954 up through 1971.

I will hand them to you and I would just
ask you to tell me where in those brochures you
mention anything to the architect about the hazard of
asbestos.

A. Don't believe there are any hazards to
asbestos to which the architect is concerned.

The concern is with the people applying
the product. Those are the people who need protection.

Q. You will agree with me then that there is
nothing in your sales literature that would give the
architect any clue that asbestos can be harmful under
certain conditions?

A. I would suggest that in certainly all of
that literature in the description of the product, it
is described as a product containing asbestos.

I suggest that the architect probably had
as much general information on the hazards of asbestos
as we did and perhaps the building owner did in terms
of publicity in the lay press which is the publicity
available to us.

And I suggest that architects were the
ones who did raise questions, as were building
officials and the people who finally regulated against
the use of asbestos.

But in all those brochures in the

1 description of our product is an explanation that this
2 product is an asbestos containing product.

3 We didn't attempt in any way to hide it.
4 The--but we didn't believe that there was a concern for
5 health hazard to anyone except those people handling it
6 during application.

7 Q. Don't you think, even with that belief,
8 that it would be nice for the architect to have that
9 knowledge in his broad sense when he is specifying
10 products?

11 A. But you recognize it wasn't until 1969 or
12 '70 when we withdraw the asbestos that the position
13 generally acknowledged had reached that point.

14 It wasn't until the late 1960's or 1970
15 before--and we were the first one to introduce a non-
16 asbestos product.

17 That's the first time that such an action
18 was truly called for; the first time that the quality
19 of information available from the medical community
20 would have confirmed, at least to some extent, that
21 connection between asbestos and cancer.

22 That is really the first time and we
23 responded by introducing non-asbestos products.

24 Q. We have looked at a lot of documents
25 today--you will agree with that?

1 A. Yes.

2 Q. And they clearly indicate that as far back
3 as 1956, your company was aware of the serious health
4 hazard associated with spraying your product.

5 A. We treated all dust as being hazardous and
6 the asbestos dust was just relatively more hazardous.

7 We were concerned about dust throughout
8 our entire existence in this business of pneumatic
9 conveying.

10 We made continuing, progressive progress
11 towards reducing dust levels in manufacturing and in
12 application.

13 We believe that we did a conscious, right
14 thing as a responsible manufacturer.

15 Q. Mr. Verhalen, I have one more brochure
16 that I want to mark specifically, and this is 1970
17 CAPCO Blaze Shield Type D.

18 After you get a chance to review it, I
19 would like you to please read to the jury the second
20 entitled "Environmental Safety."

21 MR. WELCHER: Mark that, please.

22 (Thereupon, Plaintiffs' Exhibit No. 21 was
23 marked for identification.)

24 MR. WELCHER: What did you want him to
25 read?

1 MR. ERICKSON: The section entitled
2 "Environmental Safety," right there
3 (indicating).

4 BY MR. ERICKSON:

5 Q. Mr. Verhalen, in 1970, your company was
6 well on its way to having already developed an asbestos
7 free product; is that correct?

8 A. Well on its way--the first asbestos free
9 fireproofing material was a product called Deck Shield
10 introduced in 1968.

11 The architectural fireproofing product
12 called CAPCO Blaze Shield CF was introduced early in
13 1970, yes.

14 Q. And is it not correct that that
15 advertising brochure reflects that you were telling
16 architects in 1970 that CAPCO Blaze Shield Type D was
17 environmentally safe?

18 A. The paragraph you requested being read
19 says:

20 "Environmental Safety - study sponsored by
21 environmental health authorities, under the
22 sponsorship of the Sprayed Mineral Fiber
23 Manufacturers Association, have shown that no
24 respirable substances result from the use of
25 sprayed mineral fiber such as Blaze Shield Type

1 pneumatic device that is contained therein.

2 Was the preamble that you have read
3 concerning the asbestos dust as contained therein a
4 preamble as to what had been prior the practice and
5 what this particular device was designed to eliminate
6 or at least reduce?

7 MR. ERICKSON: Objection. (2:18 p.m.)

8 THE WITNESS: Well, the part that I read
9 didn't address the subject of asbestos; but just
10 addressed the subject of dust problems in
11 general as a serious health hazard and a
12 production problem and considerably hampered the
13 use of pneumatic conveying systems.

14 And we treated all dust as a hazard and a
15 nuisance and something to be reduced and
16 overcome.

17 BY MR. WELCHER:

18 Q. Okay. Now, sir, in all the years that
19 U.S. Minerals Products sold asbestos type products
20 containing asbestos to the applicators, had you ever
21 received one complaint from any applicators that
22 utilized your product concerning development of
23 asbestosis or cancer or fibrosis from the use of your
24 product?

25 Had anybody complained to you that this

1 was a hazard, anyone that used it?

2 A. None at all.

3 Q. How about your people up at Stanhope, New
4 Jersey? Did they use the product?

5 A. They didnt use the product. They were
6 involved in the manufacturing of the product.

7 Q. Have there ever been any proven medical
8 claims generated as a result of U.S. Minerals'
9 employees using--strike the word "using"--formulating
10 the product since its inception up until today?

11 A. There are no proven claims.

12 Q. How many employees did U.S. Minerals have
13 during the period of time from 1959 through 1970 that
14 would have been involved in the formulation of the
15 particular product?

16 A. You're talking now about the manufacturing
17 and processing of the product.

18 Q. That's what I mean by "formulation."
19 My question was inartfully phrased.

20 A. The employees in that end of the business
21 probably would average during peak periods of the year
22 twenty or twenty-two employees.

23 Q. Sir, we talked about the Bradley testing
24 and there were several exhibits that were shown to you
25 concerning the testing for the Sprayed Mineral Fiber

1 Manufacturers Association by Dr. Bradley and the like--
2 you recall those?

3 A. Yes.

4 Q. All right. Does the distance at which the
5 spraying is done play a role in determining the amount
6 of dust that comes out of the particular nozzle?

7 A. Well, the dust concentration falls off as
8 the distance from the nozzle increased. It falls off
9 substantially. That's normal and to be expected.

10 Q. Did U.S. Minerals have anything to do with
11 the development of smaller type nozzles by reason of
12 these tests?

13 A. "Smaller" perhaps is not the right
14 description, but there is a diversity of nozzles for
15 different applications, for different products.

16 So that knowing the product to be
17 installed and knowing the circumstance of application,
18 the machinery to be used, we can optimize the nozzle
19 for the least amount of dust on application.

20 Q. Does the way in which the product is mixed
21 play any role in the production of dust?

22 A. At our plant?

23 Q. Yes, sir.

24 A. The answer is "yes." I described the
25 importance of that control and the improvements in that

1 process.

2 Q. How about on the field where the
3 contractor--the applicator actually utilized the
4 product?

5 Is the way that it is mixed differ from
6 other spray applications insofar as reducing the dust
7 when one uses your product?

8 A. We think that our product does and has
9 historically compared favorably to competitors, if
10 that's what you mean.

11 Q. Are you able to estimate what percentage
12 of the market CAPCO products containing asbestos had
13 during the period that U.S. Minerals marketed them from
14 1953 to 1968-69?

15 A. There is no accurate information
16 available.

17 Q. Did you have difficulty marketing the
18 asbestos free product that you came out with?

19 A. Prior to 1970, yes.

20 Q. Why? What was the resistance to them?

21 A. Well, for long years, since the 1930's,
22 major worldwide companies that introduced sprayed
23 fiber, in this case Turner Newell, had in the
24 architectural community created a recognition of the
25 value of asbestos and had been promoting all asbestos

1 products.

2 And asbestos in the minds of an architect
3 and an engineer was synonymous with fire protection
4 performance.

5 Q. Do I take it from that that a completely
6 non-asbestos formulated product was not synonymous with
7 fire protection during that period of time?

8 MR. ERICKSON: I object to the question.

9 (2:25 p.m.)

10 THE WITNESS: It was considered a cheap
11 substitute until the acceptance.

12 BY MR. WELCHER:

13 Q. A cheap substitute by whom, sir? Who
14 considered it that way?

15 A. If you will, the building community; those
16 people who had an image of asbestos as the epitome of
17 permanence and safety for fireproofing.

18 Q. Do you know up until when the U.S.
19 Government was recommending asbestos--strike the word--
20 strike the question.

21 Do you know approximately when the U.S.
22 Government stopped recommending or stopped prescribing
23 the use of asbestos in its standards for Government
24 buildings?

25 A. I believe it is 1973.

1 Q. Up to that time, if one had a governmental
2 contract that prescribed a standard for asbestos, could
3 you substitute an asbestos free product?

4 A. Not without a great rigor mortis. We made
5 no attempt to. We just didn't fill those orders.

6 Q. How much time is there--does it take to
7 develop or did it take to develop an asbestos free
8 product from start to finish in terms of your
9 acoustical installation and the like?

10 You have mentioned at one point in your
11 direct testimony approximately a year--is that the
12 start to finish?

13 A. Where there is no fire testing required
14 and where you have a good deal of research luck, that
15 job generally can be done in a year.

16 Q. How about if it is a fire situation where
17 you have to have fire resistant properties?

18 A. You normally have to add another year or
19 so to the basic development year for testing.

20 Q. Why is that?

21 A. Because without an Underwriter's
22 Laboratory Listing, one cannot market--there is no way
23 to get acceptance for a fireproofing product in this
24 country without an Underwriter's Laboratory Listing.

25 To get that listing, one needs to get the

1 Design Department's approval at Underwriter's
2 Laboratory.

3 An entire floor and beam section needs to
4 be constructed. And you have to get a contractor to do
5 that after the engineering design is completed.

6 And then concrete is poured, and it
7 usually takes more than six months for that concrete to
8 cure before it can be tested. And that's an
9 accelerated cure.

10 After that, the Test Section gets sprayed
11 and another sixty days is required.

12 Then you enter their fire testing
13 schedule.

14 And after the test is completed, if it is
15 satisfactory, you have got to wait for a report to
16 issue.

17 If that can be done in twelve months time,
18 it is outstandingly good.

19 Q. When you were made aware of Dr. Selikoff's
20 report--I believe it was disseminated to you in 1966--
21 did you subsequently meet with Dr. Selikoff?

22 A. Yes.

23 Q. And as a result of that meeting, did you
24 come away from it with any idea that asbestos should be
25 immediately removed from the marketplace? Is that what

1 Dr. Selikoff told you?

2 MR. ERICKSON: Objection. (2:29 p.m.)

3 THE WITNESS: Dr. Selikoff believed as
4 late as 1970 that the spraying of asbestos
5 containing product could properly be controlled
6 and did not need to be banned.

7 BY MR. WELCHER:

8 Q. Can you tell me what forms your belief for
9 the statement that Dr. Selikoff felt that as late as
10 1970 products could be used containing asbestos and did
11 not have to be banned?

12 A. Well, I believe they were public
13 expressions on his part; and when he finally took the
14 position of supporting New York City, for instance, in
15 the banning of asbestos, he did it with great apology,
16 only because the contractors simply would not follow
17 the instructions of the manufacturers effectively in
18 their housekeeping practices and their containment
19 practices for buildings being sprayed.

20 Q. In your manual that was given to
21 applicators that were utilising your product, you have
22 told us about the requirement of the mask.

23 Do the manuals also address the
24 requirement of masks being used by anyone that is
25 coming in contact with the product?

1 A. I think we used the term, "Exposed to the
2 dust related to the spraying or the application of the
3 product."

4 Q. What I take it from that that the
5 responsibility for applying these instructions rested
6 with the various licensed contractors.

7 A. It was clearly their responsibility.

8 Q. Why do you say that, sir?

9 A. Because they are contractor employees who
10 are performing and the contractor and the contractor's
11 supervisors that we trained. We are not there.

12 So clearly it is the employer or the
13 contractor's responsibility to see that his people
14 follow instructions.

15 Q. You had indicated that U.S. Minerals did
16 some testing of their own concerning the inhalation of
17 dust, if you will, and the performance of their
18 asbestos product; is that correct?

19 A. No, you are incorrect.

20 The testing we did was a separate test
21 series by Dr. Bradley on just our product, for our
22 company. And I believe there was a separate report
23 issued.

24 We have not done any inhalation or health
25 studies.

1 Q. When was that testing done by Dr. Bradley
2 for your product alone?

3 A. I think in 1967 or '68. It was in that
4 same general area.

5 It was at the point where we believed that
6 we had reached a rather satisfactory level of
7 controlling the level of the dust in the plant.

8 (Discussion off the record.)

9 BY MR. WELCHER:

10 Q. Way back when we started this morning, you
11 indicated there was one other distributor in Florida
12 whose name you could not remember.

13 How about Earl Manufacturing Company?

14 A. That was it.

15 Q. And it started with an "E" rather than an
16 "O"?

17 A. It was a short name.

18 Q. Was that a distributor--strike the word
19 "distributor"--an applicator in North Florida?

20 A. I think Jacksonville, if my memory serves
21 me right.

22 Q. Mr. Verhalen, you have no present plans to
23 leave Stanhope; do you, sir?

24 A. I hope not.

25 Q. You are a permanent resident of New

1 Jersey?

2 A. I have been living there and raised a
3 family there since 1952.

4 MR. WELCHER: I have no further questions.

5 RECROSS EXAMINATION

6 BY MR. ERICKSON:

7 Q. Mr. Verhalen, it is not exactly accurate
8 that 1970 was the first time Dr. Selikoff went about
9 the process of trying to ban asbestos containing
10 fireproofings; is it?

11 A. Dr. Selikoff's official and public
12 position was that it is a process to be controlled, not
13 banned.

14 Q. Isn't it a fact that your industry
15 throughout this time frame kept telling Mt. Sinai and
16 Dr. Selikoff and the people that worked with him that
17 asbestos was a necessary ingredient in your product?

18 MR. WELCHER: Are you distinguishing
19 between U.S. Minerals and the Association here
20 or are you including U.S. Minerals in this?

21 MR. ERICKSON: I'm including U.S. Minerals
22 and the Association.

23 THE WITNESS: I will agree that it was
24 difficult for me several times to wear two hats.
25 There was many times when our company's interest

1 conflicted with the trade association's
2 interest.

3 There were many times we took a leadership
4 role without the trade association's support.

5 Our introduction of the product Deck
6 Shield for fireproofing decks in 1968--this was
7 a non-asbestos product.

8 Admittedly it was not well received in the
9 marketplace. It did not net much of the market
10 share.

11 Then our introduction of the asbestos free
12 Blaze Shield Type D in 1970--for a period of two
13 years when the rest of the industry did not have
14 an asbestos free product, with our company hat
15 we were promoting asbestos free products.

16 And with our industry hat, we were
17 participating in a consensus with members who
18 did not have an asbestos free product.

19 There was a conflict there.

20 BY MR. ERICKSON:

21 Q. You testified that the U.S. Government
22 stopped prescribing asbestos in 1973.

23 That is not totally accurate, what the
24 U.S. Government did in 1973; was it?

25 A. I think that was the latest time when EPA

1 adopted their ban.

2 You have got a whole bunch of departments
3 within the Government who then removed or ended any
4 specifications calling for asbestos.

5 Q. I believe you hit the nail on the head.

6 They not only stopped prescribing
7 asbestos, they banned it in 1973 from spray
8 fireproofing; is that not correct?

9 A. The ban permitted one percent asbestos, if
10 that's what you call a ban.

11 That is still permitted today.

12 Q. And you take offense today of the fact
13 that the ban doesn't totally preclude all asbestos from
14 products; isn't that correct?

15 A. I don't know that--if a non-asbestos
16 product is available, it would be desirable to require
17 non-asbestos products. That's our posture, yes.

18 Q. In 1987, it is your posture that if a non-
19 asbestos product is available, it is desirable to use
20 the non-asbestos product?

21 A. And that is the type of promotion and
22 specification work that we do.

23 Q. You never did totally get rid of the dust
24 in your product; did you?

25 A. I think we will agree that in pneumatic

1 conveyance of dry particles, there is dust.

2 Some of it is coarse, some of it is
3 medium, some of it is fine; but there is dust in the
4 pneumatic conveying of dry materials.

5 Q. One last exhibit for you. This is talking
6 about the test from Mr. Bradley conducted on behalf of
7 your Association.

8 And I believe this refers to the one that
9 finally got under the limits for you.

10 If you would please read to the jury the
11 second paragraph.

12 MR. WELCHER: First I will move to strike
13 counsel's comments "to finally get out of the
14 limits."

15 It is completely unprofessional and
16 totally immaterial.

17 Secondly, do you have a clean copy,
18 please? (2:38 p.m.)

19 (Discussion off the record.)

20 (Thereupon, Plaintiffs' Exhibit No. 22 was
21 marked for identification.)

22 BY MR. ERICKSON:

23 Q. Mr. Verhalen, you have had a chance to
24 read this August 17, 1967 letter; have you not?

25 A. I have.

1 Q. Is it not true that this letter states in
2 the second paragraph, referring to dust testing Bradley
3 did:

4 "The results appear too good, and for that
5 reason it is suggested that information not be
6 released until it is discussed at the meeting
7 scheduled for September 7th."

8 A. That's what the paragraph says.

9 MR. WELCHER: Excuse me. You said '87.
10 That is '67. You meant to say '67.

11 MR. ERICKSON: Thank you, sir.

12 MR. WELCHER: That's it. I think we will
13 not waive. We want to look at it first.

14 Thank you.

15 (Thereupon, the video deposition was
16 concluded.)

17
18
19 _____
20
21 SWORN TO and subscribed before me on this
22 _____ day of June 1987.
23
24
25 _____

1 CERTIFICATE OF NOTARY

2 STATE OF FLORIDA)
3) SS.
4 COUNTY OF DADE)

5 I, KENNETH SELLINGER, a Notary Public for
6 the State of Florida at Large, do hereby certify that I
7 reported the video deposition of JAMES P. VERHALEN, a
8 witness called by the defendants in the above-styled
9 cause; that the said witness was duly sworn by me; and
10 that the foregoing pages, numbered from 1 to 141,
11 inclusive, constitute a true record of the video
12 deposition by said witness.

13 I further certify that I am not an
14 attorney or counsel of any of the parties, nor a
15 relative or employee of any attorney or counsel
16 connected with the action, nor financially interested
17 in the action.

18 WITNESS my hand and official seal in the
19 City of Miami, County of Dade, State of Florida, this
20 3rd day of June 1987.

21 
22 _____
23 Notary Public, State of Florida at Large
24 My Commission Expires June 15, 1991
25 _____

LAWYER'S NOTES

Page No.

H. ALLEN BENOWITZ & ASSOCIATES
REGISTERED PROFESSIONAL REPORTERS
100 COMMONWEALTH BUILDING
46 S.W. FIRST STREET
MIAMI, FLORIDA 33130

INTER-OFFICE MEMORANDUM

PLAINTIFF'S
EXHIBIT

mp8

To: E. W. Burleson

From: J. P. O'Rourke

Date: November 26, 1977

Subject: National Accounts

Following up with Mr. M. W. Burleson, Vice President-Sales for J-M's Industrial Insulations Division, I learned that they are unable to proceed with their CAFCO investigation until a policy decision is made with respect to bag markings, because of the asbestos content.

Currently, they are a party in suit by several asbestos workers who claim lung cancer was aggravated by the asbestos materials with which they work. The entire asbestos industry is considering labeling its product with some note of caution to the users of asbestos products, and it appears to them that the warning we have on our bags is appropriate to relieve us of responsibility but they are in a quandary.

If we label our CAFCO bags and they do not, should they have an occurrence similar to the present problem, the fact that our bags are labeled and theirs are not, would make them a party in negligence. Were they to mark their sprayed fiber bags because of the asbestos content and not mark every other asbestos bag their company distributes, it is possible that they would be a party in liability and charged with negligence for not exerting caution on the remainder of their company's products.

For that reason, until a policy determination is made as to whether or not they will mark their bags, no further discussion will be held on our supplying them CAFCO. He felt this would be resolved by November 26th and I told him I would follow up at that time.

JPV/deo

cc: J. P. O'Rourke — R. E. Schlemmer — E. P. Egan — T. M. Stumpf

PLAINTIFF'S
EXHIBIT

4/27/87 X4

→ ACF → HAN → IN → ERF → ACF → JPV

March 3, 1966

Mr. D. T. Colton, General Manager
Johns-Manville International Corporation
22 East 40th Street
New York, New York 10016

Dear Mr. Colton:

You may already be aware of an article published in the New York Times on March 2, 1966 entitled "Asbestos Dust Called a Hazard to at Least One-Fourth of U. S.", a copy of which is attached.

Publicity of this sort can have a serious adverse effect on the sprayed mineral fiber industry as well as other industries in which your asbestos products are used.

We are very much concerned to know what action your Company and the entire asbestos industry might take to counteract this publicity, and we ask specifically what information or help our Association might obtain in order to rebut or at least minimize the unfavorable impression created by this article.

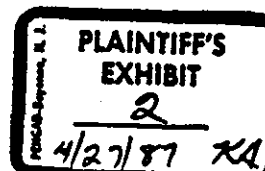
Because the report is described as a "preliminary finding" we can reasonably anticipate followup publicity. This matter is of vital concern to the entire asbestos industry, as well as to our sprayed fiber Association, and we will appreciate whatever comments, suggestions and help your Company might provide.

Sincerely,

J. P. Verheulen,
President

JPV/dco

cc: Mr. A. E. Binger - Smith & Knealer Company
Mr. J. H. Wittkop - Baldwin-Bret-Hill, Inc.
Mr. H. L. Levine - Asbestospry Corporation



8 9 ✓
DATED
STANDARD DEPOSIT

01614

SPRAYED MINERAL FIBER MANUFACTURERS ASSOCIATION, INC.

SUITE 2200, 14 WALL STREET, NEW YORK, N. Y. 10005

J. P. VERHALEN, President
United States Mineral Products Company
A. E. BENDER, Vice President
Smith & Kanter Company

March 8, 1966

J. M. WITKOP, Secretary
Baldwin-Knox-Hill, Inc.
H. L. LEVINE, Treasurer
Asbestoway Corporation

Dr. Morris Koff, Chairman
Technical Committee
Smith & Kanter Corporation
1114 N. Linden Avenue
Linden, New Jersey

Dear Morris:

Pursuant to Bert Levine's suggestion, dated March 4th, concerning the alleged health hazard of asbestos, I think his suggestion is a good one, particularly in view of his personal relationship that a meeting be called of your committee with Dr. Salikoff. Perhaps Bert can help set this up and I would personally appreciate being notified of the meeting as might the other directors, so that they can plan to attend, if possible.

The critical importance of this matter need hardly be stressed. Your prompt attention will be appreciated.

Sincerely,

SPRAYED MINERAL FIBER MANUFACTURERS ASSOCIATION, INC.

J. P. Verhalen
President

JPV/oa

cc: R. L. Levine, Asbestoway Corporation
Harry Wilson, Baldwin-Knox-Hill Company
P. H. Stampf, U. S. Mineral Products Company
John Boyer, Cabotcor, Wicksorham & Taft



8-98
DATED
FELINE DEPOSED



INTERNAL CORRESPONDENCE

PRIVILEGED

REPLY BY: _____

MATERIAL

Doris Stern

DATE: October 16, 1970

REDACTED

A. P. Mueller

CC: A. R. Morgan

P.W. Hunt

SUBJECT: Spraycraft, Linden Plant

The following is to report the current status of and the proposed program for the future of the Spraycraft operation at our Linden facilities. Material for this report was obtained in discussions of the subject with Dr. M. Lief by A. R. Morgan and the writer on September 14, 1970, and various previous discussions and phone calls.

1. State of Current Business

Spraycraft is marketed through both exclusive and non-exclusive applicators and distributors. The exclusive applicator uses only "Spraycraft" material for which he receives certain sales and technical assistance from us, which is provided almost entirely by Dr. Morris Lief. Some markets are too large to be handled by one applicator - New York City being an example where we have two, Empire Pyro Spray, Inc. and Morrell-Brown, Inc.

Our distribution by applicators, both exclusive and non-exclusive in the various geographical areas is as follows:

- (a.) New York City - Empire Pyro-Spray, Inc. and Morrell-Brown, Inc. We also have a small applicator on Long Island.
- (b.) Philadelphia, Pa. - Here we had an applicator, the Venze Co., who began a job which was then closed down because of restriction instituted while the job was in progress. This job has since been finished with Monocote, a wet cementitious type produced by W. R. Grace. Currently, we have no one in this area.
- (c.) New Jersey - This area is covered by the McGlor Co. of Rahway, New Jersey.
- (d.) Baltimore, Md. - Here we have an exclusive applicant John H. Hampshire of Bladensburg, Maryland, who covers the area embraced by Baltimore, Washington, Roanoke, and Norfolk.

PLAINTIFF'S
EXHIBIT

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PLAINTIFF'S
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4/27/87 XA

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INTERNAL CORRESPONDENCE

REPLY BY: _____

TO:

DATE:

FROM:

CC:

SUBJECT: Spryncraft, Linden Plant (cont.)

page 2

PRIVILEGED

MATERIAL

REDACTED

(e.) North and South Carolina - Very little business in this area - insufficient to support an applicator.

(f.) Georgia - Here we have another exclusive applicator - The Herman J. Russell Plastering Co. of Atlanta, Georgia.

(g.) Cleveland, Ohio - Applicator has been Acme Arcina Plastering who has not been too active. As the result of a complaint and removal of R. Toth, we lost position and Keene moved in. Brasher claims we now have new applicator in Cleveland who should be good for 30 truckloads over the next few months. He also claims a new account in Akron.

(h.) Cincinnati, Ohio - Applicator is Brueggeman Co. who to date has done but one job, the Formica Building at 4th & Walnut.

(i.) Detroit, Michigan - No representation.

(j.) Chicago, Illinois - Applicator is Krueck Co., who is not exclusive and also applies Monocote. He also bids jobs in the Cleveland and Toledo area.

(k.) St. Louis, Mo. - Applicator in this area is the Robertson Company.

(l.) Minnesota, Wisconsin Area - Very little business to date. Probably covered by Sealite Co. owned by Miles Fernhaber who also produces mineral wool.



INTERNAL CORRESPONDENCE

REPLY BY: _____

TO:

DATE:

FROM:

CC:

SUBJECT: Spraycraft, Linden Plant (cont.) page 3

Other Areas - We were formerly active on the West Coast but have now established a franchised producer in Western Chemical of Los Angeles, California. We receive royalties from this operator of approximately \$12.00/ton. Technical Director of this operation is a Mexican by the name of Manny Herrera. We provide technical guidance (calls about once a month), and maintain U.L. and ICBO listings at a cost of several hundred dollars per annum. A.R. Morgan is checking this contract arrangement with the Legal Department.

During the period of Victor management of this plant, a subsidiary operation was built at St. Thomas, Ontario. When Dana purchased Victor, their Canadian subsidiary, Dana sold it to Cartier Insulation, managed by Bill Wilson. We have, however, retained Spraycraft franchise and receive a royalty. We provide technical service, maintain U.L. listings control. We pay for U.L. listing maintenance and also finance any new applications. A recent example is an application and approval by Canadian U.L. for Robertson-Irwin, a steel deck producer. Listing is for a floor assembly; steel floor in two designs. Listing fees and tests costs are moderate and Dr. Lief feels they are justified. A check on the disposition of royalty fees is also indicated here.



2. Volume of Business - Economics

Our annual volume of business seems to have leveled out at a figure of 3000 tons. Our best year was 1961 when 4900 tons were sold, but this included the West Coast and Canada. Sales last year were 3000 tons; but sales this year to date are running at about the 3500 ton per annum level.

INTERNAL CORRESPONDENCE

REPLY BY: _____

DATE: _____

TO: _____

CC: _____

FROM: _____

SUBJECT: Spraycraft, Linden Plant (cont.) page 4

Sales price is \$150/ton but some is sold at \$140/ton. Cost for labor, burden and materials is said to be \$100/ton. Gross profit is said to be about 30%. Both of the above figures are to be checked.

Mineral wool used is purchased from the A & B Mfg. Co., successor to the Ben Morrell Co. of Bethlehem, Pa. This is now owned and managed by Matt Morrell, brother of the deceased, and the employees.

Cost of the wool is \$1.00/3/4 lb. bag or approximately \$60/ton. This is a very clean, shot free wool and probably the best available.

Specifications for gradation are 2% on 3/4" mesh, less than 7.5% in the pan and the remainder equally retained on the 1/2" and 1/4" screens. Test is 40 grm sample in Rotap for 15 minutes. Screen series is; 3/4", 1/2", 1/4" and pan.

In addition to the regular costs of producing the product, there appear to be other miscellaneous costs of operating this business as follows:

- (1.) Cost of repair of spray machines returned to Linden maintenance shops for this purpose.
- (2.) Cost of respirators furnished to field personnel.
- (3.) Cost of supplying hose, delivering machine to field and mechanical trouble shooting on machines in the field. Al Cinaglia and C. Brasher will be contacted to see how these charges are handled by Accounting.

3. Competition

Our competition consists of (a) four other producers of mineral wool based material such as ours who are members of the SMFMA, (b) several producers of similar material but not members of the Association, and (c) the producers of the essentially non-fibrous, wet applied, cementitious types.



INTERNAL CORRESPONDENCE

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FROM: _____

SUBJECT: Sprayercraft, Linden Plant. (cont.) page 5

The SMFMA member producers probably account for 70% of mineral fiber type market which it is estimated to have an annual sales volume of \$2,500,000 to \$3,000,000 depending on the level of business. The other non-member mineral fiber producers such as Spraydon, Scaltite, et al account for the remaining 30%.

The annual sales value of the non-fibrous, wet applied, cementitious type is estimated to be on the order of \$2,000,000 and is sold by W. R. Grace, Cafco and other small producers.

The SMFMA producers of the mineral wool type product, product names, compositions, etc. are as follows:

- (a.) Cafco - produced by U. S. Mineral Wool of Stanhope, New Jersey (J. Vernalen, President) accounts for about 40% of the association market. Product consists of mineral wool, asbestos, and binders.
- (b.) Asbestospray - produced by Asbestospray, Inc., of Newark, New Jersey (Hert Levine, President) consists of mineral wool, asbestos and binders. They also produce a specialty line of high temperature spray on cements, consisting of mineral wool, amosite or crocidilite and binders. They account for 15% of the association business.
- (c.) Pyrospray - produced by Keene Corporation (ex Haldwin-Ehret-Hill). Ted Jenney is the manager. Product is composed of mineral wool, asbestos and binders and accounts for 20% of association market. They stay out of the New York City market and operate on a contract basis with their own "Universal" machines.
- (d.) Johns-Manville - is an association member but has momentarily withdrawn from the market. Their product, "J-spray", was produced by Keene Corporation on resale basis.



INTERNAL CORRESPONDENCE

REPLY BY _____

DATE: _____

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FROM: _____

SUBJECT: Spraycraft, Linden Plant (cont.) page 6

The principal non-member producer of the mineral wool type is Sprayon Insulation and Acoustics, Inc., a subsidiary of Sprayon Research Corp. Originated by James Kempthorne with the assistance of U. S. Gypsum, it has fallen into evil company and is now controlled and operated by Louis Giamboi and Stanley Fonfa of Metropolitan Spray, both of which have connections with the Mafia controlled construction trades in New York City. Their product is called "Spray Don" and accounts for most of the non-member business. Operations are concentrated in New York City and Miami, Florida.

The non-fibrous, cementitious, wet applied products are produced principally by W. R. Grace and U. S. Mineral Wool.

"Monocote", the W. R. Grace product is composed of vermiculite, gypsum and asbestos.

"Monospray" is produced by U. S. Mineral Wool and exact composition is unknown.

These products are much heavier than the mineral wool type, applied density being 15-24#/ft.³ compared to 12-15#/ft.³ for the fibrous type.

Two similar products, U. S. Gypsum's "Fire Kote" and National Gypsum's "Fireshield" consisting essentially of gypsum, vermiculite and asbestos, have been in this field, but have now been withdrawn from the market.

The wet applied, cementitious products have an advantage in that excessive dusting and discharge of fibrous material into the atmosphere is much reduced, but they also have certain disadvantages as follows:

- (1) Cementitious type cannot be applied in winter, because of freezing and fall-off. Our type of product can be applied at temperatures down to 35°F, and it usually dries before it can freeze. Even if it does freeze, fall off is rare, because of low water content.
- (2) Fibrous type is cheaper everywhere except West Coast.

PLAINTIFF'S
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INTERNAL CORRESPONDENCE

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FROM: _____

SUBJECT: Spraycraft, Linden Plant (cont.) page 7

- (3.) The cementitious product is harder, better looking, and less subject to damage. It is therefore heavier and requires more installed material requiring 30% more material by weight than the fibrous type.
- (4.) Clean-up from overspray in area is more expensive and must be scraped up rather than swept up.
- (5.) Requires the use of asbestos fibre and cracks when asbestos is eliminated.
- (6.) Asbestos cannot be eliminated entirely, since vermiculite ore contains asbestos-like fibers.

4. Present Status - Asbestos - Health Hazards

- (a) New York City is pushing to outlaw asbestos in this type of product altogether. Calco has introduced an an asbestos free product called Calco "CF" which is felt to contain Portland Cement and bentonite. However, it is giving problems with fall off. W. R. Grace introduced an asbestos-free "Monocote" product which failed U.L. tests and had to be withdrawn from the market. Both Keene and Spraydon are claimed to have asbestos-free products, but little is known of their composition.



SNFMA has adopted rules to minimize problems which are purely suggestive and not mandatory. Selikoff is claimed to have said that adoption of these practices would make the use of asbestos liveable. Hearings on the subject are planned in New York for early November. To date, no positive action has been taken.

- (b) In Philadelphia, SNFMA is working with a Mr. Weaver of the Air Health Group to get a satisfactory ruling.
- (c) A hearing was held in Detroit and no further restrictions are expected now.
- (d) A set of proposed application rules have been sent to Columbus for consideration in the State of Ohio, but no action has been reported.

INTERNAL CORRESPONDENCE

REPLY BY: _____

TO:

DATE:

FROM:

CC:

SUBJECT: Spraycraft, Linden Plant (cont.)

page 8

5. Program for Developing Asbestos - Free Product

In studying this problem, numerous substitute materials were considered as a possible replacement for asbestos. Fiberglass is no alternate for it is considered hazardous when sprayed and will not withstand fire test temperatures. Perlite has temperature resistance, but cannot withstand pumping, often as high as 25 floors. Ceramic fibers are intolerably expensive.

In the area of new binders, Luminite cement is also expensive and in short supply. In order to reduce the high cost of U.L. approvals, it was decided to embark on a joint development program with Asbestospray, Inc., of Newark, New Jersey. This would split the estimated U.L. test costs on the new product (\$20,000 total). In addition, Asbestospray can batch small quantities (10-15 bags), of experimental material which is difficult in our continuous operation. Also, at Levine's request, Johns-Manville has offered to help by running small scale fire tests and conductivities on experimental batches of material.

The following experimental batches have now been prepared and tested with results as shown below.

No.	Composition	J.M. Fire Test	K @75°FMT
(a)	Min Wool 50%, Bentonite 5% Luminite 10%, Portland Cement (15#/ft ³)	111 min	.31
(b)	Min Wool 50%, Luminite 20% (15#/ft ³)	112 min	.32
(c)	Min Wool, 65%, 30% Asbestos, 2 1/2% Bentonite (Reg Spraycraft) 2 1/2% Sol Silica (12#/ft ³)	115 min	.26
(d)	Min Wool 75%, Cellulose 5%, Portland Cement 20%	113 min	.33
(e)	Min Wool 75%, Ceramic F 5%, Luminite 20%	118 min	.33



INTERNAL CORRESPONDENCE

REPLY BY: _____

DATE: _____

CC: _____

FROM: _____

SUBJECT: Spraycraft - Linden Plant (cont.)

page 9

In the spray out of these experimental batches, use of Bentonite alone was unsatisfactory, with the material falling apart when wet, but the addition of cement, Portland or Lumnite, seemed to help. Since our meeting at Linden, the cellulose containing material (5% cellulose, 20% Portland Cement) has been sprayed out. Adhesion and consistency development was good, but the use of organic material is considered questionable from a test standpoint and would also present a manufacturing problem. It is felt this formulation should be avoided if some other method can be employed to develop adhesion. The proposed formulation, consisting of 75% mineral wool, 5% Bentonite, and 20% Type III (High early) cement, will therefor be prepared and sprayed out in the coming week. Results will be forwarded to the writer immediately.

No cost problems are anticipated in these formulations, as a matter of fact, they will probably be cheaper than the current formulations, for most binders are cheaper than asbestos fibers.

6. U.L. Approval on Asbestos-Free Product

On September 29th, Dr. Morris Lief, Bert Levine of Asbestospray, and the writer met with Russ Parks of U.L. at the Northbrook Offices. As the result of the meeting, it was agreed that Mr. Parks, on the part of U.L. will set forth the number and types of floor and beam tests which they will require to approve the new formulation. Tests will be so selected as to cover the greatest number of listings with each individual test to minimize the costs. It is estimated that a total expenditure of \$20,000 will be required, which would be equally shared by Carey and Asbestospray on a sponsor and co-sponsor basis. Mr. Parks investigation proposal should be in our hands shortly. It would be our recommendation that no program of testing be initiated until the ultimate formula, both from the standpoint of thermal properties and spraying characteristics has been fully developed.



INTERNAL CORRESPONDENCE

REPLY BY _____

DATE: _____

FROM: _____

CC: _____

SUBJECT: Sprayercraft - Linden Plant (cont.)

page 10

7. Manufacturing Facilities at Linden

In our recent visit to Linden, we spent some time watching the operation of the Sprayercraft department. Since that time we have also studied the schematic drawing of the equipment No. 5247 of 17 April 1969.

It was reported that we are now producing 64 bags or one pallet per hour using a five man crew. We were also told that in the past, we have gotten as much as 10-11 pallets per shift instead of the 3 pallets per shift we are now producing. The difference was attributed to a green crew who have yet to develop a good working pace.

We also understand that we are operating at variance with the existing local and State Health regulations on allowable dust levels and could be shut down at any time. Costs of revising equipment and installing proper dust collection equipment are estimated to be on the order of \$15,000.

It would be our recommendation that instead of spending this amount of money on a rather improvised piece of manufacturing equipment, we consider picking up a good used Rockwool Engineering Bag Packer. Such a piece of equipment is now available at the Midwest Rock Wool Corporation at Wabash, Indiana. This device would receive the blended product in a fully enclosed magazine, weigh the material, then fill and close the bag automatically without blowing product all over the operating area. If the new formulation is developed eliminating asbestos fiber only one charging station would be required. We could thus operate with one charger, one bag pack operator and one supply man, reducing the crew to three people.

Purchase of our mineral wool in 750# bales instead of bags should also be considered, both as a cost reduction (cost of bags) and as a means of increasing productivity.

APM:da



Report No. _____ File No. 62-600
 Date June 28, 1948
 Location LABORATORY

REPORT TO THE DIRECTOR OF INVESTIGATION
 On the Job Application of Spraying and the Associated
 Hazards.

TITLE: P. L. Marsh

REMARKS: A description of the application and evaluation of
spraying and on the job.

TEST SAMPLES: To determine the possibilities of using these
materials for sprayed structural treatments.

RESULTS:

1. Mix containing Asbestos fibers sprayed very well onto a rib lath ceiling, no sections dropped off, nor did any blister form.
2. Mix containing asbestos fibers 40-60 did not spray as satisfactorily, some sections dropped off.
3. Water usage for the Asbestos mix averaged 1/2 lb. per lb. of material. The mix containing 40-60 fibers required an excess of water.
4. The sprayed material resulted in a rough finished surface.
5. Asbestos flake covered the texture slightly, but contributed to durability.
6. Coverage at 5/8" thick averaged 370 sq. ft. per ton, this is equivalent to 2700 sq. ft. per ton at 3/8" thick.
7. Perfection Fast Powder shipped from Chicago did not perform as well as paste powder shipped from DuPont, N. J.

A 03283

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EXHIBIT
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Introduction

Four different formulas of spraying seal were applied to the rib joint ceiling in the auditorium of the new Junior High School on Sawyer Road in Fenton, Mich., by our mechanical applicator Hyman Cornish & Co. of Dayton, Ohio.

Formulation

Number	2-2	2-2	2-2	2-2
		(percentage)		
Perfection Paste	8	8	8	8
Arbestos				
Asbestos	10	10	10	10
Spall-Resistant	15	15	15	15
Plaster (75%)	5	5	5	5
Mineral Wool				
Type I	77	77	72	72
Type A				

The above were formulated at the Alexander Plant using the current mill.

Application

The materials containing Asbestos fibers were applied on ceiling, with no sections dropping off, nor blisters forming. The spraying rate, at 2 1/2" thick averaged 2 1/2 lbs. per minute, which is comparable to the direct application rate. When tested, a rough surface resulted. The application of a fine finish coat, did help smooth the surface, but not as much as direct.

The water usage for the Asbestos mix averaged 0.5 lbs. per sq. ft. of material. This was considerably less than used for the starch seal mix previously applied.

Type I seal mix appeared to use slightly more water than did Type A seal mix, but this was only visual, since work could not be stopped to check the actual water usage.

The same when dried adhered very well to the ceiling.

A 03284

The application of the mix using the shorter asbestos fibers 20-40, did not perform satisfactorily. An excessive amount of water had to be used resulting in a wet mass. The initial bond was poor, and some particles dropped off the ceiling. When dried, the material appeared to be as satisfactory as the sprayed Asbestos mix.

All of the sprayed wall was covered with a thin coat of liquid. The liquid adhered very well to the wall, and imparted a smooth finish.

The binder used was Perfection Paste Powder 20: 40 from Chicago. Its bonding action though satisfactory, did not perform as well as paste powder previously used from Smalley, E. J.

The coverage for both types of material averaged 70 sq. ft. per 25 lb. bag of 1/2" thick, this is equivalent to 2800 sq. ft. per ton of 1/2" thick.

Generally the wall application was smoother than the application of liquid. This smoothness was attributed to the use of asbestos fibers. The fibers did improve the texture slightly.

Recommendations

1. The fibers should be removed from the formula, since the increase in dust, and the possibility of Asbestosis outweigh the slight increase in surface smoothness.
2. With the possibility of purchasing the Asbestos fibers at a lower price, the Asbestos content of the formula should be increased 2 1/2 : 1 to help compensate for the removal of the fibers.
3. The new formula should be

Type I Mineral wool	50%
Asbestos fibers	12 1/2%
Perfection Paste Powder	37 1/2%
(Smalley, E. J.)	

The new formula would be advantageous in construction since wool is normally packed in 100 lb. bags, and no adjustment of weights would be required when mixing 100 lb. batches.

JH/ab

CONFIDENTIAL

F. M. Thompson
F. M. Thompson
Research Department

[Signature]

Approved for Distribution

A 403505

6
4/27/57 RA

United States Patent Office

2,754,155
Patented July 10, 1956

2,754,155

APPARATUS FOR USE IN PNEUMATIC SPRAYING OF LIGHTWEIGHT PARTICLES THROUGH A CONVEYOR HOSE

James L. Kempthorne and Frank M. Strumpf, Elizabeth, N. J.; said Strumpf assignor to United States Mineral Wool Company, Borough of Stanhope, N. J., a corporation of New Jersey

Application April 25, 1955, Serial No. 503,458

6 Claims. (Cl. 382-30)

This invention relates to the art of spraying materials, such as lightweight particles, pneumatically. When such lightweight particles—as, for example, granulated and powdered particles, light fibers and the like, are pneumatically propelled through a conveyor hose and out of the discharge end thereof, they tend to “funnel” or “flower out,” making it difficult for the operator to direct said materials to the point desired; much wastage also occurs. Such particles, being light in weight are inherently dusty or dust-generating. In fact, so much dust is normally encountered in pneumatic spraying of lightweight particles that the dust problem is a serious health hazard and production problem and has considerably hampered the use of the pneumatic conveyor system for spraying particles in many applications for which it would be otherwise well suited.

Other devices proposed in the prior art were found wanting as they were bulky and awkward, clogged easily, created undesirable effects such as venturi effects or “dead” spots, allowed “building up” of the material being conveyed, disturbed or stopped atomization, and proved unreliable and only spasmodically operative.

The present invention overcomes these and other deficiencies of the prior art by providing a novel apparatus and method for use in pneumatic spraying of lightweight particles through a conveyor, more particularly described below, and illustrated in the accompanying drawings.

In the drawings:

Fig. 1 is a fragmentary sectional view of a conveyor hose provided with an apparatus embodying the invention.

Fig. 2 is an enlarged transverse sectional view thereof, taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged, partly sectional view of a tube embodying the invention, one end of which may be disposed in the conveyor hose pursuant to the invention.

Fig. 4 is a transverse sectional view thereof, taken on line 4—4 of Fig. 3.

Fig. 5 is a partly fragmentary, longitudinal sectional view of a conveyor hose embodying the invention, shown coupled to a source of pneumatic feeding of particles thereto.

Fig. 6 is an illustrative fragmentary elevational view of one of many means useful for pneumatic feeding of lightweight particles into a conveyor, which may be used in connection with the invention.

Fig. 7 is a schematic perspective view, showing a pneumatic conveyor hose (in dotted lines) provided with an apparatus embodying the invention.

Fig. 7a is a similar but fragmentary view of another form thereof.

Fig. 8 is a perspective view of a conveyor hose embodying the invention, showing a form of valve control mechanism which may be used in connection therewith.

Fig. 9 is a partly broken, fragmentary longitudinal sectional view of a form of the invention wherein a length

of highly flexible tubing is inserted into the conveyor hose.

Fig. 10a is a fragmentary, sectional, schematic view, showing the manner in which the invention may be applied at the discharge end of a conveyor hose, and Fig. 10b is a fragmentary sectional view, illustrating the manner in which another unit, at another point of the conveyor may be used, in addition thereto.

Fig. 11 is a fragmentary, partly elevational and sectional view, illustrating the manner in which the invention may be used in connection with a conveyor hose having a conventional moistening apparatus associated with the discharge end thereof.

Fig. 12 is a fragmentary perspective view illustrating a form of the invention including a section of highly flexible tubing (shown also in Fig. 9) in the length of conveyor hose, and

Fig. 13 is a fragmentary sectional view of the end portion of another form of device embodying the invention. As shown in the drawings, the apparatus of the invention is adapted for use in pneumatic spraying of lightweight particles as, for example, the particles 20 (Fig. 5) through a conveyor hose as shown 21, said hose having an end 39 for coupling to a source 23 of pneumatic feeding of said particles into said end of the hose under inertia urging said particles to flow through the hose in a direction parallel to longitudinal axis 22 thereof. The source 23 of pneumatic feeding of the particles may be a conduit 24 connected to or containing any suitable source of supply of particles 20 under pneumatic pressure; as shown in one example (Fig. 6), the source 24 may be the outlet end 25 of a blower 26 which draws particles from a suitable source 27 connected to the blower 26 by pipe 28 or the like. Source 23 may be any suitable source which supplies particles under pneumatic pressure and feeds them into the end 39 of hose 20 under inertia urging them to flow through the hose and out of the discharge end 39 thereof (Figs. 5, 10a, 11). Pursuant to the present invention, the particles will be so discharged in a straight line (stream 37 of Fig. 10a) in the plane in which said end of the hose is directed by the operator. The hose 21 may be made of any suitable material—for example, of a material of relatively inherent rigidity so as to maintain its cross-sectional outline while the particles are fed therethrough pneumatically.

Lightweight particles lack stability in flowing, and are dusty in nature (as noted at 38, Fig. 5) so that, on discharge from the hose, they seriously contaminate the air in the area in which the particles are sprayed. This has heretofore presented a substantial deterrent to the use of such equipment and presented an occupational hazard, endangering the health of workmen, reducing the efficiency of the operation and creating considerable opposition to the use of the pneumatic conveyor system for spraying lightweight particles in many installations wherein it otherwise would have been highly desirable.

Pursuant to the present invention, these objections are overcome by the provision of a novel apparatus, including an elongated tube 31 (Fig. 7), preferably medially bent as at 32 so as to dispose its opposite ends 33, 34 in offset relation (Figs. 5 and 7). The tube is preferably bent longitudinally to define the outline of a very gradual S, as shown in the drawings—a form found to be particularly suited for carrying out the invention; the invention, however, is not limited to the specific form of tube 31. The end 34 of the tube is adapted to be mounted exteriorly of the hose, with the bent and streamlined portion 32 of the tube (Fig. 1) passing through an aperture 35 in the hose. The tube is so proportioned that the end 33 opposite the mounted end 34 will be disposed in the hose and directed toward the discharge end

of the hose. Gas and liquid lines 43, 44 are connected to the mounted end 34 of the tube 31 (Fig. 7), whereby liquid under pressure may be connected to the tube exteriorly of the hose, to provide a spray 36 internally of the hose and directed toward the discharge end thereof, in the path of movement of the particles 20 through the hose. Said particles 20, in flowing into the spray internally of the hose (Fig. 5) will be pre-wet thereby; the dust condition is eliminated and the particles then adhere to projected straight lines on discharge from the hose and to the point toward which said discharge end of the hose is directed by the operator (37, Fig. 10a).

The end 33 of the tube 31 disposed in the hose 21 is preferably (Fig. 2) disposed in substantially the cross sectional center 38 of the hose 21.

If desired, the gas and liquid lines 43, 44, may be connected directly to the end 34 of the tube 31 as in Fig. 7 or to a Y or other fitting such as shown at 73, Fig. 7a, said fitting in turn being connected to the end 34 of tube 31. As shown in Figs. 3 and 7, a second tube 40 may be provided entering the end 34 of tube 31 as shown in dotted lines, Fig. 7, or extending from that point to the very end 33 of tube 31, as shown in Fig. 3 or to any intermediate point. As shown in Fig. 13, one tube 31a, may be disposed outside or apart from the other, 40a. Tubes 31 and 40 (Fig. 7) or the fitting 73 of Fig. 7a may be connected exteriorly of the hose with the gas and liquid lines for the liquid to be sprayed under pressure.

If desired, the discharge end 33 of tube 31 may be formed as a straight section 42 (Fig. 5) parallel to the longitudinal axis 22 of the hose; in the form shown in Fig. 3, both tubes 31 and 40 are formed with straight sections at the discharge end 33. If the discharge ends of the tubes 31 and 40 are in registry (as in Fig. 3) very favorable results are attained, but tube 40 may, as above noted, be of lesser length than tube 31, if desired. Where two tubes 31, 40 are used in carrying out the invention, they may be connected exteriorly of the hose to gas and liquid lines 43, 44, which may be coupled to said tubes by the use of any desired or convenient means, such as by connecting the ends of said tubes to coupling sections 45, 46 (Fig. 7) for engagement with complementary coupling member sections 47, 48 to which the gas and liquid lines 43 and 44 may be connected. The opposite ends (not shown) of the gas and liquid lines may be respectively connected to an air compressor or compressed air system and to a source of supply of water under pressure, or to a conventional water supply faucet. The inner tube (40) may either be the liquid tube or gas tube; the outer tube being correspondingly either the gas or liquid tube. The coupling sections, 46, 45 and tubes 40, 31 may (Fig. 7) be fixed to a bracket 49 to which a separable section 50 may be connected by bolts 51 or the like, to facilitate clamping said bracket to the hose 21. Relative dimensions of the parts may be approximately those shown in Fig. 7 in a form found suitable for practicing the invention. In such proportions, tubes 40 and 31 are of fine size and self-cleaning. The outer tube may be tapered (as at 80, Fig. 3) toward the end 29 of hose 21 if desired to enhance the streamlined, self-cleaning action.

The tube 31 may be mounted adjacent the point of pneumatic feeding of the particles into the end 35 of hose 20, as shown in Fig. 5, or may be mounted adjacent the discharge end 29 of said hose as shown in Fig. 10a. Likewise the tube 31 as shown in Fig. 10a, may be used solely for pre-wetting the particles, or it may be used in association with a second tube, 31a, shown in Fig. 10a, of similar structure and corresponding with the tube 31 in the details above described and positioned in the hose intermediate the discharge end 29 thereof and the intake end 39 thereof. Or, as shown in Fig. 11, the tube 31 may be positioned in the hose intermediate its ends 29, 39 and used in association with a conventional type of

hose nozzle 65 provided with conventional water and air lines 66, 67 controlled by valves 66a, 67a.

The present invention may be used to add various liquids, such as oil, water, binding agents, coloring agents and catalytic agents, to particles pneumatically sprayed.

Suitable controls may be provided for the apparatus, such as, for example, to provide for the flow of air or other gas through the tube 43 continuously while the source 23 of pneumatic feeding of the particles is operative. Thus, for example, in the case of a pneumatic feeding system such as shown in Fig. 6, the gas line 43 may be controlled so as to operate continuously while the particles are fed from the hopper 27 and through the discharge end 25 of the blower 26. This expedient is found convenient to avoid any possible fouling of the discharge end 33 of the tube 31 by any residue or small amounts of liquid which might otherwise collect at or flow out of the discharge end 33 of the tube 31 after the shutting off of the liquid supply, whereupon, on resuming the pneumatic feeding of particles the latter might adhere to and contaminate the discharge end 33 of tube 31 and build up on areas of the hose upon which the liquid drained. Hence, in accordance with this invention the gas line 43 is preferably operated essentially continuously or for a predetermined length of time after cutting off of the liquid line 44 and the particle source 23, and likewise in advance of their being turned on again.

To facilitate control by the operator for the above and other reasons, an electric valve such as solenoid valve 51 for control of the liquid line 44 may be provided, and an electric valve such as solenoid 52 for the control of the gas line 43 may be provided. Said solenoids may be connected, as by the wires 51a and 52a with suitable buttons 51b and 52b in a switch unit or means 53 which may be mounted on the hose at the discharge end thereof (Fig. 8). Hand actuated valves 54, 55 may be provided for said liquid and gas lines 44 and 43. The operator is thus enabled to control and regulate the relative flow and ratio of gas to liquid internally of conveyor hose 21, thereby predetermining the degree of pre-wetting of the particles 20 pursuant to the invention.

An electric valve, such as a solenoid 56 (Fig. 8), may be provided to control the source 23 of pneumatic feeding of the particles; said solenoid may be connected, as by wire 56a with switch 53, having a button 56b for the said solenoid, and a hand actuated valve 57 may be provided to further control the flow of particles from source 23.

The hose 21 is preferably of relatively inherent rigidity so as to maintain its cross-sectional outline while particles are fed therethrough pneumatically. A length of hose 60 (Fig. 9) of comparatively rigidity may be provided spaced from hose 21 (hose 21 may be cut to provide the vertical section 60) and a length of highly flexible tubing 61 may be secured intermediate said sections 60 and 21 of conveyor hose 21. Said length of highly flexible tubing 61 is preferably made of very thin material such as rubber, so as to be flexible and substantially less rigid than the hose sections, and cross sectionally unstable during the pneumatic feeding of particles 20. The flexible tubing 61 will thus tend to flex and move during such feeding, as indicated by the dotted line 62 (Fig. 9) to thereby counteract any tendency of the particles to build up in flowing through the tubing and to break up any build-up. The workmen can, by squeezing tubing 61 if necessary, supplement its action. To facilitate securing the tubing 61 between the sections of hose, rigid collars may be provided as noted at 63, 64, and said tubing and hose sections may be connected thereto as shown in Fig. 9.

The flexible tube 61 may be introduced for several reasons: If the particle feed rate decreases, excessive liquid may cause particles to stick to the side; if the particle flow temporarily stops due to running out of material, sticking may again occur. In such cases, the flex-

5

ible tube will tend to be self cleaning, or can be squeezed or easily removed for cleaning.

If desired, a rigid frame 44 may be provided for use in connection with flexible tube 61. Said frame may be fixed as at 69 adjacent the point of pneumatic feeding of the particles into the end 39 of the hose 21 and having a free end 70 remote therefrom, thereby safeguarding tubing 61 from being folded responsive to manipulation of the hose by the operator. A flange 71 may be provided at the free end 70 of frame 43, having a rigid collar 72 for connection of the flexible tubing 61 therewith, as shown in Fig. 12.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. An apparatus for use in pneumatic spraying of lightweight particles through a conveyor hose, said hose having a discharge end opening into the ambient atmosphere and having a second end for coupling to a source of pneumatic feeding of said particles into said hose under inertia urging said particles to flow through the hose parallel to the longitudinal axis of the hose, and out of the opposite, discharge end, of the hose directly into the ambient atmosphere at the end of the hose and in the plane to which said end of the hose is directed, said apparatus comprising an elongated tube bent so as to dispose its opposite ends in offset relation, one end of said tube being adapted to be mounted exteriorly of the hose, with the bent portion of the tube passed through an aperture in the hose, said tube being so proportioned and bent that the end thereof opposite the so mounted end will be disposed in the hose and directed toward the discharge end of the hose, whereby liquid may be connected to the tube exteriorly of the hose to provide a spray internally of the hose and directed toward the discharge end thereof, in the path of movement of the particles through the hose, so that said particles, in flowing into said spray internally of the hose, will be pre-wet thereby, and will therefore adhere to a projected line on discharge from the hose and toward the point to which the discharge end of the hose is directed, and the settling up and carrying of dust beyond the spray end of the tube in said hose and out of the discharge end of the hose will be essentially eliminated.

2. In an apparatus as set forth in claim 1, said hose being of relatively inherent rigidity so as to maintain its cross-sectional outline while said particles are so fed through the hose, a second length of hose of corresponding rigidity spaced from the first-mentioned hose, and a length of highly flexible tubing secured to said second and first-mentioned hose sections, said tubing being of substantially less rigidity than the hose sections and being cross-sectionally unstable during said pneumatic feeding of the particles through the hose sections, whereby said flexible tubing will tend to flex and move during such

6

feeding, to thereby counteract any tendency of the particles to build up in flowing through the flexible tubing.

3. An apparatus for use in the pneumatic spraying of lightweight particles through a conveyor hose, said hose having a discharge end opening into the ambient atmosphere and having a second end for coupling to a source of pneumatic feeding of said particles into said hose under inertia urging said particles to flow through the hose parallel to the longitudinal axis of the hose, and out of the opposite discharge end of the hose directly into the ambient atmosphere at that end of the hose and in the plane to which said end of the hose is directed, said apparatus comprising an elongated tube, one end of said tube being adapted to be mounted exteriorly of the hose, a portion of the tube passed through an aperture in the hose, said tube being so proportioned and disposed that the end thereof opposite the so mounted end will be disposed in the hose, directed toward the discharge end of the hose, and a second, open tube mounted within said first mentioned tube and co-extensive therewith, whereby air and water lines may be connected to the tubes exteriorly of the hose, to provide a spray internally of the hose, directed toward the discharge end thereof, in the path of movement of the particles through the hose, so that said particles, in flowing into said spray internally of the hose, will be pre-wet thereby, and will therefore adhere to a projected line on discharge from the hose and toward the point to which the discharge end of the hose is directed, and the settling up and carrying of dust beyond the spray end of the tube in said hose and out of the discharge end of the hose is essentially eliminated.

4. In an apparatus as set forth in claim 3, straight sections formed inwardly of the open ends of said tubes and disposed parallel to the longitudinal axis of the hose, said tubes being formed, intermediate said straight sections and the point of entry of said tubes into the hose, at an acute angle to the longitudinal axis of the hose.

5. In an apparatus as set forth in claim 3, said first mentioned tube being tapered toward the open end of the hose.

6. In an apparatus as set forth in claim 3, control means connected to said air and water lines exteriorly of the hose for the continuation of operation of the air line for a predetermined period after cutting off, and in advance of turning on, of the liquid line.

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July 10, 1956

J. L. KEMPTHORNE ET AL.
 APPARATUS FOR USE IN PNEUMATIC SPRAYING OF LIGHTWEIGHT
 PARTICLES THROUGH A CONVEYOR HOSE

2,754,155

Filed April 25, 1955

3 Sheets-Sheet 3

Fig. 10a.

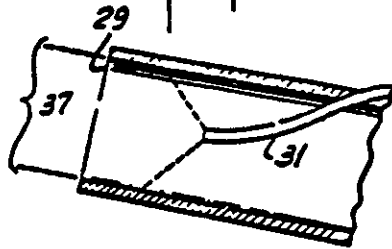


Fig. 10b.

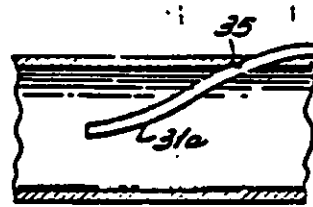


Fig. 11.

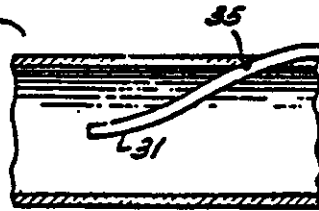
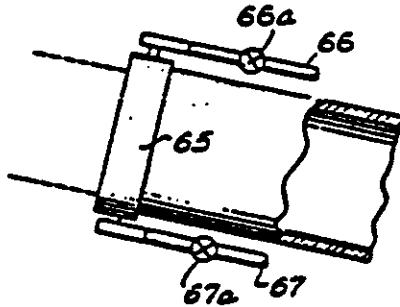


Fig. 12.

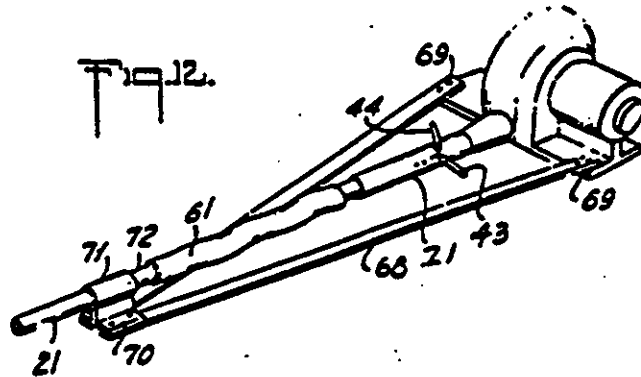
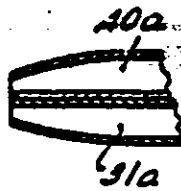


Fig. 13.



INVENTORS:
 JAMES L. KEMPTHORNE
 AND FRANK M. STUMPF
 BY
Harry J. [Signature]
 ATTORNEY:

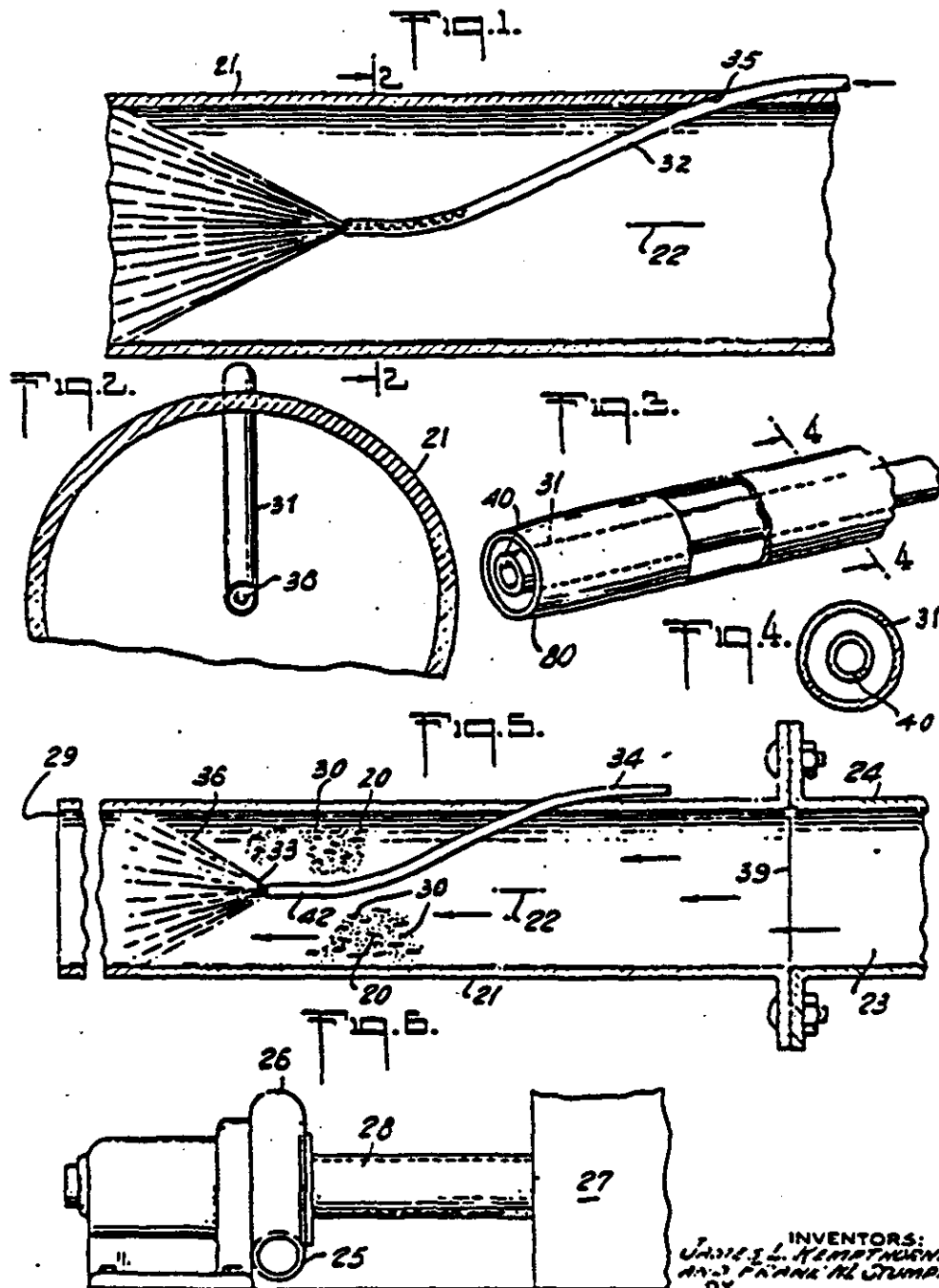
July 10, 1956

J. L. KEMPTHORNE ET AL.
 APPARATUS FOR USE IN PNEUMATIC SPRAYING OF LIGHTWEIGHT
 PARTICLES THROUGH A CONVEYOR HOSE

2,754,155

Filed April 25, 1955

3 Sheets-Sheet 1



INVENTORS:
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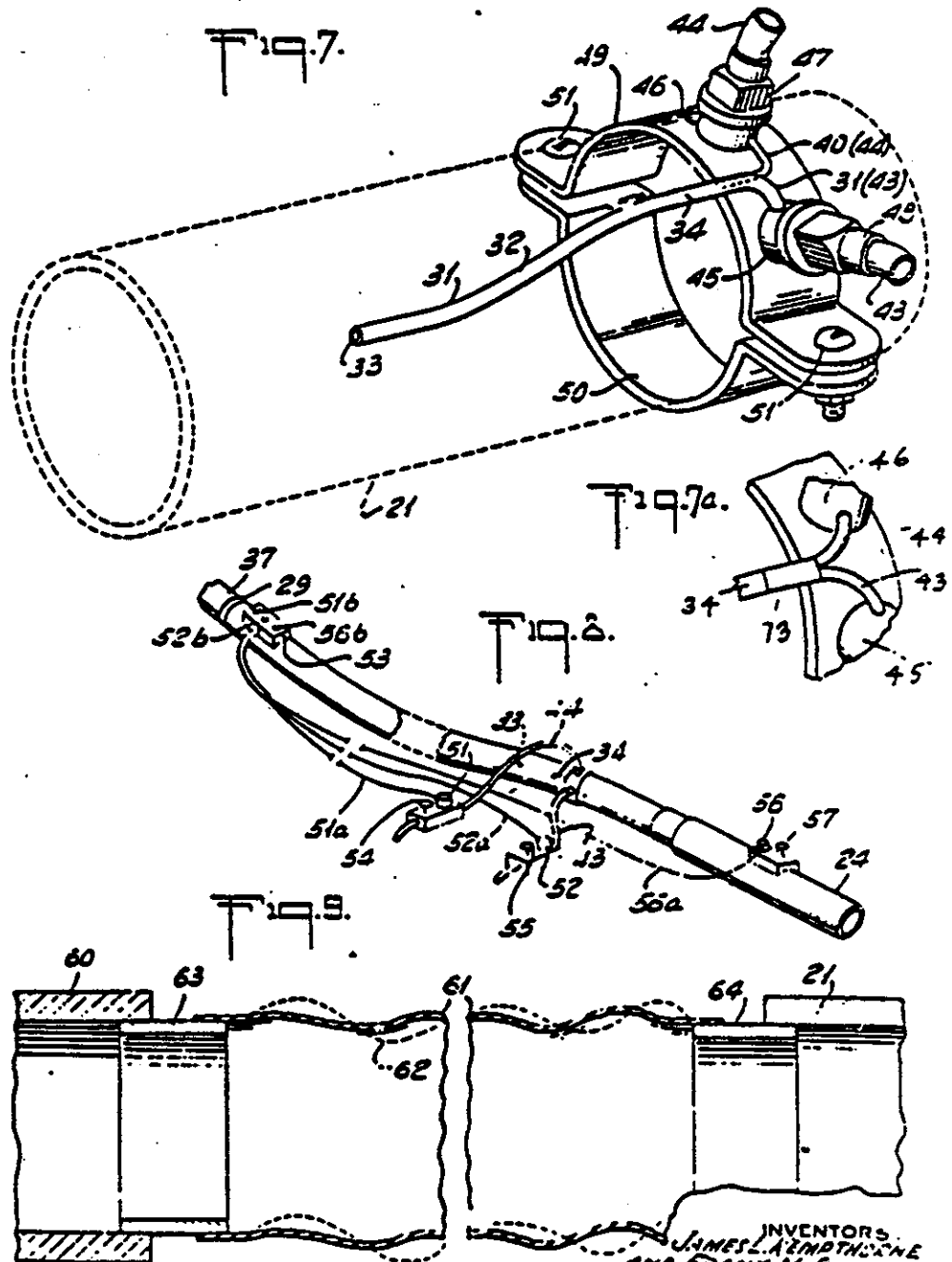
July 10, 1956

J. L. KEMPTHORNE ET AL
APPARATUS FOR USE IN PNEUMATIC SPRAYING OF LIGHTWEIGHT
PARTICLES THROUGH A CONVEYOR HOSE

2,754,155

Filed April 25, 1955

3 Sheets-Sheet 2



INVENTORS
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000817
EMPLOYERS MUTUAL LIABILITY INSURANCE COMPANY OF WISCONSIN
EMPLOYERS MUTUAL FIRE INSURANCE COMPANY
HOME OFFICE: WAUSAU, WISCONSIN



Address Reply To
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6030 W. CAPITAL DRIVE
MILWAUKEE 16, WISCONSIN
HOPEING 3-2000

Mr. F. M. Stumpf
Vice-President, Research
Columbia Acoustics and
Fireproofing Company
Stanhope, New Jersey

September 23, 1957



Dear Mr. Stumpf:

Thanks very much for your letter of September 17, 1957, giving us the composition of your CAFCO Spray. My interest in this material originated when I saw a company applying this material to a ceiling, and noticed that considerable dust was present. From my observations of the material, I concluded that some asbestos was present, and knowing of the possible harmful effects on the lungs from breathing asbestos, I wrote you the letter inquiring about the composition of this material. *

As industrial hygiene engineers, we need to know the extent of the hazards so that we can recommend proper medical and engineering controls and prevent the dispersion of dust into the atmosphere which would be in the breathing zone of the man applying the material. We are well aware of the relatively inert nature of mineral wool.

I suspect that the percentage of asbestos in the total mix is relatively small, but we would like to know the percentage of asbestos in this mix so that we can recommend the proper medical and engineering controls. We have in mind the recommending of a physical examination and chest x-ray for men exposed to dust from this material, if the asbestos content is high enough to justify such a recommendation.

Will you therefore give us additional information on this material. Any information which you give us will be kept confidential and used only from an industrial hygiene view point.

Very truly yours

Paul Lange
Industrial Hygiene Engineer

PLange-ML 14

Stumpf Ex 369

000913

PLAINTIFF'S
EXHIBIT
mp5

October 3, 1957

Mr. Paul Lange
Employers Mutuals of Wausau
6620 W. Capital Drive
Milwaukee 16, Wisconsin

Dear Mr. Lange:

With reference to your letter of September 23, 1957, the asbestos content in CAFCO Spray is as you indicated, relatively small.

The amount of dust produced during application is dependent upon the feed rate, and the amount of water used to wet the fiber. The company has available a dust control system which most applicators use. This device eliminates most of the dust. *

The dust that is produced can be eliminated with adequate ventilation. If working conditions are such that the area is dusty, then respirators should be used. The respirators available from this Company, and the type supplied with the application equipment are approved by the Bureau of Mines as Permissible Respirators for dusts, and Pneumoconiosis - Producing mists.

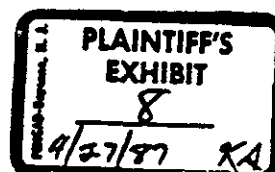
Please advise if you require any further information.

Very truly yours,

COLUMBIA ACOUSTICS AND FIREPROOFING COMPANY

P. H. Stumpf ✓
Vice President - Research

PMG/ad
CC: J. P. Verhalen
Caico



Stumpf Ex 379d

INTER-OFFICE MEMORANDUM

PLAINTIFF'S
EXHIBIT
mp8

To: E. W. [unclear]

From: J. P. [unclear]

Date: November 11, 1979

Subject: National Accounts

Following up with Mr. M. W. Burleson, Vice President-Sales for J-M's Industrial Insulations Division, I learned that they are unable to proceed with their CAPCO investigation until a policy decision is made with respect to bag markings, because of the asbestos content.

Currently, they are a party in suit by several asbestos workers who claim lung cancer was aggravated by the asbestos materials with which they work. The entire asbestos industry is considering labeling its product with some note of caution to the users of asbestos products, and it appears to them that the warning we have on our bags is appropriate to relieve us of responsibility but they are in a quandary.

If we label our CAPCO bags and they do not, should they have an occurrence similar to the present problem, the fact that our bags are labeled and theirs are not, would make them a party in negligence. Were they to mark their sprayed fiber bags because of the asbestos content and not mark every other asbestos bag their company distributes, it is possible that they would be a party in liability and charged with negligence for not exerting caution on the remainder of their company's products.

For that reason, until a policy determination is made as to whether or not they will mark their bags, no further discussion will be held on our supplying them CAPCO. He felt this would be resolved by November 26th and I told him I would follow up at that time.

JPV/deo

cc: J. F. O'Rourke — R. E. Schlemmer — E. P. Egan — F. M. Stumpf

PLAINTIFF'S
EXHIBIT

9

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THE ORIGINAL FILED
IN THE OFFICE OF
RICHARD P. BRINKER
CLERK OF THE CIRCUIT COURT IN AND FOR DADE
COUNTY, FLORIDA
ON JUN 30 1986

IN THE CIRCUIT COURT OF THE 11TH
JUDICIAL CIRCUIT IN AND FOR DADE
COUNTY, FLORIDA

GENERAL JURISDICTION DIVISION

CASE NO.:

PAUL KAY and SYLVIA KAY,
his wife,

Plaintiffs,

Florida Bar Nos.:
Robert E. Weisberg: 285676
David M. Lipman: 280054

vs.

PITTSBURGH-CORNING CORPORATION,
Individually and as successor
to UNARCO INDUSTRIES, INC.,
A Pennsylvania Corporation;

ARMSTRONG WORLD INDUSTRIES, INC.,
Formerly known as Armstrong Cork
Company, a Pennsylvania Corporation;

THE CELOTEX CORPORATION,
successor-in-interest to PHILIP
CAREY MANUFACTURING CO., PHILIP
CAREY CORPORATION, BRIGGS
MANUFACTURING CO., and PANACON
CORPORATION, a Delaware Corporation;

EAGLE-PICHER INDUSTRIES, INC.,
an Ohio Corporation;

NICOLET, INC., Individually and
successor-in-interest to KEASBY-
MATTISON COMPANY, A Pennsylvania
Corporation;

OWENS-CORNING FIBERGLAS CORP.,
a Delaware Corporation;

U. S. MINERAL PRODUCTS COMPANY,
a New Jersey Corporation;

W. R. GRACE & CO.,
a Connecticut Corporation;

STANDARD INSULATIONS, INC.,
formerly STANDARD ASBESTOS
MANUFACTURING & INSULATING CO.,
a Missouri Corporation;

NATIONAL GYPSUM COMPANY
a Delaware Corporation;

KEENE CORPORATION,
Individually and as successor-
in-interest to the
BALDWIN-EMMET-HILL COMPANY, and
KEENE BUILDING PRODUCTS
COMPANY, and EMMET MAGNESIA
MANUFACTURING COMPANY, a
New York Corporation;

GAF CORPORATION,
a Delaware Corporation;

CAREY CANADA, INC.,
a Foreign Corporation;



COMBUSTION ENGINEERING, INC.,
a Delaware Corporation;

CROWN, CORK & SEAL COMPANY, INC.,
a New York Corporation;

OWENS-ILLINOIS, INC.,
an Ohio Corporation;

KAISER REFRACTORIES, a
Division of Kaiser Aluminum
and Chemical Corporation,
a California Corporation;

QUIGLEY COMPANY, INC.,
a New York Corporation;

SABCOCK & WILCOX COMPANY,
a Delaware Company;

MARBINSON-WALKER, a Division
of Dresser Industries, Inc., a
Pennsylvania Corporation;

BIGELOW-LIPTAK CORPORATION,
a Michigan Corporation;

GENERAL REFRACTORIES COMPANY,
a Delaware Corporation;

A. P. GREEN REFRACTORIES COMPANY,
a Delaware Corporation;

UNITED STATES GYPSUM COMPANY,
a Delaware Corporation;

CHICAGO/WELLSVILLE FIRE
BRICK CO., an Illinois Corporation;

NATIONAL REFRACTORIES,
a Delaware Corporation;

NATIONAL LEAD,
an Ohio Corporation;

ROCK WOOL MANUFACTURING CO.,
INC., an Alabama Corporation;

FORTY-EIGHT INSULATIONS, INC.,
an Illinois Corporation;

RAYMARK INDUSTRIES, INC.,
successor-in-interest to
Raybestos-Manhattan, Inc.,
A Foreign Corporation,

Defendants.

COMPLAINT

Plaintiffs, PAUL KAY and SYLVIA KAY, his wife, sue
Defendants: PITTSBURGH-CORNING CORPORATION, individually and as
successor to UNARCO INDUSTRIES, INC., a Pennsylvania
Corporation; ARMSTRONG WORLD INDUSTRIES, INC., formerly known

Asbestos Exposure and Neoplasia

Irving J. Selikoff, MD, Jacob Churg, MD, and E. Cuyler Hammond, DSc, New York

Building trades insulation workers have relatively light, intermittent, exposure to asbestos. Of 632 insulation workers, who entered the trade before 1943 and were traced through 1962, forty-five died of cancer of the lung or pleura, whereas only 6.6 such deaths were expected. Three of the pleural tumors were mesotheliomas; there was also one peritoneal mesothelioma. Four mesotheliomas in a total of 235 deaths is an exceedingly high incidence for such a rare tumor. In addition, an unexpectedly large number of men died of cancer of the stomach, colon, or rectum (29 compared with 9.4 expected). Other cancers were not increased: 20.5 were expected, 21 occurred. Twelve men died of asbestosis.

ALTHOUGH PULMONARY CARCINOMA had been observed in the earliest studies of asbestosis, association between the two conditions was first suggested by Lynch and Smith in 1935.¹ Additional reports of such association followed. Perhaps the most striking data was presented in the annual report of the Chief Inspector of Factories of Great Britain for 1955.² Every death with asbestosis in the files of the Factory Department, from the first recognition of asbestosis as a disease entity, was studied. Altogether 365 such deaths were recorded (1924-1955). Sixty-five or 17.8% were found to be accompanied by cancer of the lung or pleura. Doll,³ after reviewing the problem and adding data of his own, concluded that lung cancer was a specific industrial hazard of heavily exposed asbestos workers.

Nevertheless, some investigators have held that, while these observations might be suggestive, they did not establish an increased incidence of carcinoma of the lung in pulmonary asbestosis, and further, that the association was unproved.

The factor of selection was considered a potential weakness in evaluating reports of autopsy series. It was noted that complicated and unusual cases would be more likely to come to autopsy, thus raising the apparent frequency of associated lung neoplasms.⁴ Further, it was argued that autopsy statistics, which deal with particular groups of those who died, do not reflect total populations of asbestos workers.⁵ Additional reservations were based on the frequent absence of data regarding

exposure, smoking habits, and personal history, on the size of series, and on inadequate histological verification in some cases.

Within the last few years a number of additional problems connected with asbestos exposure have appeared, making clarification and resolution of the foregoing statistical uncertainty a matter of considerable concern. First, there has been greatly increased use of the various types of asbestos (a five-fold increase in world utilization of this group of minerals, from 500,000 tons to 2,500,000 tons per year in the last 30 years), as well as a greatly increased number and variety of industrial applications of asbestos (over 3,000 such uses now recorded). Second, suspicion has been growing that malignancy associated with asbestos exposure may include neoplasms other than carcinoma of the lung. Thus, a significant relationship has been claimed between diffuse mesothelioma of the pleura and peritoneum and asbestos exposure.⁶

This communication is concerned with investigations undertaken to study the following factors: (1) the incidence of deaths due to pulmonary carcinoma among a group of workers exposed to asbestos under United States industrial conditions in the past several decades, (2) whether or not such individuals would also be found to have an increased risk of other neoplasms, and (3) whether such risks would be present in an industry other than the asbestos-producing or asbestos-products industries, with which most reports in the past have been concerned but which would not necessarily represent the most important areas of asbestos exposure at this time. Further, it was hoped that study of an industry with asbestos exposure of limited extent and intensity would throw some light on the potential problems associated with minimal exposure to asbestos.

Materials and Methods

Our investigations have been concerned with 1,322 members of the Asbestos Workers Union in the New York metropolitan area, members of New York Local 12 and Newark, NJ, Local 32 of the International Association of Heat and Frost Insulators and Asbestos Workers. As the full title implies, these men are insulation workers. Although the union is considered one of the building-trades unions, its members do insulation work in a variety of industries, including shipbuilding. Called "luggers" in Great Britain, they are often designated "pipe coverers," "insulators," or "asbestos workers" in this country.

The union is one of the oldest in the country.

From the Division of Thoracic Disease, Department of Medicine, and the Department of Pathology, Mount Sinai Hospital.

Read before a joint meeting of the sections on radiology and diseases of the chest and the American College of Chest Physicians at the 118th Annual Meeting of the American Medical Association, Atlantic City, NJ, June 17, 1963.

S. J. Selikoff, MD, J. Churg, MD, E. C. Hammond, DSc

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The New York local, as the "Salamander Association of Boiler and Pipe Fitters," was the first union of insulation workers in the United States. It amalgamated with other locals as the current Asbestos Workers Union in 1912. The stability of this union has been reflected in the stability of its membership rolls. "Once a pipecoverer, always a pipecoverer" has been of epidemiological importance to us and has made this group of men particularly suitable for the study of long-term effects of asbestos inhalation. Unlike unskilled workers exposed to asbestos inhalation in poorly paid industries, there is little labor turnover among insulation workers. Accurate employment records are maintained by the union, which has also been concerned with health problems in the industry.

The trade was badly hit during the depression; some men had to drop out and very few were added during the 1930's. By the end of 1942 the union rolls consisted mainly of men with considerable experience, plus a few who joined in 1940, 1941, and 1942. Between 1946 and 1962 union membership increased substantially.

Source of Data.—From union records, a list was prepared of every individual who was a member of either of the metropolitan locals on Dec 31, 1942, or who joined between that date and Dec 31, 1962. No one was omitted, whatever his subsequent work history. The 1942 list included 632 men; 660 men joined after 1942.

Personal data were obtained from union records, and the work history of each man was detailed, including withdrawal from employment (war service, other employment, retirement, illness). These data gave the baseline for calculation of the onset and duration of exposure. For members who had died, records of the Health and Welfare Fund provided date and place of death. Copies of death certificates were obtained on all but one of them. Autopsy protocols, histological specimens, and hospital records were obtained and reviewed in those deaths, approximately one half, in which the terminal illness had occurred in a hospital.

Statistical Analysis.—Previous studies have suggested that neoplasia associated with asbestosis seldom occurs until 20 years after first exposure to asbestos dust. Therefore, we decided to limit the present analysis to men with such an exposure history. Our complete records cover all members of the union (including active and retired members, both dead and alive) during the 20-year period from Jan 1, 1943, through Dec 31, 1962. However, with few exceptions, the only men with a history of 20 years or longer since first exposure to asbestos were the 632 men on the union rolls as of Jan 1, 1943. (The exceptions were a few men who joined the union after Jan 1, 1943, but who had been employed previously as asbestos workers elsewhere.) Of these 632 men, 255 died before Jan 1, 1963.

Table 1.—Man-Years of Experience of 632 Asbestos Workers Exposed to Asbestos Dust 20 Years or Longer

Age	Years			
	1943-1947	1948-1952	1953-1957	1958-1962
20-29	86.0	105.0	7.0	11.0
30-39	236.5	406.5	291.5	70.0
40-49	379.5	374.0	530.2	314.5
50-59	291.5	264.0	308.0	502.5
60-69	262.0	308.0	316.0	266.5
70-79	221.0	341.5	344.0	255.0
80-89	139.0	107.0	206.0	200.0
90-99	63.0	118.5	157.0	197.5
100+	31.5	78.0	78.5	75.0
Total	5.5	18.5	28.5	71.5
60+	2.5	2.0	6.0	11.5
Total	1,912.0	2,478.0	2,595.5	2,611.0

Of these 632 men, 339 had been exposed to asbestos dust prior to 1924. In other words, as of Jan 1, 1943, 20 years or longer had elapsed since these 339 men were first exposed. The remaining 293 men reached the 20-years-since-first-exposure point at some time after Jan 1, 1943, and before the end of 1962. The 339 men who were first exposed prior to 1924 were counted in each of the 20 years (or up to the time of death of those who died). The 293 who were first exposed in 1924 or later were counted only after they reached the 20-years-since-first-exposure point (those who died being dropped at the time of death). When the statistics were completed, we found that we had records covering a total of 8,737.5 man-years of experience of men with a history of 20 years or longer since first exposure to asbestos dust.

Of the 8,737.5 man-years, 1,912.0 were in the five-year period 1943-1947; 2,478.0 were in the period 1948-1952; 2,595.5 were in the period 1953-1957, and 2,611.0 were in the period 1958-1962. Table 1 shows the age distribution of the man-years in each of these five-year periods. Table 2 shows (1) the average age-specific death rates of all US white males during each of these periods, and (2) the average age-specific death rates from cancer of the lung, pleura, mediastinum, and trachea among US white males during each period, as reported by the US National Office of Vital Statistics.

The man-years were then multiplied by the corresponding reported US death rates to ascertain the expected number of deaths under the null hypothesis that the death rates of asbestos workers do not differ from death rates of all US white males (both age and date being taken into consideration). The results are summarized in Table 3.

Results

Total Deaths.—During the first five years (1943-1947) only 28 deaths occurred among the asbestos workers, whereas 39.7 deaths would have occurred had their age-specific death rates been the same as for all US white males during those years (Table 3). In other words, at the start of the study, the asbestos workers had below average death rates. This is by no means surprising. Indeed, such

2 PLAINTEXT
EXHIBIT
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Table 2.—Total Deaths and Deaths From Cancer of the Lung, Bronchus, Pleura, Mediastinum, and Trachea per 10,000 White Males per Year*

Age	1943-1947		1948-1952		1953-1957		1958-1962	
	Total	Lung Cancer†	Total	Lung Cancer†	Total	Lung Cancer†	Total	Lung Cancer†
15-35	36	1	30	1	26	1	25	1
35-44	56	2	48	2	42	2	42	2
45-54	98	3	78	3	72	3	70	3
55-64	133	4	124	6	115	6	116	7
65-74	196	6	189	8	179	10	178	11
75-84	295	7	291	10	276	14	273	17
85-94	416	7	417	11	414	17	418	21
95-104	634	6	609	11	586	18	607	21
105-114	977	6	918	10	878	14	866	17
115-124	1,483	9	1,353	8	1,346	12	1,363	15
125+	2,422	3	2,162	7	2,017	9	2,148	11

*Death rates as reported annually by the US National Office of Vital Statistics. A five-year average is given here for each period. Average for 1958-1962 is a projection of 1958-1960, since 1961-1962 rates are not yet available.
†Death rates include cancer of the lung, bronchus, pleura, mediastinum, and trachea, assigned to international list code No. 47-1 prior to 1949 and to No. 150-164 thereafter.

is almost always found in the first few years of a prospective epidemiological study of this type. The explanation is almost certainly as follows: The 632 men in this analysis were actively employed as asbestos workers in 1942. Since disability from illness or other causes precludes employment in a trade of this type, these men were presumably well (or at least not disabled) at the start of the study period. Almost any group so selected as to exclude the ill and disabled has a lower death rate during the ensuing few years than does the general population, since ill and disabled persons have extremely high death rates. A selective effect of this type gradually wears off with time and largely disappears within five to ten years from the time of initial selection.

During the second five-year period (1948-1952), the death rate of the asbestos workers was slightly higher than the death rate of all US white males, ie, 54 observed deaths compared with 50.8 expected deaths. In later periods, the death rate of the asbestos workers was proportionately higher. For the period 1953-1957, there were 85 observed deaths compared with 56.6 expected deaths, and for the period 1958-1962, there were 88 observed deaths compared with only 54.4 expected deaths.

Table 3.—Observed and Expected Number of Deaths Among 632 Asbestos Workers Exposed to Asbestos Dust 20 Years or Longer

Cause of Death	Years				Total, 1943-1962
	1943-1947	1948-1952	1953-1957	1958-1962	
Total, all causes	29	54	85	88	256
Observed (asbestos workers)	29.7	50.8	85.6	84.4	250.5
Expected (US white males)	29.7	50.8	85.6	84.4	250.5
Total cancer, all sites	13	17	26	39	95
Observed (asbestos workers)	13	17	26	39	95
Expected (US white males)	5.7	8.1	12.0	9.7	35.5
Cancer of lung and pleura	6	8	13	18	45
Observed (asbestos workers)	6	8	13	18	45
Expected (US white males)	0.8	1.4	2.0	2.4	6.6
Cancer of stomach, colon, and rectum	4	4	7	14	29
Observed (asbestos workers)	4	4	7	14	29
Expected (US white males)	2.0	2.5	2.6	2.3	9.4
Cancer of all other sites combined	3	8	6	7	21
Observed (asbestos workers)	3	8	6	7	21
Expected (US white males)	2.9	4.2	8.4	5.0	20.5
Asbestosis	0	1	4	7	12
Observed (asbestos workers)	0	1	4	7	12

Cancer of the Lung, Pleura, and Trachea.—In each of the four five-year periods, far more deaths from cancer of the lung and pleura occurred among the asbestos workers than would have occurred had their death rates from these diseases been the same as for all US white males (Table 3). Altogether 45 of the 632 asbestos workers died of cancer of these sites, whereas only 6.6 such deaths would be expected from general US experience. Of these 45 deaths, 42 were recorded as due to bronchogenic carcinoma and 3 to neoplasms of the pleura. The pleural neoplasms were all recorded as mesotheliomas.

Thus it was found that the death rate from cancer of the bronchus and pleura was 6.8 times as high among these asbestos workers as in the general US white male population (both age and date being taken into consideration).

It may be asked whether the high rate of lung cancer among these asbestos workers could possibly be attributed to an unusually large proportion of cigarette smokers among them. We cannot answer this question directly, since we have not yet been able to ascertain the smoking habits of the men who died. However, the following pieces of evidence indicate that unusual smoking habits cannot account for the high death rate from lung cancer among these workers:

We have interviewed 320 of the 377 surviving members of the 1942 group. Table 4 gives a summary of the smoking habits in this group compared with a sample of men drawn from the general population of 1,121 counties in 25 states.⁷ The union sample is somewhat inadequate since it does not include the men who died and does not include all of the present living members of the union. Nevertheless, it shows that a substantial proportion of asbestos workers never smoked cigarettes regularly. Certainly the 632 men in our analysis of death rates were not all heavy cigarette smokers.

In the general male population, lung-cancer death rates are about ten times as high among cigarette smokers as among nonsmokers; and the

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Table 4.—Smoking Habits of 320 Asbestos Workers Exposed to Asbestos Dust 20 Years or Longer Compared With Sample of Men From the General Population*

Age	Smoked Regularly		Smoked Pipe, Cigar, Never Cigarettes		History of Cigarette Smoking	
	Asbestos Workers, %	General Population, %	Asbestos Workers, %	General Population, %	Asbestos Workers, %	General Population, %
25-34	6.5	13.3	6.6	7.3	52.1	72.7
35-44	22.3	19.5	6.1	8.9	76.8	76.3
45-54	26.3	22.5	18.1	18.3	66.7	68.3
55-64	26.6	27.1	11.8	23.3	44.7	58.3

*Sample of men from general population as reported by Hammond and Garfinkel.

death rate from lung cancer increases greatly with the amount of cigarette smoking.⁶ However, a large proportion of all men in the United States have a history of regular cigarette smoking. From data in a prospective study on smoking,⁶ it may be estimated that if all men smoked a pack or more of cigarettes a day (ie, if all the nonsmokers, cigar smokers, pipe smokers, and light cigarette smokers had, instead, been heavy cigarette smokers) the lung-cancer death rate would be approximately 3.4 times as high as it is at this time.

From this we may conclude that even if all our asbestos workers had smoked a pack or more of cigarettes a day (and, indeed, from our sample we know they did not), and if exposure to asbestos were of no significance, then their lung cancer death rate would have been about 3.4 times as high as the rate in the general US male population. Clearly, the smoking habits of the asbestos workers cannot account for the fact that their lung-cancer death rate was 6.8 times as high as that of white males in the general population.

Gastrointestinal Cancer.—Rather to our surprise, the death rate from cancer of the stomach and the death rate from cancer of the colon and rectum were higher among the asbestos workers than would be expected from the rates reported for the US white male population, calculated in the same way as for lung cancer. Twelve deaths from gastric cancer occurred among the asbestos workers, as compared with only 4.3 expected. Seventeen deaths from cancer of the colon and rectum occurred among the asbestos workers, as compared with 3.2 expected.

Cancer of All Other Sites.—The combined death rate from cancer of all sites other than lung and pleura, and stomach, colon, and rectum was not increased. Twenty-one such deaths occurred among asbestos workers, as compared with 20.5 expected.

Asbestosis.—Of the 255 deaths, 12 were due to asbestosis (pulmonary insufficiency, cor pulmonale). The lapsed time from first asbestos exposure to death from asbestosis averaged 45.8 years, with a range of 32 to 59 years.

Comment

Carcinoma of the Lung.—The results with regard to carcinoma of the lung are clear. Industrial ex-

posure to asbestos by insulation workers, as studied here, results in a marked increase in the incidence of cancer of the lung, approximately six to seven times the expected incidence. Altogether, 45 (17.6%) of 255 men with more than 20 years elapsed since the onset of exposure died of cancer of the lung or pleura.

These data do not give the "incidence of cancer of the lung in asbestosis." They relate to the specific conditions of our investigation: to a group of men with only intermittent exposure to materials containing limited amounts (often 2% to 20%) of asbestos under working conditions varying from very dusty, as in extracting old insulation in closed quarters, to those with little dust exposure, as in building construction in open air. Moreover, they relate to the relatively recent past, in a trade with the shorter work week of the strong building trades unions, in an era when industry has been aware of potential asbestos hazard and the working population has had some consciousness of potential risk associated with dust exposure. These data would not necessarily apply to asbestos exposure in other industries, such as the factory production of asbestos products, the asbestos textile industry, etc, where conditions of employment might be quite different. Our results do not contradict the even higher incidence of lung cancer suggested in other studies⁷; they are merely a shade less striking.

Diffuse Pleural and Peritoneal Malignancy—Mesothelioma.—Determining the incidence of diffuse pleural mesothelioma is complicated by the insecurity of its histological verification. While some pathologists will so categorize a high proportion of diffuse pleural tumors, in the experience of others it is a very rare tumor and may be mimicked by anaplastic peripheral carcinoma of the lung and diffuse fibrosarcoma of the pleura. It is difficult to evaluate completely the published reports of diffuse pleural mesothelioma in asbestosis in the absence of complete details of each case.

To the present time, there has been no information concerning the incidence of diffuse pleural mesothelioma in asbestosis, since the published cases are reported without reference to a total population in which they occur. Nevertheless, the

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growing number of reports of individual cases suggests that these tumors are perhaps becoming relatively frequent complication of asbestos exposure.

Our observations in this series are similarly suggestive. In three of the 253 deaths among the men who had worked for 20 years or more, the examining pathologist considered the death due to diffuse pleural mesothelioma, and in the two cases in which we have been able to review the histological material, the histological appearance was that often so categorized, and asbestos bodies were present. This incidence of more than 1% of deaths from pleural mesothelioma is strikingly high for a tumor which is generally considered to be extremely rare. In one case in our series pathological examination suggested diffuse peritoneal mesothelioma. This single experience is too fragmentary for evaluation.

Gastrointestinal Carcinoma—Isolated instances of gastrointestinal carcinoma in the presence of asbestosis have been known, but there have been no data to indicate that these were more than coincidental findings. Among the asbestos workers studied here, cancer of the stomach, colon, and rectum was three times as frequent as expected. These data suggest that there may perhaps be an etiological relationship between industrial asbestos exposure and carcinoma of the gastrointestinal tract.

Environmental Asbestos Exposure—The recent demonstration, by South African⁴ and British⁵ investigators of pleural and peritoneal neoplasms among individuals who had chance environmental exposure to asbestos many years before raises the very important question of possible widespread carcinogenic air pollution. The possibility of environmental exposure has long been known. Soon after the initial clarification of asbestosis as a clinic entity, Hackley⁶ demonstrated asbestos bodies in a man not employed in the industry but living next

door to an asbestos factory. This finding was later mirrored in the finding of chronic beryllium disease among residents of a community near a beryllium factory.⁷ What is new, however, is an appreciation of the potential extent of the problem. Thomson and associates⁸ have reported the frequent findings of asbestos bodies in the lungs of urban dwellers. Among 6,312 individuals x-rayed in an area about an asbestos mine in Finland, Kiviluoto⁹ found 199 cases of pleural calcification of the type characteristically seen among asbestos workers, without obvious cause. In a comparable area without any asbestos mine, no cases were found among 7,101 persons x-rayed. It should be noted that these were not people who worked in the mine—none did—but, rather, were farmers, housewives, and others who lived in the general location. In one subject who came to autopsy, polarized-light microscopy demonstrated asbestos fibers in the lung. Similarly, the lung of a cow grazing near the mine also showed the presence of asbestos.

A particular variety of environmental exposure may be of even greater concern. Asbestos exposure in industry will not be limited to the particular craft that utilizes the material. The floating fibers do not respect job classifications. Thus, for example, insulation workers undoubtedly share their exposure with their workmates in other trades; intimate contact with asbestos is possible for electricians, plumbers, sheet-metal workers, steamfitters, laborers, carpenters, boiler makers, and foremen; perhaps even the supervising architect should be included.

1 E 108th St, New York 10029 (Dr. Selikoff).

This study was supported by the Health Research Council of the City of New York.

Cooperating in this investigation were the executive officers of the International Association of Heat and Frost Insulators and Asbestos Workers, Washington, DC, and the officers and membership of the New York and Newark, N.J., locals of this Union.

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PLAINTIFF
EXHIBIT

3716/6

INTER-OFFICE MEMORANDUM

01001

To: J. P. Verhalen

From: J. F. O'Rourke

Date: November 18, 1966

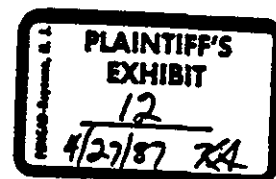
Subject: SMFMA General Meeting

Bert Levine has suggested that a general meeting be called as quickly as possible so that the SMFMA organization can take a unified stand and approach on this asbestos health hazard problem. It is the writer's feeling that we should equip John Boyer with a standard reply and existing documentary information so that prompt letters can be dispatched wherever we uncover adverse comment or actions against sprayed fiber.

A case in point is the Division of Industrial Safety in California. I honestly think that some immediate action and reply should be taken sending them existing information right now. I don't think we should wait until tests are run or test methods are developed since this might take many years. I feel we have enough information at this time at least to be able to neutralize the minds of some individuals such as the Division of Industrial Safety until more concrete information can be established.

I concur with Bert Levine that a general meeting should be held as quickly as possible.

J. F. O'Rourke
J. F. O'Rourke



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NOTED
REGIONAL DIRECTOR

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RESEARCH
24-11A

AUGUST 22ND, 1966

SMITH & KANZLER CORPORATION
Mr. H. LIEFF
BALDWIN-ERRET-HILL CORPORATION
Mr. H. WILSON
U.S. MINERAL PRODUCTS COMPANY
Mr. F. STUMPF ✓

PLAINTIFF'S
EXHIBIT
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PLAINTIFF'S
EXHIBIT
3732

C.F. U.S. MINERAL PRODUCTS - Mr. VERHALEN
C.F. CADWALADER, WICKERSHAM & TAFT - Mr. BOYER

GENTLEMEN:

AT A BOARD OF DIRECTORS MEETING OF THE S.M.F.M.A. ON THURSDAY, AUGUST 18TH, IT WAS DETERMINED THAT THE FOLLOWING TESTING PROGRAM BE SET UP BY THE TECHNICAL COMMITTEE AS QUICKLY AS POSSIBLE, TO COMBAT ANY FUTURE DEVELOPMENTS OF REPERCUSSION FROM DR. SELIKOFF'S PREVIOUS PUBLICITY CONCERNING ASBESTOSIS. BASED ON A MEETING HELD WITH DR. SELIKOFF, AT WHICH JIM VERHALEN AND BERT LEVINE WERE IN ATTENDANCE, AND DISCUSSIONS BETWEEN US AFTER THAT MEETING, IT WAS DETERMINED THAT IT MIGHT BE ADVISABLE TO TEST THE FOLLOWING SITUATIONS:

1- TEST, WITH SOME REPUTABLE LABORATORY, DUST CONCENTRATION IN THE SPRAYING AREA. IN OTHER WORDS, WE SHOULD TAKE DUST COUNTS IMMEDIATELY ADJACENT TO THE MEN WHO ARE DOING THE SPRAYING, AND AT VARIOUS RADII FROM THAT POINT, TO INDICATE THE FACT THAT THERE IS NO SPREAD OF DUST CONCENTRATION BEYOND THAT POINT.

2- TO REMOVE THE SUSPICION THAT THE USE OF A SPRAYED FIBROUS MATERIAL IN A PLENUM CHAMBER CONTRIBUTES TO ASBESTOS DUST IN THE AIR OF THE SYSTEM, WE WOULD LIKE TO RUN DUST COUNT TESTS ON THE EMISSION FROM DUCTS FROM AREAS WHERE THE PLENUM HAS BEEN TREATED:

- A) WITH SPRAYED FIBRE FIREPROOFING
- B) WITH MONO-COTE FIREPROOFING
- C) WITH REINFORCED CONCRETE TREATMENT

8-115 LD
DATED
REDAINE DRISSEN

PQ

TECHNICAL COMMITTEE
PAGE TWO
AUGUST 22ND, 1966

WE SHOULD USE A REPUTABLE LABORATORY TO ACCOMMODATE FOR THESE TESTS AND GET THEM DONE AS QUICKLY AS POSSIBLE, SO THAT WE CAN HAVE THE PROPER AMMUNITION TO FIGHT ANY DETRIMENTAL STATEMENT THAT MIGHT BE MADE BY UNIONS, ETC.

I THINK WE SHOULD ARRANGE TO HAVE A MEETING OF THE TECHNICAL COMMITTEE AS QUICKLY AS POSSIBLE, TO LOOK INTO THESE MATTERS AS WELL AS OTHERS WHICH HAVE DEVELOPED.

VERY TRULY YOURS,

SPRAYED MINERAL FIBRE MFRS. ASSN. INC.



H.L. LEVINE

HLL/RS

8-116 2D
DATED
STANDARD TIME...

INTER-OFFICE MEMORANDUM

00087, 01508

To: J. P. Verhalen
From: F. M. Stumpf
Subject: Dust Tests

Date: December 15, 1966

The writer, with William Bradley of Bradley Associates, Newark, conducted tests in two locations. With R. Toth of Smith & Kanzler, we went to the Lord & Taylor job at Paramus, N. J. and had an opportunity of conducting only three tests since they were only spraying small areas. Results were:

- | | |
|--|-------------------------|
| 1. Outside under soffit area: | 4 1/2 parts per million |
| 2. Inside building at hopper: | 4 " " |
| 3. Inside building while spraying wall area with pole gun: | 7 " " |

Temperature inside at Noon was: Dry bulb - 46
Wet bulb - 44 or 95+ percent R.H.

In New York City we were accompanied by Harry Wilson of B-E-H for their Ford Foundation job on 42nd Street. Results were:

- | | |
|---|----------------------|
| 1. At fiber gun on scaffold: | 26 parts per million |
| 2. Sixty feet from fiber gun in corner of building: | 9 " " |
| 3. Thirty feet from fiber gun in corner of building: | 12 " " |
| 4. Ten feet from fiber gun in corner of building: | 7 " " |
| 5. Two floors below in a small room to house electrical switch gear as a control: 2.7 parts per million | |

Temperature in the little enclosure at 3 p.m. was: Dry bulb - 42
Wet bulb - 39
or
relative humidity of 95

As a result of these tests, Mr. Bradley was quite alarmed, especially at the Baldwin Hill material which he indicated in his slide showed very poor quality asbestos, as compared to the long fibers in the Smith & Kanzler product. He said, based on the litigations he has been involved with, that our industry had perhaps better face up pretty quickly to this problem.

On mentioning that our people have X-ray tests taken by the Tuberculosis Association he indicated that this is a small 37 mm picture which does not reveal problems and for people in our industry, a full scale 14" x 17" plate x-ray should be taken.

The report will be addressed to the Sprayed Mineral Fibers Manufacturing Association but will be sent to the writer's attention. I mentioned that after the Association has had an opportunity to review this report, we would probably like to have Mr. Bradley visit us and further discuss this matter.

FMS/ec



U 2627

William R. Bradley and Associates

ENVIRONMENTAL HEALTH CONSULTANTS

18 GREEN STREET • NEWARK, N. J. 07102

201 622-4246

January 23, 1967

PLAINTIFF'S
EXHIBIT

15
1/27/87 RA

Sprayed Mineral Fiber Manufacturers Association, Inc.
Suite 2300
One Wall Street
New York, New York 10005

Attention: Technical Committee

PLAINTIFF
EXHIBIT

3750

Re: ENVIRONMENTAL HEALTH INVESTIGATION

An environmental health study was made for the Sprayed Mineral Fiber Manufacturers Association, Incorporated on January 12, 1967, at the United States Mineral Products Company in Stanhope, New Jersey, in quarters provided for this study. Products of four companies were sprayed under controlled conditions of application during which tests of air samples were collected in the breathing zone area of the spray operator. These air samples were submitted to microscopic examination and dust count using the approved technique for the determination of respirable size particles in the work environment. The dust counts involved particles 5 microns or less in diameter.

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DATED _____ SVD.
KELLYNE DEWITT

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The tests were conducted in a large open area with one side of the building opened directly to the outdoors. The sample collection point was at all times two to three feet of the operators nose. The operator sprayed part of the time on the ceiling and part of the time on the wall during each test. He held the spray nozzle in his hand and applied the products at a distance of three to five feet from the ceiling or wall. A large pedestal fan was turned on to ventilate the test area between each test. Material applied during one test was removed from the wall between each test. Material applied to the ceiling felled by gravity during the tests which gave representative conditions of application.

The same personnel conducted all of the product feed to the blower and performed the spray application. The first twelve tests were conducted for ten minute periods each and the second series of twelve tests were conducted for five minute periods each. During the first twelve tests the Uni-Air type gun with sixteen holes was used. During the second twelve tests the Uni-Jet, airless type gun was used. With each type of spray gun the four products were spray tested under water flow rates of 7- $\frac{1}{2}$ pounds per minute, 10 pounds per minute and 12- $\frac{1}{2}$ pounds per minute. These water flow rates were used with both types of application guns

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The fiber feed rate for all tests was designed for ten pounds per minute. Actual fiber feed rates as supplied by the blower hopper operator were as follows:

USMP 10 to 11.4 pounds per minute

BEH 7 to 8 pounds per minute

S&K 8 to 10 pounds per minute

Asb. 13.6 to 15 pounds per minute

The results of dust samples are as follows:

Dust Sample Analysis

United States Mineral Products Co. (USMP)
Cafco Blaze-Shield Type D

Baldwin-Ehret-Hill, Inc. (BEH)
Pyrospray Type 1

Smith & Kanzler (S&K)
Spraycraft 1132 Type S

Asbestospray Corporation (Asb.)
Asbestospray Type T

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Test No.	Product	Water Flow Rate (lbs./minute)	TYPE GUN		Millions of Particles per Cubic Foot of
			Uni-Air 16 holes	Uni-Jet Airless	
1.	USMP	7.5	X		13
2.	BEH	7.5	X		18
3.	S&K	7.5	X		21
4.	Asb.	7.5	X		14
5.	USMP	10	X		11
6.	BEH	10	X		17
7.	S&K	10	X		22
8.	Asb.	10	X		12
9.	USMP	12.5	X		9
10.	BEH	12.5	X		12
11.	S&K	12.5	X		14
12.	Asb.	12.5	X		7
13.	USMP	7.5		X	14
14.	BEH	7.5		X	19
15.	S&K	7.5		X	23
16.	Asb.	7.5		X	15
17.	USMP	10		X	13
18.	BEH	10		X	19
19.	S&K	10		X	22
20.	Asb.	10		X	14
21.	USMP	12.5		X	12
22.	BEH	12.5		X	16
23.	S&K	12.5		X	21
24.	Asb.	12.5		X	11

SUMMARY

Results of dust studies made on 4 mineral fiber products

sprayed under controlled environmental conditions shows that the spray operator would be exposed to the inhalation of asbestos fibers and other mineral wool dusts that might lead to occupational illness. The threshold limit values for asbestos fiber dusts is 5 million particles per cubic foot of air. It is considered that exposure to asbestos dust in concentration less than 5 million figure will not lead to the formation of asbestosis. Asbestosis is more likely to occur after long continued inhalation of asbestos dusts in high concentration such as may exist in a mining, milling or cutting of asbestos.

All test results were determined to be in excess of the 5 million particles per cubic foot threshold limit value. It is apparent that product application was more dusty when using the Uni-Jet (airless) type gun then when using the air supplied gun. It was also apparent that there was less air-born dust as the water flow rate increased. Products labeled USMP and Asb. were found to be about equal in dustiness as applied. It is noted that more Asb. fiber was applied per

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minute than USM application rate. It is noted that S&K fiber is most dusty with product SEH being slightly less dusty in all cases, but considerably more dusty than USMP and Asb. products.

WRB/dm

Wm R Bradley
WILLIAM R. BRADLEY





SPRAYED MINERAL FIBER MANUFACTURERS ASSOCIATION, INC.

Minutes of Annual Meeting of Members

January 31, 1967

The Annual Meeting of the members of the corporation was held at the Plainfield Country Club, Plainfield, New Jersey on January 31, 1967 at 10:00 A.M.

The following members were present:

<u>Member</u>	<u>Represented by</u>
Asbestospray Corporation	Messrs. Levine
Baldwin-Ehret-Hill, Inc.	Jenne
Smith & Kanzler Company	Binger
United States Mineral Products Company	Verhalen

being all of the members and a quorum. Present by invitation were Messrs. Miller, Stumpf, Toth and Wilson. Also present was John Boyer of Cadwalader, Wickersham & Taft, counsel.

Mr. Verhalen, President of the corporation, acted as Chairman of the meeting and Mr. Binger, acted as Secretary of the meeting.

The Chairman, after calling the roll, read the minutes of the Fall Meeting of Members held on December 1, 1966,



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which had been previously distributed to the members. There being no amendments or additions, the minutes were ordered filed as approved.

The Chairman called for the report of the Nominating Committee, by its Chairman, Mr. Levine, who stated that at a meeting of the Nominating Committee duly called and held on the 27th of December, 1966 the Committee had voted to nominate as Directors and Officers of the corporation the same persons as presently held such offices as follows:

Directors

James P. Verhalen
A. E. Binger
Herbert L. Levine
J. H. Wittkop

Officers

James P. Verhalen, President
A. E. Binger, Vice-President
Herbert L. Levine, Treasurer
J. H. Wittkop, Secretary

The President asked if there were any other nominations, and there being none, upon motion duly made, seconded, and unanimously carried, it was

RESOLVED, that the nominees of the Nominating Committee be, and they hereby are, elected as the Directors and Officers of the Corporation for the ensuing year, each of such Directors and Officers to hold office subject to the By-Laws, and until his successor is elected and shall qualify.



The Chairman called upon the Treasurer, Mr. Levine, to render his report on the financial condition of the corporation through the year ended December 31, 1966. Mr. Levine outlined the receipts and disbursements for the year 1966 and the amount of cash on hand as contained in his written report. The report of the Treasurer was unanimously approved by the members of the corporation and ordered filed with the minutes of the meeting.

The Chairman stated that it was in order to consider the appointment of new Chairmen of the Technical Committee and the Promotion Committee to succeed Dr. Lief and Mr. Jenne, respectively, and, after discussion, upon motion duly made and seconded, it was unanimously

RESOLVED, that Messrs. H. Wilson and R. H. Toth are hereby appointed, respectively, as the Chairman of the Technical Committee and the Promotion Committee to serve until their successors are appointed.

The Chairman then called for report of the Technical Committee which was read by Mr. Toth in the absence of Dr. Lief. Progress on the air erosion test project in process at the Kodaras Laboratories was reported. Dr. Lief also noted that the Government Services Administration had been contacted by him with respect to the proposed GSA air erosion test method.

Dr. Lieff next reported on the dust collection test conducted by the Bradley firm in the field and at the laboratory of United States Mineral Products Company. The meeting considered the results of these tests in detail and the proposals for continued testing as well as the test method to be followed in further tests recommended to determine the incidence of dust at various distances from the spraying gun. After discussion, it was moved, seconded and unanimously voted that a further series of 22 tests be conducted by the Bradley firm on each of the industry products utilizing two types of spraying guns, a one to one ratio of water to dry fiber at 5, 10 and 15 pounds of water flow per minute, all with the purpose of developing further information on the incidence of asbestos dust particles in order to further the corporation's health research program. After discussion, upon motion duly made and seconded, it was unanimously

RESOLVED, that a sum not exceeding \$500 is hereby appropriated to cover the costs of additional dust collection tests to be conducted by William R. Bradley and Associates.

Dr. Lieff reported on developments in the ASTM task force considering proposed standard methods of testing sprayed fireproofing material at its meeting in Washington, D. C. The initial draft standard developed by this task force, Dr. Lieff reported, will be circulated throughout industry for comments before being submitted to subcommittee 2

of ASTM Committee E-6. Dr. Lief also reported on an invitation from Mr. Erwin, secretary of the USA Standards Institute Sectional Committee A-42 on plastering and lathing to become members of the Committee.

In connection with the complaints concerning the accuracy of the promotional material of Thermo-K, Thermo-Kote and the K-13 product made to the FTC, counsel reported that no word had been received from the FTC concerning the progress of its investigation and was requested to contact the Bureau of Deceptive Practices of the FTC to determine what steps were being taken on the complaint.

The Chairman then called for a report of the Promotion Committee Chairman, Mr. Jenne, who outlined the progress made to date on the preparation of news releases, preparation of an industry brochure, including a recommended specification and on the design of an association logo type. Mr. Baer of John Baer Company, also present by invitation for this portion of the meeting, then reviewed the activities of his firm in the preparation and distribution of news releases and on the design of the brochure. Mr. Baer presented to the meeting a number of alternative logo type designs, and after discussion, upon motion duly made and seconded, it was unanimously

RESOLVED, that the association hereby adopts as its logo type the design featuring the spray gun nozzle and the name of the Association.

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The meeting then considered the Promotion Committee budget for 1966 and the alternative programs available for promotional activities during 1967 at various budget levels. Chairman Jenne was requested to develop budget programs for alternative budgets of \$2,500, \$5,000 and ~~\$75,000~~^{\$7,500} for presentation to the Board of Directors prior to its next meeting.

Mr. Levine reported on his investigation of the charges for a statistical reporting program that had been quoted in response to inquiries made by him, and he noted that the account firm of Price Waterhouse & Co. had agreed to undertake a statistical program for the Association at a cost of \$175 and \$60 per report thereafter, with an additional \$10 for each class of product covered in the report. After discussion, it was the sense of the meeting that a statistical reporting program be undertaken and recommended for adoption by each company based on quarterly reporting of shipment for one classification only - sprayed mineral fiber for building construction - on a regional basis, with the country for this purpose to be divided into six regions, and that all individual company data be reported on a confidential basis directly to Price Waterhouse & Co.



The Chairman then stated that it was in order at the Annual Meeting to ratify and confirm the activities of the Board of Directors and officers and agents of the Corporation since the date of the last Annual Meeting. Accordingly, upon motion duly made and seconded, it was unanimously

RESOLVED, that the acts, proceedings, elections and appointments of the Board of Directors, officers and agents of this Corporation since the Annual Meeting of the Corporation held on January 11, 1966, be and the same hereby are adopted, approved, ratified and confirmed.

There being no further business to come before the meeting, upon motion duly made, seconded and unanimously carried, the meeting was adjourned at 4:50 o'clock p.m.

Secretary of the Meeting

APPROVED:

Chairman of the Meeting



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URERS ASSOCIATION, INC.

Minutes o

Members, June 17, 1966

The Spring Meeting of the members of the Corporation was held at the Plainfield Country Club, Plainfield, New Jersey, on June 17, 1966 at 10:00 o'clock A.M.

The following members were present:

<u>Member</u>	<u>Represented By</u>
Asbestospray Corporation	Messrs. Levine
Baldwin-Ehret-Hill, Inc.	Wittkop
Smith & Kanzler Company	Binger
United States Mineral Products Company	Verhalen

being all of the members and a quorum. Present by invitation were Messrs. Boland, O'Rourke, Stumpf, Toth and Wilson. There was also present John Boyer of Cadwalader, Wickersham & Taft, counsel.

Mr. Verhalen, President of the Corporation, acted as Chairman of the meeting and Mr. Wittkop, Secretary of the Corporation acted as Secretary of the meeting.

The Chairman, after calling the role, read the minutes of the first annual meeting of members held on January 11, 1966, which had been previously distributed to the members. There,



being no amendments or additions to the minutes as read, the Chairman ordered the minutes filed.

The Chairman then called for the report of the Chairman of the Promotion Committee, Mr. Boland. The meeting then proceeded to consider in order, the schedule of news releases as previously assigned to the members, the retention of John Baer as public relations counsel, the status of preparation of association literature, and the progress being made on the preparation of a promotional color film.

The Chairman then called for the report of the Technical Committee by its Chairman, Dr. Lieff. Consideration was given to the reply of Albi-Clad to the communication sent by the Association requesting discontinuance of the derogatory references to Sprayed Fiber contained in its advertising material. Mr. Stumpf discussed the validity of the claims of Thermo-Kote with respect to thermal conductivity at various thicknesses, and it was determined that counsel should draft a request to the FTC to investigate the accuracy of the claims and to enjoin any false or misleading claim being made. Mr. Wilson referred to the heat resistant characteristics of Sprayed On products and recommended that a sample be obtained in order to test that product's melting point. Dr. Lief then reviewed the developments with respect to the proposed GSA specifications which were considered in meetings at Newark and Washington, D.C. Dr. Lieff noted that the recommendations of the Technical Committee had been incorporated in the GSA April, 1966 revisions and now appear to be in satisfactory form. The meeting

also received Dr. Lief's report on the status of the ASTM Committee developing a durability test procedure which could be developed into a product standard. Dr. Lief then discussed the communications had with the CPLIA Technical Committee, including the question whether the proposed specifications being developed by that Committee would incorporate separate specifications for plastering and fireproofing.

Mr. Verhalen then outlined the problem encountered at the Cleveland Federal Office Building where workers in related trades had walked off the job alleging that sprayed fireproofing operations had created a health hazard. The Chairman requested comments on the draft form of statement prepared to reply to publicity or complaints related to the alleged health hazard of asbestos dust. Dr. Lief and counsel were designated as a subcommittee to prepare an industry statement on the health aspects of sprayed asbestos products. Consideration was given to the advisability of meeting with Dr. Selikoff to discuss the research he is conducting in this field. The Chairman requested counsel to obtain the views of Dr. Kenneth Smith the Medical Director of Johns-Manville Corporation on the accuracy of allegations and publicity concerning the health aspects of asbestos products.

The meeting then turned to a consideration of development of an industry fire test program at Underwriters Laboratories. Counsel reviewed certain of the legal requirements of a fire



test and subscription program as outlined in the draft subscription agreement distributed to each member of the Board of Directors. Further consideration was given to the possibility of expanding fire tests into new use areas and to the listing requirements of Underwriters Laboratories in the event an industry developed product formula were tested. The Technical Committee were requested to consider the feasibility of developing a formula for purposes of fire testing.

The Treasurer, Mr. Levine, reported on the income and expenditures of the Association during the previous five months and on the balance of funds on hand as of the date of the meeting.

There being no further business to come before the meeting, on motion duly made, seconded and unanimously carried, the meeting was adjourned at 4:20 o'clock P.M.

Secretary of the Meeting

APPROVED:

Chairman of the Meeting



01543



June 6, 1966

Mr. John Boyer
Cachuladar, Mickarsten & Taft
1 Wall Street
New York, New York 10005

Subject: Asbestos Health Hazard Publicity

Dear John:

Attached is a copy of the letter I discussed with you by phone last Friday, which is the first instance where we have learned that other trades have refused to work on the same floor where our products were being applied.

I believe it is imperative that Sprayed Mineral Fiber Manufacturers Association, Inc. develop a standard official statement of policy which may be used by any of the members should such a condition arise on work they are doing, and I would urge you to have a draft of such statement prepared so that it might serve as a basis of discussion at our Association meeting on June 17th.

Very sincerely,

UNITED STATES MINERAL PRODUCTS COMPANY

J. P. Verhalen,
Executive Vice President

JPV/ceo
Enc.

cc: Mr. H. L. Levine - - Asbestospray Corporation
Mr. J. H. Wittkop - Baldwin-Ehrst-Hill, Inc.
Mr. A. E. Binger - - Smith & Kanaler Company

J. F. O'Rourke -- F. M. Stumpf



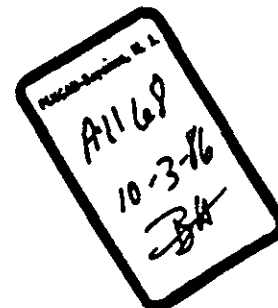
SPRAYED MINERAL FIBER MANUFACTURERS ASSOCIATION, INC.

**[Form Letter Reply to Notice of Walk-Out on the
Claim that Sprayed Fiber is a Health Hazard]**

Dear :

This is in reply to your advice that workers in other trades present on the job in progress at the , claim that a possible health hazard may result from exposure to sprayed mineral fiber dust.

We are, of course, familiar with the publicity appearing recently in certain media concerning the possible effects of long exposure to high concentrations of asbestos dust. While a number of medical investigations of this question have been conducted over a period of years, the conclusions drawn from the medical evidence adduced to date vary considerably. At this juncture, it is fair to say that medical authorities are not in agreement, even as to the effects of long term exposure to high concentrations of such dust, for example where ventilation is lacking. Definitive data is lacking on the effects of occasional exposure to present-day sprayed asbestos fiber dust. Thus the more exhaustive studies and those of longest duration do not relate specifically to the type of sprayed mineral fiber products now being produced by members of the Association, and accordingly not to the type of product being used on this job.



Moreover, the studies which have been cited in the adverse publicity are based essentially on medical records of workers who performed their jobs under conditions substantially different from the average conditions now maintained at job sites. Association products are specially treated during processing with dust control agents. Dust concentration is further minimized by the introduction of atomized water sprays as the fiber leaves the hose. The likelihood of any serious concentration of dust particles would be only in the immediate vicinity of the spray gun. For that reason, we caution applicators to wear suitable dust masks, since they may be working under these conditions over extended periods of time.

Our Association members seriously doubt that any significant hazard exists for other workmen on the same job site not actually spraying fiber. There is no medical evidence to our knowledge indicating that anyone spraying, using Association product or exposed to dust in areas adjacent to the spraying have ever been afflicted with respiratory or other ailments caused by Association fibers or processes.

The sprayed fiber industry, together with other industries dealing in asbestos products, are cooperating with and supporting responsible research projects now under way in the laboratories of the environmental health division of the Public Health Service and

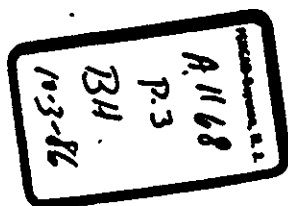
such reputable research organizations as the Industrial Hygiene Foundation of America in Pittsburgh, Pennsylvania. Since these research efforts have not been concluded, any statement indicating conclusive knowledge of the health aspects of today's sprayed fiber products, applied under today's conditions, would be premature and seriously misleading.

The Association is taking every effort to assure that workmen applying the products of the Association are adequately protected with respiratory masks. If a particular workman operating in areas adjacent to the spraying of mineral fibers is unduly sensitive to dust, he should also wear a protective mask. Such allergic tendencies would be exhibited in the presence of most any dust, for example, resulting from fiber spraying, concrete hammering, plaster mixing, floor sweeping, and the like. There is to our knowledge, however, no medical research that has established the occasional exposure to some fiber spray dust as either more or less serious health hazard than other types of dust commonly associated with construction site operations.

We believe this answers the questions raised. The Association would be pleased to furnish such other information as may be requested.

Sincerely yours,

SPRAYED MINERAL FIBER
MANUFACTURERS ASSOCIATION, INC.



By _____

01544



UNITED STATES MINERAL PRODUCTS COMPANY

General Office and Plant
STANHOPE, NEW JERSEY 07874

Tel. 347-1200 Area Code 201
Cable: CAFCOINSUL, New York

June 3, 1966

Mr. Alton Evans, Project Manager
Huber, Hunt & Nichols - Frank Briscoe Company, Joint Venture
Cleveland Federal Office Building
East 9th and Lakeside
Cleveland, Ohio



Dear Mr. Evans:

In reply to the telephone request of Mr. William Weiner, we are pleased to comment on the questions raised concerning the possibility of a health hazard thought by some persons to result from exposure to the spraying of the mineral fiber now being applied for fireproofing at the Cleveland Federal Office Building.

There has been some publicity recently with respect to the possible effects of long exposure to high concentrations of asbestos dust. Although the studies have been under way for years, no final reports or findings have been released. Apparently, the probability of a health hazard exists only in those situations where there is exposure to asbestos dust over long periods, probably many years, and in places where there is a high dust concentration and ventilation is lacking. None of these studies are related specifically to spray mineral fiber products, nor to our CAFCO BLAZE-SHIELD Type D being used on this job.

Our CAFCO materials are specially treated during processing with dust control agents. Dust concentration is further minimized by the introduction of atomized water sprays as the fiber leaves the hose. The likelihood of any serious concentration of dust particles would be only in the immediate vicinity of the spray gun. For that reason we caution applicators to wear suitable dust masks, since they may be working under these conditions over extended periods of time.

We doubt seriously that any real hazard exists for other workmen on the same site who are not actually spraying fiber. We have no knowledge of any sprayer or workman using CAFCO material or of any person exposed to it ever having been afflicted with a respiratory ailment caused by our fiber or process. We have been informed by the other members of the Sprayed Mineral Fiber Manufacturers Association Inc. that, similarly, they have no knowledge of any case of respiratory illness being caused by the use of their spray mineral fiber products.

Of course, if a particular workman is unduly sensitive to dust, he should also wear a suitable protective mask. Such allergic tendencies would be exhibited in the presence of most any dust, such as fiber spraying, concrete hammering, plaster mixing, floor sweeping, and the like.

We believe this answers the questions raised, and we will be pleased to furnish such other information as may be required.



Yours very truly,
UNITED STATES MINERAL PRODUCTS COMPANY

John F. O'Rourke,
Vice President - Sales



MINERAL FIBER AND FOAMED PLASTIC PRODUCTS FOR HIGH AND LOW TEMPERATURE INSULATION, CEILING SYSTEMS, PACKAGING, FLOTATION, DISPLAY AND CONSUMER ITEMS

CAFCO SPRAYED FIBER PRODUCTS FOR FIREPROOFING OF BUILDINGS AND EQUIPMENT AND ACOUSTICAL



UNITED STATES MINERAL PRODUCTS COMPANY

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BLAZE-SHIELD[®]

TYPE D

DIRECT-TO-STEEL SPRAY-FIBER FIREPROOFING

BLAZE-SHIELD TYPE D APPLICATION

FIRE RATED THROUGHOUT THE WORLD
PERMANENT PROTECTION OF STRUCTURES
PROTECTS AGAINST CORROSION
RESISTS AIR POLLUTION
CAN BE APPLIED IN ADVERSE WEATHER CONDITIONS



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BLAZE-SHIELD[®]

TYPE D

CAFCO BLAZE-SHIELD Type D is a factory formulated blend of virgin mineral fibers and proprietary binders designed specifically for direct-to-steel fireproofing. It also has excellent thermal insulation and acoustical absorption properties—often eliminating the need for supplemental insulation or acoustical materials. Particularly suitable for large, long-span structures, one coat of BLAZE-SHIELD Type D can be built up to any desired thickness.

BLAZE-SHIELD Type D exceeds U.S. Government requirements for air handling plenum chambers. It maintains high bond strength under normal structural movement, and will not crack or spall, dust or flake. It provides deflection and bond-impact characteristics for building occupancy.

It is economical to apply. BLAZE-SHIELD Type D does not require a primary adhesive, tamping or a sealer coat, and can usually be applied from floor level, without scaffolding. It also can be applied in a wide range of weather conditions. Ask for a test.

CAFCO BLAZE-SHIELD Type D FEATURES:

Fire rated by UL in U.S.A. and Canada. BLAZE-SHIELD Type D is listed by U.L.I., U.L.C. and other world agencies for virtually any combination of floor or ceiling construction (see fire rating table below). It can be applied to virtually any structural design.

Fast and permanent protection—With BLAZE-SHIELD Type D, old heavy wet mix materials are eliminated and it provides permanent protection to deflection, impact, structural systems without surface cracking or spalling due to normal structural expansion or contraction.

Environmental safety—Studies conducted by Environmental Health Authorities, under the sponsorship of

the Sprayed Mineral Fiber Manufacturers' Association, have shown that no respirable substances result from the use of sprayed mineral fiber such as BLAZE-SHIELD Type D for fireproofing air plenums or exposed acoustical ceilings.

Resists air erosion—BLAZE-SHIELD Type D fireproofing effectively resists erosion, dusting or flaking due to high velocity air movement. It exceeds GSA requirements.

Protects against corrosion—Independent laboratory tests confirm the corrosion-resistant properties of BLAZE-SHIELD Type D. BLAZE-SHIELD Type D provides corrosion protection to structural steel surfaces, and can be applied to either painted or unpainted steel.

Can be applied in adverse weather conditions—BLAZE-SHIELD Type D can be applied under a wide range of adverse weather conditions, enabling fireproofing work to precede curtain wall erection. This maintains job schedules, reduces job heating costs, and contributes toward earlier occupancy dates.

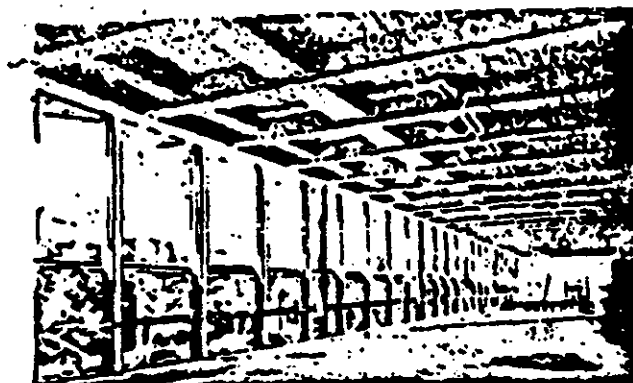
Excellent thermal insulation properties—BLAZE-SHIELD Type D possesses a thermal conductivity "k" factor of 0.34 at 75°F mean temperature. It affords low-cost joint-free insulation for exterior structural members, curtain walls, roof setbacks, etc.

Acoustical absorption—BLAZE-SHIELD Type D sound absorption characteristics markedly reduce acoustical problems, and the problem of sound transmission from one office area to another by providing continuous absorption in the plenum area.

Light in weight—BLAZE-SHIELD Type D is light in weight. Its use can eliminate tons of dead load weight over other forms of fireproofing, permitting savings in framing and foundation costs.

TABLE OF FIRE RETARDANT RATINGS

TYPE OF CONSTRUCTION	BLAZE-SHIELD TYPE D	BLAZE-SHIELD TYPE D	BLAZE-SHIELD TYPE D	BLAZE-SHIELD TYPE D
1. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
2. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
3. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
4. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
5. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
6. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
7. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
8. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
9. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1
10. 4" PLASTER ON 1/2" GYPSUM BOARD	1	1	1	1



Gov't Administration Bldg., Frauenfeld, Switzerland

APPLICATION ADVANTAGES

Easy to apply. Just spray BLAZE-SHIELD Type D to a clean, rigid, pre-wetted surface. Then overspray it with water. Its natural white finish provides a light reflectance coefficient rating of 71 percent.

Only one coat required. The required thickness of BLAZE-SHIELD Type D can be built up with only one coat, applied directly to the steel surface. Curing time is only 24 hours.

Adhesive priming coat is eliminated. No priming adhesive is required on the surface to be treated as the adhesive of BLAZE-SHIELD Type D is an integral part of the product.

Tamping is eliminated. No tamping of BLAZE-SHIELD Type D is required since the application process produces an acceptable uniform, firm fiber mat.

Sealer is eliminated. No sealer or crust coat is required since BLAZE-SHIELD Type D forms a hard crusted surface with the overspray of water.

Scaffolding is eliminated on most jobs. No scaffolding is normally required, as with a lightweight pole gun, a man can easily reach surfaces 10 to 16 feet from the floor.

ARCHITECTURAL SPECIFICATIONS

CAFCO BLAZE-SHIELD Type D

GENERAL

Scope — This section shall include materials, equipment and necessary labor for installation of sprayed mineral fiber in accordance with specifications and applicable drawings.

Contractor — The contractor shall be licensed by the manufacturer of the material and be qualified and skilled in this type of application. He shall use materials and equipment recommended by the manufacturer and shall execute all work in accordance with manufacturer's recommendations.

Product Compliance — The sprayed fiber shall have been tested by accredited laboratories to meet required ratings and performance, and shall conform to the applicable requirements of the building code and all authorities having jurisdiction.

Responsibility of others — It shall be the responsibility of others to provide adequate electric power, water, ventilation, light and

heat. All hangers, pipes, ducts, etc., shall be protected by other trades after spray work is completed.

Fiber — The fiber shall be a factory quality-controlled and formulated mix of virgin mineral fibers combined with proprietary binders. Fibers shall be CAFCO BLAZE-SHIELD Type D as manufactured by United States Mineral Products Company (in Canada — Columbia Acoustics & Fireproofing Co., Ltd.) or an approved equal.

The fiber shall be delivered to the job site in sealed bags which are labeled to identify the application for which the product is intended.

INSTALLATION

Examination of Surface — The contractor shall examine all surfaces which are to be treated with CAFCO mineral fiber and before application begins, shall report in writing to the general contractor, any conditions which might impair proper installation and adhesion. The general contractor shall promptly correct such conditions before application begins.

Surfaces shall be reasonably clean and free from dirt, grease, oil, loose plaster, rust scale, loose paint or other conditions which would prevent good adhesion. Cold weather application shall follow the manufacturer's recommendation.

Application — The surface shall be wetted with water as recommended by the manufacturer. The fiber shall then be sprayed to the wet surface to the desired thickness. Tamping is not required.

Cleaning — After completion of each day's work, the contractor shall sweep clean all adjoining walls and floors upon which fiber has been deposited.

WIDELY ACCEPTED CAFCO BLAZE-SHIELD HAS BEEN USED IN:

World Trade Center Twin Towers	New York City
Toronto International Airport	Melton
American Cyanamid Building	Wayne, New Jersey
Union Carbide Building	New York City
State Office Building	Boston
140 Broadway Building	New York City
IBM Building	Philadelphia
Fordham University	New York City
Gateway Center #4	Pittsburgh
Fireman's Fund Building	Los Angeles
Seattle First National Bank	Seattle
Federal Office Building	Juneau
Lincoln Building	Spokane
Wells Fargo Building	San Francisco
Federal Office Buildings	New York City, Newark, Bridgeport, Boston, Baltimore, Cleveland, San Francisco
United Insurance Building	Chicago
Ohio National Life Insurance Building	Cincinnati
Burroughs Office Building	Detroit
Home Security Building	Durham
First National Bank Building	Orlando
Allen Towers	New Orleans
Metropolitan Life Insurance Building	Ottawa
Federal Building	Toronto
National Cash Register	Chicago
Bell Telephone Building	Denver
Guinness Tower	Vancouver, B.C.
Lone Star Gas Building	Dallas
University Towers	El Paso
Wachovia Building	Winston-Salem
Canadian National Railways Building	Montreal

BLAZE-SHIELD TYPE D



OTHER CAFCO BLAZE-SHIELD PRODUCTS



BLAZE-SHIELD STANDARD

Fireproofing - Acoustical - Thermal

BLAZE-SHIELD Standard is an economical solution wherever fireproofing, sound absorption, and thermal insulation are desired. It also provides a supplementary advantage in providing condensation control.

Its fireproofing feature has gained wide acceptance by building code, municipal, and insurance authorities for high-rise apartment and office buildings, refineries, warehouses, ships, steel mills, industrial plants, etc. BLAZE-SHIELD Standard, possessing excellent acoustical and thermal insulating properties, is used in such diverse applications as metal buildings, curtain wall construction, and under surfaces of concrete slabs and roof systems.

PRODUCT FEATURES

Proven fire performance — Exposed to actual severe fire conditions on major high-rise structures, BLAZE-SHIELD Standard did not crack or spall. Its fire-resistant properties have been approved by Factory Mutual Engineering Division for the conversion of Class II insulated Metal Roof Deck Construction to the lower premium cost Class I category.

High thermal insulating efficiency — BLAZE-SHIELD Standard possesses a low thermal conductivity "k" factor of 0.27 BTU per hour, per square foot, per inch, per degree Fahrenheit. Its use provides important heating and air conditioning savings.

High sound absorbing efficiency — BLAZE-SHIELD Standard offers high acoustical absorption characteristics over a wide frequency range. It provides for an entirely new concept in ceiling design since it is equally suited for flat, curved, or configured ceilings or roofs and can be attractively painted with virtually any design color.

Condensation control — BLAZE-SHIELD Standard possesses a wicking action which permits its fibers to absorb and release moisture vapor. Condensation formed in the fiber mat so, it to the base surface is absorbed and later released by the evaporation process.



School of Arts & Architecture Library,
Yale University, New Haven, Connecticut



CAFCO FIELD ASSISTANCE SERVICE

Experienced, licensed CAFCO contractors and CAFCO representatives throughout the United States and Canada and in 38 foreign countries represent one of the largest licensed contractor and service organizations in the world. CAFCO service personnel are available for immediate consultation regarding estimates, specifications, and code approvals. Job inspection service by CAFCO representatives is also available to architects, general contractors, and owners. Through the well-coordinated efforts of the CAFCO field assistance program, construction schedules are not delayed.



BLAZE-SHIELD TYPE H

Acoustical - Thermal

BLAZE-SHIELD Type H features acoustical absorption and thermal insulation—with essentially the same overall sound absorption and thermal insulation characteristics listed for BLAZE-SHIELD Standard. In addition, BLAZE-SHIELD Type H is formulated to provide a more aesthetic, fissured, travertine-type finish for exposed applications where finish, as well as damage resistance, is of prime importance. Its monolithic coating absorbs normal structural movement without surface cracking or spalling.

SOUND ABSORPTION

Product & Thickness	Base	Coefficients						NRC
		125	250	500	1000	2000	4000	
1/2" BLAZE-SHIELD STANDARD	Metal Lath	.49	.65	.88	.93	.90	.87	.85
1/2" BLAZE-SHIELD STANDARD	Solid	.51	.34	.52	.88	.99	.93	.70
1/2" BLAZE-SHIELD TYPE H	Deck-Beams	.33	.55	.80	.99	.99	.97	.85
1/2" BLAZE-SHIELD STANDARD and 1/2" BLAZE-SHIELD TYPE H	Solid	.89	.22	.61	.93	.85	.77	.64
1/2" BLAZE-SHIELD TYPE H	Metal Lath	.46	.65	.75	.81	.89	.87	.86
1/2" BLAZE-SHIELD TYPE H	Solid	.29	.21	.45	.76	.96	.99	.60

Tests conducted in accordance with ASTM-C-423-68T by Riverbank Acoustical Laboratories, Geneva, Illinois, or Cedar Knolls Acoustical Laboratories, Cedar Knolls, N. J.

APPLICATION ADVANTAGES

Harder, denser finish — BLAZE-SHIELD Type H contains a durable damage-resistant fiber, resulting in a harder, denser finish. Where ceiling heights are less than 9 feet or where ceiling surfaces would be subject to abrasion, BLAZE-SHIELD Type H is recommended as either an integral application or as a finish over a BLAZE-SHIELD Standard base for ceilings or roofs. This provides for a completely incombustible, rot proof, and vermin proof installation.

Adaptable — BLAZE-SHIELD Type H is adaptable to virtually any surface shape. Unlike preformed insulation materials, it may be applied directly to curved or irregular surfaces forming a continuous mat, thus eliminating air spaces and pockets of condensation which could result in corrosion of metallic base surfaces. It is excellent for swimming pools and high humidity areas.

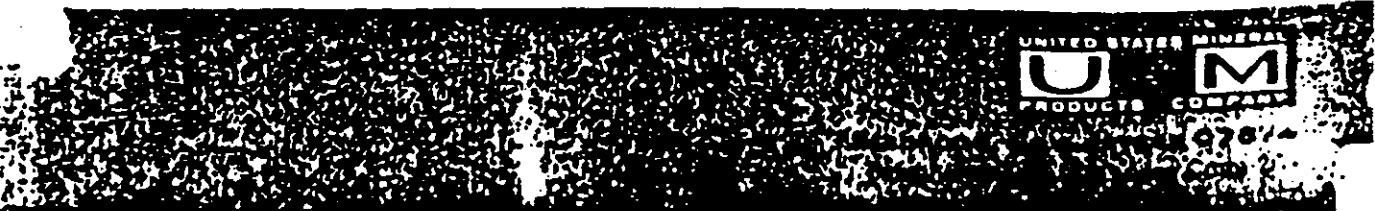


OTHER CAFCO PRODUCTS

CAFCO HEAT-SHIELD — Provides a direct-applied, continuous incombustible insulating blanket with a thermal conductivity (k) value of 0.26 at 75°F. Ideal for thermal insulation of pre-engineered metal buildings and other applications.

CAFCO POWER-SHIELD — A high quality controlled blend of mineral fibers, with proprietary binders, specifically formulated for thermal insulation in critical high temperature industrial applications.

CAFCO SOUND-SHIELD "85" — Answering an industry need for a harder, whiter, spray-applied ceiling finish providing predictable acoustical performance, SOUND-SHIELD "85" surpasses the performance characteristics of most spray or trowel applied acoustical ceiling materials. It is U.L.I. fire tested and rated.



UNITED STATES MINERAL
PRODUCTS COMPANY
JULY 1970



UNITED STATES MINERAL PRODUCTS COMPANY

General Office and Plant
STANHOPE, NEW JERSEY 07874

Tel. 347-1200 Area Code 201
Cable: CAFCOINSUL, New York

August 17, 1967

Sprayed Mineral Fiber Manufacturers Association:

Mr. J. P. Verhalen, U. S. Mineral Products
Mr. J. H. Wittkop, Balchra-Buret-Hill
Mr. A. H. Toth, Smith & Kinsler Company
✓ Mr. H. L. Levine, Asbestospray Corporation
Mr. J. Boyer, Cadwalader, Wickersham & Taft



Subject: Sprayed Fiber Dust Tests

Gentlemen:

Enclosed are two copies of the latest test results from William R. Bradley and Associates on the fifth series of sprayed fiber dust tests dated August 11, 1967.

The results appear too good and for that reason it is suggested that information not be released until it is discussed at the meeting scheduled for September 7.

The invoice for \$552.00 is being sent to Treasurer Bert Levine. The invoice breakdown is apparently \$200.00 fee for Mr. Bradley, \$100.00 for an assistant, \$240.00 for the 24 samples taken, and an unexpected \$12.00 for lunch.

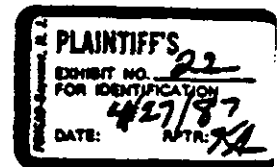
Sincerely yours,

Frank M. Stumpf
Vice President - Research

FMS/ce
Enclosures

cc: (less enclosures)

Mr. M. Loeff, Smith & Kinsler
Mr. M. Wilson, Balchra-Buret-Hill



8-261
DATED: 8-26-67
HELAUNE DAIDEN



MINERAL FIBER AND FOAMED PLASTIC PRODUCTS FOR HIGH AND LOW TEMPERATURE INSULATION, CEILING SYSTEMS, PACKAGING, FLOTATION, DISPLAY AND CONSUMER ITEMS.



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