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DOCUMENT DESCRIPTION: Legal - Responses of U.S. Mineral
Products Company to Plaintiff's First Set of Interrogatories

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA

NO. CP-81-1

In Re: Asbestos-Related)
Litigation)

RESPONSES OF U.S. MINERAL PRODUCTS
COMPANY TO PLAINTIFF'S FIRST SET OF INTERROGATORIES

NOW COMES the Defendant United States Mineral Products Company ("U.S. Mineral"), a Defendant in the above-styled case, and files the following answers to the Plaintiff's First Set of Interrogatories.

Many of these interrogatories pertain to events that occurred many years ago. Therefore, in gathering the information to respond to those interrogatories, U.S. Mineral and its counsel have had to rely on many documents and the information contained therein. In addition, U.S. Mineral and its counsel have relied on the memories of officers and employees who have been with the company since the 1950s and 1960s. U.S. Mineral and its counsel have also acquired information from discovery in other cases, and this information may form the basis for a particular answer. Because the process of document review is ongoing, and because new and/or additional information about past events is sometimes acquired, U.S. Mineral reserves its right to supplement and/or amend these answers in the event that more or more accurate information becomes available.

Additionally, this defendant only manufactured and sold asbestos-containing products from 1954 through 1972. Unless otherwise stated in a specific answer to an interrogatory the answers to these interrogatories shall be limited to those



products, that period of time, and to the State of North Carolina.

(1) As to the person answering these interrogatories, state:

- (a) Name;
- (b) Title or position with defendant;
- (c) Business address;
- (d) Residence address;
- (e) Length of time employed by defendant including dates;

ANSWER:

- (a) Ms. Paulette A. Kaminski
- (b) Assistant Corporate Secretary
- (c) United States Mineral Products Company
Furnace Street
Stanhope, New Jersey 07874
- (d) Objection. This interrogatory seeks information irrelevant to plaintiff's claim.
- (e) Employed from 9/10/85 to Present.

(2) State the following concerning this defendant:

- (a) Full and correct name;
- (b) Principal place of business;
- (c) State of incorporation;
- (d) Date of incorporation, and name of corporation;
- (e) Is this defendant authorized to transact business in the State of North Carolina? If so, state the date such authority was first issued and last renewed;
- (f) Does this defendant have an agent, representative or place of business in North Carolina? If so, state the name and address of such agent,
- (g) Does this defendant have an agent for service in the State of North Carolina? If so, state the name and address of the registered agent.

ANSWER:

- (a) United State Mineral Products Company;
- (b) Furnace Street, Stanhope, New Jersey 07874;
- (c) New Jersey;
- (d) 1937; United State Mineral Products Company;
- (e) No.
- (f) No.
- (g) No.

(3) Has this defendant been sued under its correct name? If not, state the correct legal name of the defendant and provide the information requested in No. 2 above concerning the defendant as correctly named.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: Yes.

(4) As to any product containing asbestos in any form, has this defendant,

- (a) Ever designed such a product?
- (b) Manufactured such a product?
- (c) Processed such a product?
- (d) Sold such a product?
- (e) Distributed such a product?
- (f) Relabeled such a product which was manufactured, sold, or distributed by another company?

ANSWER:

- (a) Yes.
- (b) Yes.

(c) Objection. This interrogatory is vague and ambiguous. The term "processed" is not defined and is unclear without being defined.

(d) Yes.

(e) No.

(f) No.

(5) If your answer to No. 4(a) through 4(f) is "Yes", then give the trade name of the product(s), and the year the defendant designed, sold, distributed, processed, manufactured or relabeled such product(s), being specific as to the inclusive dates for each product in each category.

ANSWER: Please see Exhibit "A".

(6) For each asbestos-containing product manufactured, processed, sold and/or distributed by you from the date of initial manufacture etc. to 1981, state:

- (a) The asbestos content by weight of each product for each year;
- (b) The type of asbestos fiber used in each product, i.e., chrysotile, amosite, crocidolite or admixtures for each year;
- (c) The applications to which such product was to be put including:
 - i The highest temperature the product could withstand;
 - ii Whether the product was a cement, aircell, pipe-covering, cloth, or other type of thermal insulation product;
 - iii The type of container which the product was shipped in, including the color and any logo or any other printing or descriptive terms used on the carton from the first date of manufacture to 1976.
 - iv Intended uses;
 - v Manufacturer;

- vi Mining or milling business entity from which the raw asbestos fiber was obtained;

ANSWER:

(a) Objection. This interrogatory seeks privileged, confidential information protected by the principles of trade secrecy. Without waiving this objection, U.S. Mineral responds as follows: It states that CAFCO Spray, CAFCO BLAZE-SHIELD, CAFCO POWER-SHIELD, and COMINCO contained less than 30% asbestos and that other relevant products contained less than 25% asbestos. WEATHER-SHIELD contained approximately 5% asbestos and Mark II contained approximately 80% asbestos.

(b) Chrysotile asbestos.

(c)

i. Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

ii. Please see Exhibit "A".

iii. U.S. Mineral's products were packaged in multi-wall, 50-pound kraft bags with the printed name of the product and application instructions. Beginning in May, 1962, the following warning appeared on these bags:

"CAUTION"

This product contains asbestos. Inhalation of asbestos over long periods may be harmful. If employees are exposed to dust during use and application, those employees should be equipped with adequate personal protective devices.

iv. Objection. This interrogatory is vague and ambiguous. The term "intended uses" is not defined and is unclear without being defined. Without waiving these objections, U.S. Mineral responds as follows: Please see Exhibit "A".

v. United States Mineral Products Company.

vi. Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not calculated to lead to the discovery

of admissible evidence. Without waiving this objection, U.S. Mineral responds as follows: Johns-Manville was the mining and milling concern from which the vast majority of raw asbestos fiber was obtained by this Defendant. Upon information and belief, minor quantities of raw asbestos fiber were also obtained from Carey Canada, Inc., Lake Asbestos of Quebec, Ltd., and Asbestos Corporation of America.

- (7) State the color of each product named and its physical appearance.

ANSWER: The physical appearance of U.S. Mineral's asbestos-containing products may be best described as grey, bulk, loose, fibrous material which was suitable for pneumatic conveying and spraying.

- (8) Does Defendant claim that any patent would cover any product listed above in Interrogatory No. 4?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

- (9) If so, for each such product, please state:

- (a) The number of each patent.
- (b) The date same was issued.
- (c) The number of each patent application that is pending.

ANSWER: Not applicable.

- (10) Have any of the products listed in Interrogatory 4 above been altered in chemical composition or asbestos type or content since first being marketed?

ANSWER: Yes.

- (11) If so, please state:

- (a) The trade name of each such product.
- (b) The date each such product was altered.
- (c) The nature of the alteration.
- (d) The reason for the alteration.

ANSWER (a)-(d):

All products listed in Exhibit "A" were altered and modified to remove all asbestos during 1969 and 1970, except for CAFCO SOUND-SHIELD which was manufactured free of asbestos beginning in 1965 and thereafter was known as Cafco SOUND-SHIELD 85. In 1965, this Defendant introduced Cafco BLAZE-SHIELD Type D which contained lesser amounts of asbestos with increased binder content and density. During 1970, this Defendant's products were manufactured in an asbestos-free form and were known as CAFCO BLAZE-SHIELD C/F, CAFCO HEAT-SHIELD C/F, CAFCO POWER-SHIELD C/F and CAFCO BLAZE-SHIELD Type D C/F. Responding specifically to subparagraph (d), this Defendant altered and modified its products due to market demand.

- (12) Do any written memoranda, specifications, blueprints, results, recommendations or other written materials of any kind or character exist relating to the testing of said products?

ANSWER: Yes

- (13) If so, please state:

- (a) List each such written material or document.
- (b) Who presently has possession of each such document, and the address where it is located.

ANSWER (a)-(b):

Objection. This interrogatory is overly broad, unduly burdensome, and harassing. It is not limited in time of scope of inquiry. Moreover, it is not reasonably calculated to lead to the discovery of admissible evidence.

- (14) Did Defendant make any design changes as a result of such tests?

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 13.

(15) If so, please state:

- (a) The nature of the change made.
- (b) The name, address, and job classification of each person in charge of making a change.

ANSWER (a)-(b):

U.S. Mineral incorporates by reference its objections to Interrogatory No. 13.

(16) Has Defendant, at any time, published and/or distributed any brochures, sales literature, pamphlets, or other written materials (aside from any caution labels on containers) of any kind or character that contain any warnings, cautions, caveats or directions concerning the possibility of injury resulting from the use of the products listed in Interrogatory 4 above?

ANSWER: Yes.

(17) If so, please state:

- (a) The wording of each such warning, etc.
- (b) A description of each such printed material.
- (c) The method used to distribute the warning etc. to persons who are likely to use or be in contact with the products.
- (d) The date each such warning, etc. was issued.
- (e) The name, address, and job classification of each person who presently has possession of the above described documents.
- (f) If you will without a motion, please attach a copy of such warning, etc.
- (g) State whether any industrial psychologists or human factors engineers were consulted prior to utilizing such warnings, cautions, etc.

ANSWER:

- (a)-(d) Beginning in May, 1962, all asbestos-containing CAFCO products manufactured by U.S. Mineral had the following warning on their bags:

"CAUTION. This product contains asbestos. Inhalation of asbestos dust over long periods of time may be harmful. If employees are exposed to dust during use and application, those employees should be equipped with adequate personal protective devices."

In addition, for the entire period during which asbestos-containing products were manufactured, the application manual supplied to all contractors licensed to apply U.S. Mineral's products contained rules, advice, warnings, directives, instructions, and recommendations on the proper handling and applications of U.S. Mineral's products, including instruction recommending the use of respiratory protection. U.S. Mineral further instructed its licensed applicators regarding ways to prevent and minimize dust inhalation during its training sessions for said licensed applicators. Additionally, in 1968, U.S. Mineral began furnishing its licensed applicators with copies of the Sprayed Mineral Fiber Manufacturers Association's Code of Practices, which contained instructions on the application of asbestos-containing sprayed mineral fiber products.

- (e) Ms. Paulette A. Kaminski, Assistant Corporate Secretary, U.S. Mineral Products Company, Furnace Street, Stanhope, New Jersey 07874.
- (f) Please see photocopy of warning on the U.S. Mineral BLAZE-SHIELD Type D bag which is attached hereto.
- (g) No.

(18) From 1930 until the present, did the asbestos product sold, mined, manufactured or distributed by you, contain any warning, caution, caveat or other statement on the product or its packaging.

ANSWER: Yes.

(19) If so, please state:

- (a) When did the warning first appear?

- (b) What was the precise wording of the warning when it first appeared?
- (c) Was the warning altered, amended or changed in any manner? If so, how and when?
- (d) Where was the warning located on the product or packaging?
- (e) When did you become aware that warnings placed on the products distributed by other defendants? State the reason warnings of the other defendants were not placed on your products.
- (f) State the manner in which your product is shipped and the type of container it is shipped in to retailers.
- (g) State whether any industrial psychologists or human factors engineers were consulted prior to utilizing such warnings, cautions, etc.

ANSWER:

- (a) May, 1962.
- (b) "CAUTION. This product contains asbestos. Inhalation of asbestos dust over long periods may be harmful. If employees are exposed to dust during use in application, those employees should be equipped with adequate personal protective devices."
- (c) No.
- (d) The warning was prominently printed on all bags of CAFCO asbestos-containing products beginning in May, 1962. Please see attached photocopy of the CAFCO BLAZE-SHIELD Type D bag with the warning.
- (e) Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: So many years later, U.S. Mineral cannot recall when it first became aware of warnings placed on the products distributed by other defendants.
- (f) U.S. Mineral's products were never shipped to retailers.

(g) No.

(20) Have you received notice that any other person was claiming injury as a result of using asbestos products of your company (both prior to and subsequent to the filing of these actions)?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: Yes.

(21) If so, please state:

- (a) The name and address of each claimant.
- (b) The date of notice of each claim.
- (c) A description of the claim, i.e., workmen's compensation, products liability, etc.
- (d) The type of injuries allegedly sustained.
- (e) The name and address of each attorney who represents individuals making such claims.
- (f) The style and court number of each claim currently pending.
- (g) The resolution of each claim that has been settled or taken to judgment.

ANSWER (a)-(g):

This Defendant objects to this interrogatory on the grounds that it is unclear, overly broad, unduly burdensome, and is not reasonably calculated to lead to the discovery of admissible or relevant material. Subject to these objections, U.S. Mineral states that it is a defendant in a number of lawsuits in which persons claim injury as a result of exposure to asbestos-containing products, purportedly manufactured by U.S. Mineral and others. Plaintiff's counsel is familiar with most of these actions which are a matter of public record.

(22) Do you have any records indicating that any of your products containing asbestos fibers were sold to any of the companies named as co-defendants in this suit.

ANSWER: No.

(23) If so, please state:

- (a) The name, address, and job classification of each individual who currently has possession of such records.
- (b) Please list the names of each co-defendant to whom your products have been sold.
- (c) Please state the dates of each such sale, the amount kind of materials sold and the trade name of each product.
- (d) State whether your company manufactured asbestos containing products for a co-defendant but placed said co-defendant's labels or logos on containers said products and list each such co-defendant and the product trade name.

ANSWER (a)-(d): Not applicable.

(24) Does defendant have policies of insurance that might cover the claims that have been made by plaintiffs herein?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: Yes.

(25) If so, please list the name of each insurance carrier who may have coverage, the amount of such coverage, the dates of each such policy and the time periods of coverage.

ANSWER: Please see attached photocopy listing U.S. Mineral's primary and excess insurance policies.

(26) Please describe in detail the type of packages in which defendant has sold asbestos material, listing the dates each type of package was used, a physical description thereof, and a description of any printed material or trademarks that appeared thereon.

ANSWER: U.S. Mineral's products were packaged in multi-wall, 50-pound kraft bags with the printed name of the product and application instructions. Beginning in May, 1962, the following warning appeared on these bags:

"CAUTION"

This product contains asbestos. Inhalation of asbestos over long periods may be harmful. If employees are exposed to dust during use and application, those employees should be equipped with adequate personal protective devices.

(27) Did you receive any reports or communications from your workmen's compensation insurance carrier or products liability insurance carrier with regard to the hazards incident to use of asbestos containing products? If so, please state who had possession of said reports, listing for each such report the respective insurance company, its address, and the agent signing such correspondence and attach copies to your answers.

ANSWER: Objection. This interrogatory seeks privileged, confidential information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: Upon information and belief and to the best of U.S. Mineral's knowledge, this defendant received no such reports or communications.

(28) If you have ever mined or milled natural asbestos, state:

- (a) Where the asbestos was mined and milled.
- (b) How long the defendant has mined and milled asbestos.
- (c) Whether the defendant has supplied this mined and/or milled asbestos to any of the other defendants since 1950; when these transactions took place; and the dollar and tonnage amount of such sales.

- (d) Whether any warnings, cautions, caveats or directions accompanied the materials referred to in (c) and the date these transactions took place.

ANSWER: Not applicable.

(29) If the answer to the above Interrogatory is no, state:

- (a) From what source or sources, if any, did your company obtain mined asbestos since 1950.
- (b) Whether any warnings, cautions, caveats, or directions accompany the material referred to in (a) and nature and extent of said warnings, cautions, caveats or directions accompanying said asbestos.
- (c) Approximately what date said warnings, cautions, caveats or directions first appeared on the mined asbestos.

ANSWER:

- (a) Johns-Manville was the mining and milling concern from which the vast majority of raw asbestos fiber was obtained by this Defendant. Upon information and belief, minor quantities of raw asbestos fiber were also obtained from Carey Canada, Inc., Lake Asbestos of Quebec, Ltd., and Asbestos Corporation of America.
- (b) Yes.
- (c) October 1, 1968.

(30) If the answer to Interrogatory 4(b)(c)(d) or (e) is yes, state:

- (a) Where the asbestos or asbestos materials were manufactured.
- (b) Whether the defendant has supplied this manufactured asbestos or asbestos materials to any of the other defendants since 1945, when these transactions took place, where, the compensation paid for the manufac-

tured asbestos or asbestos materials and the names of such supplied Defendants;

- (c) Whether any warnings, cautions, caveats or directions accompanied the materials referred to in (b) and the date these first appeared.

ANSWER:

- (a) Stanhope, New Jersey
- (b) Please see response to Interrogatories No. 22 and 23.
- (c) See response to Interrogatory 19(a).

(31) If you have not manufactured our own asbestos products, state:

- (a) From what source or sources, if any, did your company obtain asbestos containing products since 1945.
- (b) Whether any warnings, cautions, caveats, or directions accompanied the material referred to in (a) and the nature and extent of said warnings, cautions, caveats or directions accompanying said asbestos or asbestos materials.
- (c) Approximately what date said warnings, cautions, caveats or directions first appeared on the manufactured asbestos or asbestos materials.

ANSWER: Not applicable.

(32) Has the defendant imported asbestos or asbestos materials since 1930?

ANSWER: See answer to Interrogatory 29(a).

(33) If the answer to the preceding interrogatory is in the affirmative, state:

- (a) From where the asbestos or asbestos materials was imported.
- (b) How long the defendant has imported asbestos or asbestos materials.
- (c) Whether the defendant has supplied this imported asbestos or asbestos materials to any of the other defendants since 1945, when these transactions took place and where.
- (d) Whether any warnings, cautions, caveats or directions accompanied the materials referred to in (c) and the date these first appeared.

ANSWER:

- (a)-(b) See answer to Interrogatory 29(a).
- (c) No.
- (d) Not applicable.

(34) If the defendant has discontinued mining, milling, distributing manufacturing and/or selling asbestos products, please state the reason or reasons therefor.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: U.S. Mineral stopped manufacturing asbestos-containing products due to changes in market demand.

(35) Have any of the other defendants named in the litigation ever furnished the defendant answering these Interrogatories with information as to the state of the medical knowledge regarding the connection between asbestos exposure and contracting of diseases including cancer and asbestosis?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(36) If the answer to the preceding interrogatory is in the affirmative, state:

- (a) What information was the defendant furnished with.
- (b) When the defendant was furnished the information.
- (c) By whom was the Defendant furnished the information.
- (d) Attach copies of such furnished information.

ANSWER: Not applicable.

(37) Have the Defendants interchanged results of research, tests, medical studies or experiments regarding the state of the medical knowledge regarding the connection between asbestos exposure and the contracting of diseases including cancer and asbestosis since 1930?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: Yes.

(38) If the answer to the preceding Interrogatory is in the affirmative, state;

- (a) When these interchanges took place.
- (b) Who participated in these interchanges.
- (c) Summarize the content of these interchanges of studies.

ANSWER (a)-(c):

U.S. Mineral incorporates by reference its objections to Interrogatory No. 37. Without waiving these objections, U.S. Mineral responds as follows: Commencing in 1965, U.S. Mineral was a member of the Sprayed Mineral Fiber Manufacturers Association. As a result of such association, U.S. Mineral received information from other SMFMA members relating to the alleged connection between asbestos exposure and various disease states. SMFMA member included Asbestospray Corporation, Baldwin-Ehret-Hill, and Smith and Kranzler Company.

(39) Has the defendant become aware as the result of other litigation or by any other means of any studies, research, experiments or tests conducted by another defendant which, if known at the time said study, research, experiment or tests were made would have altered the manner or way the defendants answering these Interrogatories acted in distributing asbestos products?

ANSWER: Objection. U.S. Mineral objects to this Interrogatory on the grounds that it is vague, speculative, argumentative and totally irrelevant to the present cause of action and is not reasonably calculated to lead to the discovery of admissible evidence. In addition, U.S. Mineral defendant further objects to said Interrogatory on the grounds that it calls for work product of U.S. Mineral as well as privileged information.

(40) If the answer to the preceding Interrogatory is in the affirmative, state:

- (a) When these studies, research, experiments or tests were made.
- (b) By whom were these studies, research, experiments or tests made.
- (c) Summarize the contents of these studies and how the defendant would have acted differently.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 39.

(41) Please state if the defendant or anybody on behalf of the defendant ever conducted or sponsored or contributed financially to any studies or research to determine if the inhalation of asbestos fibers may be harmful. If so, please state:

- (a) By whom the research was conducted, giving complete names and addresses.
- (b) The dates that each such test was conducted.
- (c) The complete results of each test or study.
- (d) Supply copies of reports of the research department pertaining to the use by the corporation of asbestos in their manufactured insulation products.
- (e) The financial costs to you of such studies or research.

ANSWER (a)-(e): Although U.S. Mineral did not conduct medical research, the trade organization of which it was a member made a financial contribution to a research program at Mt. Sinai Hospital in the mid to late 1960's.

(42) Please state the names, if any, and addresses of the defendant's chief medical officers from 1930 until the present time, listing the periods of time each such medical officer was employed by defendant in that capacity.

ANSWER: None.

(43) Please state to whom in the corporate structure the chief medical officer reports or reported, also giving that person's position or job title with defendant.

ANSWER: Not applicable.

(44) Please state the duties and responsibilities of the corporation's chief medical officer and the nature and dates of changes in these duties and responsibilities.

ANSWER: Not applicable.

(45) Please state the names and addresses and capacities of all physicians who were employed, retained or otherwise engaged by the defendant at any of its facilities from the years of 1930 until the present time.

ANSWER: None.

(46) Please state the names and addresses of all persons employed by defendant from 1930 until the present time who functioned as industrial hygienists as contemplated by these Interrogatories, an industrial hygienist is one who performs engineering or health studies to identify, and evaluate potential occupational health hazards and suggest methods of dealing with same. Please state:

- (a) The facility or office to which they were assigned and the inclusive dates.
- (b) Their complete and precise duties and responsibilities.

ANSWER (a)-(b): None

(47) Please state if the defendant's medical officers ever made at any time any recommendation and/or suggestions to the defendant pertaining to the risks or hazards to persons involved in the manufacturing or use of products containing asbestos? If so, state:

- (a) Where were such recommendations and/or suggestions made?
- (b) To whom were such recommendations and/or suggestions made?
- (c) By whom were such recommendations and/or suggestions made.

ANSWER (a)-(c): Not applicable.

(48) Please state the names of trade association periodicals to which the defendant subscribed from 1928 to the present date. State whether or not the defendant had any knowledge of any articles being printed in industry trade journals, essays, memoranda and other similar sources pertaining to the hazardous potential of asbestos and which of such articles were received by you.

ANSWER: Objection. This interrogatory is overly broad and unduly burdensome. Without waiving this objection, U.S. Mineral responds as follows: U.S. Mineral believes that some of its personnel may have subscribed to a number of trade journals. So many years later, it cannot determine what exact journals were read by its various personnel.

(49) Please state organizations, groups, inter-company or industrial organizations to which the defendant belongs which conducted studies or researched the relationship, if any, between exposure to asbestos fibers or products and asbestosis and cancer from 1930 to 1981.

ANSWER: Please see answer to Interrogatory No. 41.

(50) In reference to Interrogatory 49, please state:

- (a) The type or nature of the studies.

- (b) When the studies were conducted.
- (c) The complete results of the studies.
- (d) The recommendations of the studies.
- (e) The resulting implementation of the studies by defendant.
- (f) The date when first implemented.

ANSWER (a)-(f): Please see answer to Interrogatory No. 41.

(51) Please state the amounts and dates spent or contributed by the defendant annually from 1936 until the present time for research specifically directed to the relationship, if any, between an insulation worker's exposure to asbestos containing insulation products and asbestosis, lung cancer or any other pulmonary disease.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows:
Please see answer to Interrogatory No. 41.

(52) Please state the amount annually contributed by the defendant to any independent medical research group or groups conducting research into the relationship, if any, between the exposure of insulation workers to asbestos and any pulmonary diseases.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows:
Please see answer to Interrogatory No. 41.

(53) Please state the names and addresses of the organizations or groups conducting the studies referred to in answer to Interrogatory 51 and/or 52.

ANSWER: Please see answer to Interrogatory No. 41.

(54) Please state whether the defendant has a department, division or section devoted to scientific and/or medical research during the period from 1936 until the present time. If so, please state when it was first formed.

ANSWER: No.

(55) Please state the scientific or medical periodicals to which the defendant, its medical department or industrial hygiene division subscribed during the period between 1930 and 1981 specifying the date such subscriptions were begun and terminated.

ANSWER: To the best of U.S. Mineral's knowledge, none.

(56) Please state whether any of the distributors of your asbestos containing products were provided with any special instructions, oral or written, in regard to utilizing said products in a manner so as to avoid exposing workers to amounts of dust exceeding the MAC or TVL. If so, please state:

- (a) When those instructions were given.
- (b) By whom these instructions were given.
- (c) Were the instructions oral or written.
- (d) The precise content of the instructions.
- (e) If the instructions were written, please attach a copy to the instructions.

ANSWER (a)-(e):

U.S. Mineral did not sell its asbestos-containing products to distributors.

(57) Please state whether any employee of the defendant has ever made a claim for asbestosis under the Occupational Disease or Workmen's Compensation Statute of any state. If so, please state the date that the defendant first received notice of any claim for asbestosis under the Occupational Disease or Workmen's Compensation Statute of any state and state the total number of claims filed for the years 1930 to 1981.

ANSWER: Objection. This interrogatory is overly broad and unduly burdensome. Moreover, it is not reasonably calculated to lead to the discovery of admissible evidence.

(58) Is the defendant a member of the Asbestos Textiles Institute? If so, when did the first become a member and list the years inclusively of membership?

ANSWER: No.

(59) State whether any representative of the defendant was a member of the Air Hygiene Committee of the ATI or ever attended any meetings of such committee and list the years of such membership and dates of attendance.

ANSWER: No.

(60) State whether the defendant received copies of transcribed minutes of the various committee meetings, general meetings and Board of Directors meetings of the ATI within one year of each such meeting. If yes, state the years.

ANSWER: No.

(61) Has the defendant ever been a member of the Industrial Hygiene Foundation or the Industrial Health Foundation and, if so, state the years inclusively of such membership.

ANSWER: Yes. U.S. Mineral was a member of the Industrial Hygiene Foundation from 1970-73 and from approximately 1976 to the present.

(62) State whether any representative of the defendant was in attendance at the 20th annual meeting or the IHF in November, 1955, in Pittsburgh, Pennsylvania, and, if so, give the name and current address of such attendee.

ANSWER: No.

(63) State whether the defendant received a copy or copies of the Industrial Hygiene Digest published monthly by the IHF and state the approximate date of initial receipt of such publication.

ANSWER: Yes. Beginning in 1970 this Defendant received copies of the Industrial Hygiene Digest and continued to receive said monthly publication until this Defendant voluntarily terminated its membership in 1973 and re-instated itself in approximately 1976.

(64) State whether the defendant ever requested officials at the IHF to:

- (a) Perform a search of the medical literature to determine whether any scientists or doctors were reporting cases of insulation workers with asbestos and/or cancer or discussing the potential hazard incident to use of asbestos containing products.
- (b) Perform any studies or research into potential health hazards incident to the use of asbestos containing products.
- (c) Review governmental publications of Great Britain toward the end of determining whether any research was being conducted by the British Government into any potential health hazards incident to the use of products containing asbestos.
- (d) Review governmental publications of Great Britain to determine whether the Chief Inspector of Factories or any other British Government agency had issued any regulations or published any findings relative to potential health hazards incident to the use of products containing asbestos.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows:

- (a) To the best of its knowledge, no.
- (b) To the best of its knowledge, no.
- (c) To the best of its knowledge, no.
- (d) To the best of its knowledge, no.

(65) Did the defendant sponsor since 1930 for its employees or distributors any meetings, seminars, conferences, or conventions where the subject of occupational health and exposure to asbestos was discussed?

ANSWER: No.

(66) If the answer to Interrogatory 65 is in the affirmative, state:

- (a) The date and place of such meeting, seminar, conference, or convention where the subject of occupational health and exposure to asbestos was discussed.
- (b) The name of address of the speaker(s) or discus-sant(s).

ANSWER (a)-(b): Not applicable.

(67) Did the defendant ever warn any labor union representing workers of any potential health hazard from use of products containing asbestos?

ANSWER: No.

(68) If the answer to the preceding Interrogatory is in the affirmative, state:

- (a) The Union.
- (b) How said Union was informed.
- (c) The date and place of said information or warning.
- (d) The content and nature of said warning.
- (e) The individual or individuals warned.

ANSWER (a)-(e): Not applicable.

(69) Did the defendant at any time give any advice, publication, warning, order, directive, requirement or recommendation, written or oral, including by U. S. Mail, which purported to:

- (a) Advise the plaintiff personally and directly of the possible harmful effects of exposure to, or inhalation of, asbestos or asbestos containing products?
- (b) Advise or recommend to the plaintiff personally and directly as to techniques, methods or equipment which would serve to reduce or guard against such potentially harmful exposure?

ANSWER (a)-(b)

Objection. This interrogatory calls for information which U.S. Mineral cannot provide. Without waiving

these objections, U.S. Mineral responds as follows:
Please see answer to Interrogatory No. 17.

(70) If your answer to any part of the above Interrogatory 69 is in the affirmative, state:

(a) The nature and exact wording of such advice, warning, recommendation, etc.

(b) The complete identity of each source of such advice, warning, recommendation, etc.

(c) The date, time, place, manner and circumstances when such advice, warning, recommendation, etc. was given.

(d) The name, business address and telephone number, job title, residence address and telephone number of each and every witness to the plaintiff's reception of such advice, warning, recommendation, etc.

(e) The name, business address and telephone number, job title, residence address and telephone number of each and every co-worker or similar member of their trade and occupation who also received the same or similar advice, warning, recommendation, etc.

ANSWER (a)-(e): U.S. Mineral incorporates by reference its response to Interrogatory No. 69.

(71) State the name of all persons who have acted in the capacity as a medical librarian for the Defendant since 1930, and give their current address, telephone number and current position with the company.

ANSWER: Not applicable.

(72) State whether you subscribed to or received copies of the Asbestos Workers magazine and state the years of subscription or receipt of this magazine.

ANSWER: No.

(73) Please state whether you subscribed to the Asbestos magazine and list the inclusive dates of your subscription.

ANSWER: Objection. This interrogatory is overly broad and burdensome. Without waiving these

objections, U.S. Mineral responds as follows: To the best of this defendant's knowledge, no. This defendant has determined that some of its personnel may have subscribed to a number of trade journals and it appears that Frank M. Stumpf, former Vice President - Research, may have subscribed to the magazine for the year 1976.

(74) Please identify all booklets, manuals, journals and all publication directed from you to customers and users of all asbestos containing products and the dates said information was forwarded regarding the proper use and application of your asbestos containing products.

ANSWER: U.S. Mineral incorporates by reference its response to Interrogatory No. 17. Additionally, U.S. Mineral provided copies of the SMFMA Recommended Codes of Practice and the SMFMA Bulletin on Sprayed Fiber Application Practice to all of its licensed contractors.

(75) Please describe and identify all tests and experiments conducted by you to determine whether or not asbestos fibers contained within your asbestos containing products would become airborne upon their being applied by asbestos insulation mechanics or helpers. Please state the date of all tests and experiments and the results and conclusions of each test and/or experiment.

ANSWER: Please see attached reports of William R. Bradley and Associates, Newark, New Jersey which were sponsored by the Sprayed Mineral Fiber Manufacturers Association during the spraying of asbestos-containing mineral fiber products on an unknown date in 1966, 1/12/67, 3/1/67, and 7/26/67.

(76) At any time prior to 1964 were any tests or studies conducted or sponsored by you to determine:

- (a) The level of dust or fiber concentration incident to:
- i. Cutting or sawing your insulation products containing asbestos:
 - ii. Implacing the product on (1) pipes, (2) boilers;
 - iii. Tearing down the product during repair and maintenance functions;
 - iv. Mixing asbestos containing insulation cements.

(b) Whether long term (20 years or more) exposure to insulation products containing 15% asbestos or less for work periods less than 8 hours a day, both indoors and outdoors, which resulted in the liberation of asbestos dust or fiber below 5 million particles per cubic foot (mppcf) might cause asbestosis or exposure such worker to an increased statistical risk of contracting:

- i. Bronchogenic cancer:
- ii. Mesothelioma (pleural or peritoneal)
- iii. Gastrointestinal cancer.

ANSWER:

- (a) No.
- (b) No.

(77) Please identify all tests, articles, publications, pamphlets, standards and rules upon which you intend to rely at the time of the trial to support your case.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this answer.

(78) Please describe and define threshold limit value of dust containing asbestos and the application of threshold limit value to the asbestos manufacturing and insulation trade.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Moreover, this interrogatory calls for an expert opinion which this Defendant is not qualified to render.

(79) State whether or not you had an opinion in 1960 as to whether or not the concentration of airborne asbestos fibers at job sites at which your asbestos containing insulation products were being applied by asbestos insulation mechanics were within the prescribed threshold limit values for 1960 when said application was being performed and state the basis for your opinion and

list all publications or communications upon which you relied in formulating said opinion.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(80) State the date and the source from which you received your first notice and awareness of threshold limit values pertaining to the concentration of airborne asbestos fibers.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: So many years later, U.S. Mineral does not specifically recall the date and source from which it received its first notice and awareness of threshold limit values pertaining to the concentration airborne asbestos fibers.

(81) Describe what action was taken by you prior to 1960 to determine whether insulation mechanics who were applying your asbestos containing insulation products were exposed to concentrations below the TLV and state the date and nature of each action taken by you.

ANSWER: Objection. This interrogatory is unclear, vague, and ambiguous. The term "insulation mechanic" is not defined and is unclear without being defined.

(82) State your knowledge as to the manner in which your asbestos containing insulation products were cut, sawed, fabricated and prepared for application upon job sites since 1940 by asbestos insulation mechanics, and also state your knowledge as to the manner in which asbestos containing insulation cement manufactured by you was mixed by said asbestos insulation mechanics upon job sites since 1940, particularly as to the creation of dust, in the form of asbestos airborne fibers resulting from preparation and application of said asbestos insulation products and cements.

ANSWER: Objection. This interrogatory is overly broad and unduly burdensome. It is not limited in time of scope of inquiry. The term "insulation mechanic" is not defined and is unclear without being defined.

(83) Are you aware of articles authored by W. C. Dresden, in Public Health Bulletin No. 241 of 1938, establishing threshold limit values for airborne asbestos fibers? If so, when did you become aware?

ANSWER: No.

(84) Please state whether or not you ever obtained any knowledge concerning the likelihood of asbestos inhalation being hazardous to health, and if so, state when you first become aware of the hazardous potential of asbestos and asbestos containing products. State how the defendant first obtained this knowledge and became so aware of said hazards and from what source this information was obtained.

ANSWER: Objection. This interrogatory is vague and ambiguous. In particular, the phrase "likelihood of asbestos inhalation being hazardous to health" is vague and asks the defendant to assume objectionable facts. Without waiving these objections, U.S. Mineral responds as follows: U.S. Mineral cannot state when it first learned of an association between asbestos exposure and certain medical conditions. However, U.S. Mineral has been aware since the mid-1950's that, in the absence of respiratory protection, long-term exposure to heavy concentrations of airborne asbestos in an occupational setting could result in a disease known as asbestosis. So many years later, U.S. Mineral cannot identify the source of this information.

(85) Please state whether or not defendant ever maintained a library or collection of medical information pertaining to effect of asbestos upon human health, including its hazardous effects, and if so, where said library or collection was and is located, who the person was who maintained it, and what bibliography of medical articles, materials, and other reports were a part of said library on said subject, including journals, publications, reports and all memoranda published and received by you since 1930.

ANSWER: No.

(86) Please state whether or not any governmental agency had every written letters or warning to defendant pertaining to the

likelihood of injury to persons being exposed to asbestos and asbestos related materials of the Defendant.

ANSWER: No.

(87) If the answer to the preceding Interrogatory is yes, which agency, when and who possessed a copy of the letter?

ANSWER: Not applicable.

(88) Please annex copies of all such correspondence and notices of governmental agencies pertaining to said warnings.

ANSWER: Not applicable.

(89) State whether any substance other than asbestos can produce the restrictive lung disease denominated asbestosis.

ANSWER: Objection. This interrogatory is argumentative, overly broad, beyond the scope of permissible discovery, and is not reasonably calculated to lead to the discovery of admissible or relevant material. Further, this Defendant objects to this Interrogatory as requiring a medical expert opinion that this Defendant is not qualified to render.

(90) State whether asbestos workers, including insulation workers, face a statistically higher risk of contracting lung disease if

- (a) They have asbestosis and
 - i. Have never smoked;
 - ii. Have smoked.
- (b) They do not have asbestosis and
 - i. Have never smoked;
 - ii. Have smoked.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 89.

(91) State your knowledge whether asbestos workers, including insulation workers, fact a statistically higher risk of contracting mesothelioma, pleural or peritoneal.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 89.

(92) State your knowledge whether there is an causal relationship between cigarette smoking and mesothelioma.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 89.

(93) State your knowledge as to the causal relationship between the inhalation of asbestos fibers and cancer of the lungs, rectum, stomach and brain.

ANSWER: Objection. This interrogatory is overly broad, beyond the scope of permissible discovery and is not calculated to lead to the discovery of admissible or relevant material. Moreover, it calls for an expert medical opinion which this Defendant is not qualified to render. Without waiving these objections, U.S. Mineral responds as follows: So many years later, U.S. Mineral cannot pinpoint exactly how and when it first heard of an association between lung cancer and asbestos exposure. However, a review of U.S. Mineral's documents reflects a letter from Herbert Levine dated April 11, 1966 to James Verhalen and others which enclosed an article entitled "Asbestos Exposure and Neoplasia".

(94) State when your knowledge as to the association between inhalation of asbestos fibers and the contracting of cancer and asbestosis was first acquired, and state the source of that information.

ANSWER: U.S. Mineral incorporates by reference its objections and responses to Interrogatory No. 84 and No. 93.

(95) State whether you ever conducted or sponsored any tests relative to the possibility of a relationship between asbestos exposure and cancer, and if so, state when such studies were

performed, by whom they were performed and the results of such studies.

ANSWER: No.

(96) State your knowledge as to the cancer producing capabilities of amosite asbestos fibers, crocidolite asbestos fibers, and chrysotile asbestos fibers.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 89.

(97) Do you subscribe to the United States Public Health Bulletin Service? If your answer is in the affirmative, please state the date when you first so subscribed to the Public Health Service Bulletin.

ANSWER: No.

(98) Please state the date for each plant when you first notified your employees working in your manufacturing plants and factories as to the need to wear and use respirators.

ANSWER: Objection. This interrogatory is not reasonably calculated to lead to the discovery of admissible evidence and is beyond the scope of this litigation. Without waiving these objections, U.S. Mineral responds as follows: During the entire time during which U.S. Mineral manufactured and sold asbestos-containing insulation products, dust masks approved by the Bureau of Mines were furnished to and used by its employees.

(99) Please state the date when you first notified asbestos insulation mechanics applying your asbestos insulation products and related trades as to the need to wear respirators.

ANSWER: Objection. The term "insulation mechanics" is not defined and is unclear without definition. Without waiving these objections, U.S. Mineral responds as follows: During the entire period CAFCO asbestos-containing products were manufactured and sold by U.S. Mineral, licensed applicators were instructed verbally during training sessions and in writing in the application manuals to use respiratory protection during applica-

tion. Additionally, from May, 1962 warnings contained on individual bags of U.S. Mineral's CAFCO asbestos-containing products recommended the use of respiratory protection.

(100) State whether or not Defendant has ever published bulletins, warning its employees concerning the hazards of inhaling asbestos and coming into contact with the products of this defendant containing asbestos. If so, please attach copies of bulletins issued by the Defendant to its employees on said subject stating the date and year that said bulletins were distributed to your employees and the name of the author of said bulletin in the employ of the Defendant.

ANSWER: Objection. This interrogatory is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving this objection, U.S. Mineral incorporates by reference its responses to Interrogatory No. 17 and No. 99.

(101) State whether any officers, agents, servants or employees of the defendant has ever testified before any governmental body regarding the possible harmful effects of asbestos exposure. If so, state:

- (a) When and where such testimony was given.
- (b) Summary of said testimony.
- (c) If recorded, and if so, attach a copy of the answer to these Interrogatories.

ANSWER (a)-(c): No.

(102) State the names of any expert witness that you intend to rely upon at the trial of this action, and identify the subject matter upon which each said expert will testify, his opinions, and the grounds upon which the opinions are based.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(103) If written documentation in the form of "scientific data" will be introduced into evidence upon a trial of this cause by the Defendant, describe each such document, and include its title, author, and the identity of any publication in which such data was published.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(104) State the full name, present full address, telephone number of all witnesses who will testify on behalf of the Defendant upon a trial of this cause, and identify the subject matter upon which each such witness will testify.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(105) Describe all written documentation which will be offered upon a trial of this cause on behalf of the Defendant against Plaintiffs.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(106) Please state if the Defendant intends to assert a defense of contributory negligence. If so, state all fact on which the Defendant bases its contention that the Plaintiff was contributorily negligent.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(107) If the answer to the preceding Interrogatory is in the affirmative, state in detail those witnesses who may be called to testify in reference to contributory negligence.

ANSWER: See response to Interrogatory No. 106.

(108) Please state if the Defendant intends to assert a defense of incurred and/or assumed risk. If so, state all facts on which the Defendant bases its contention that the Plaintiff incurred and/or assumed risk.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(109) If the answer to the preceding Interrogatory is in the affirmative, state in detail those witnesses who may be called to testify in reference to incurred and/or assumed risk.

ANSWER: See response to Interrogatory No. 108.

(110) Please state if the Defendant intends to assert the defense that there is no casual relationship between Plaintiff's injuries and death and the exposure to asbestos and asbestos materials. If so, state all facts on which the Defendant bases this contention.

ANSWER: U.S. Mineral has not yet made that determination, but reserves the right to supplement this response.

(111) Please state if the Defendant intends to assert that it has not manufactured, sold, distributed, or supplied asbestos materials to the Southeast area, including South Carolina, North Carolina, Georgia, Florida, Tennessee, Virginia, West Virginia and Maryland.

ANSWER: Objection. This interrogatory seeks privileged and confidential information. Without waiving these objections, U.S. Mineral responds as follows: U.S. Mineral has not yet made that determination and reserves the right to supplement this response.

(112) If the answer to the preceding Interrogatory is in the affirmative, state in detail those witnesses who may be called to testify in reference to said contention.

ANSWER: U.S. Mineral incorporates by reference its objections and response to Interrogatory No. 111.

(113) State all distributors and companies to which the Defendant sold or distributed asbestos or asbestos insulation materials in Virginia, Georgia, South Carolina and North Carolina for the years 1940-1981.

ANSWER: Objection. This interrogatory is overly broad and unduly burdensome. Moreover, it seeks information irrelevant to plaintiff's claim.

(114) Please state any product within your knowledge which could be or is being used for the same purpose as asbestos containing insulation material, and state when it was determined that said materials could be used as a substitute for asbestos insulation products.

ANSWER: Objection. This interrogatory is vague and ambiguous. The term "product" is not defined and is unclear without definition.

(115) Prior to answering these Interrogatories, have you made due and diligent search of all books, records and papers of the Defendant and due and diligent inquiry of all agent and employees of the Defendant with a view to eliciting all information available in this action.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(116) If the answer to the preceding Interrogatory is in the affirmative, state and identify what records of Books and papers were searched and state and identify what agents and employees who were questioned.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 115.

(117) State whether any distributive catalogs or other advertisement material is or has been disseminated in South Carolina, Virginia, Georgia or North Carolina by you.

ANSWER: Yes.

(118) Do you advertise by any media whatsoever which reaches a Georgia, North Carolina, Virginia, or South Carolina audience?

ANSWER: Yes.

(119) State whether you sold any asbestos products to any United States governmental agency and if so:

(a) List each such agency.

(b) The year of each such sale.

(c) The final government destination of each such product sold.

ANSWER: No.

(120) With reference to these questions, the Defendant is identified by its present corporate name. The questions are, however, directed, in addition, to all predecessor corporation whether acquired by merger, stock purchase or otherwise. Answering such questions does not waive any positions the Defendant might take with reference to "assets only" defenses. Please state when Defendant formed within its corporate structure a group known as "contract units". As contemplated in these Interrogatories, a "contract unit" is a division or group within the corporation which inter alia, engages in the actual installation of thermal insulation products containing asbestos at job sites.

ANSWER: Objection. This interrogatory is argumentative, vague and ambiguous. Without waiving these objections, U.S. Mineral responds as follows: No.

(121) Please define in detail the purpose and function of Defendant's "contract units".

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(122) Please state whether or not any Defendant "contract units" were employed at any time in South Carolina, North Carolina, Virginia, or Georgia for the years 1955-1981.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(123) If the answer to Interrogatory No. 122 is "yes", please state the dates the Defendant "contract units" were in operation, such job sites where they worked, and the names of all employees of Defendant employed by the "contract units".

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(124) On any occasion did Defendant in connection with any of its "contract units" ever advise any of the contract unit employees as to the hazards related to the inhalation and/or ingestion of asbestos fibers?

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(125) If the answer to Interrogatory No. 124 is "yes", please note in detail the job site where such warnings were provided, the time period of the job, the foreman or superintendent in charge of the job, and the name, last known address, and job title of each employee of said "contract unit".

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(126) State whether respirators approved by the U. S. Bureau of Mines for pneumoconiosis producing dust were provided to "contract unit" employees and when first provided.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(127) State whether respirators for "noxious dusts" are different from respirators approved by the U. S. Bureau of Mines for pneumoconiosis producing dust.

ANSWER: Objection. This interrogatory seeks an expert opinion on respirators which U.S. Mineral cannot render.

(128) List the supplier and brand name for all:

- i. Noxious dust respirators provided to all "contract unit" employees in North Carolina, South Carolina, Virginia and Georgia from 1962-1968;
- ii. Respirators approved by the U. S. Bureau of Mines for pneumoconiosis producing dust to all "contract unit" employees in South Carolina, North Carolina, Virginia and Georgia for the years 1962-1970.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(129) State whether the following information was ever disseminated to "contract unit" employees and as to each item state the manner in which it was disseminated and of disseminated in writing, where a copy of same is located.

- i. That band saw cutting of insulation materials containing asbestos should not be attempted without exhaust ventilation and use of respirators by contract unit employees;
- ii. That insulation materials containing asbestos should not be wrapped or pounded or cut without general exhaust ventilation or air changes or the wearing respirators;
- iii. That old insulation material containing asbestos should not be removed or torn down without the wearing of respirators.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(130) State when the first manual of safe practices for the handling and installation of insulation products containing asbestos was disseminated to "contract units" employees.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(131) State when the first safety meeting for "contract unit" employee was held in South Carolina, North Carolina, Virginia or Georgia at which it was revealed to "contract unit" employees that:

- i. The inhalation of asbestos dust or fiber might cause asbestosis;
- ii. The inhalation of asbestos dust or fibers might cause mesothelioma'
- iii. Insulators faced a higher statistical risk that the general population of contracting (a) lung cancer, (b) mesothelioma, (c) gastrointestinal cancer.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(132) State whether "contract unit" employees were provided respirators received instruction at the time of provision of such respirators relative to:

- i. Proper facial fitting;
- ii. Proper maintenance of the respirator;

- iii. The necessity for wearing the respirator;
- iv. The necessity of rotate respirators.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(133) If answer to Interrogatory No. 126 is "yes", please state the first occasion that respirators were provided for "contract unit" employees, the job site, the exact date, the names of employees on the job, their last known address and job title, and the specific type respirator provided.

ANSWER: Not applicable.

(134) If answer to Interrogatory No. 126 is "yes", please state whether or not any physical examinations were conducted on Defendant "contract unit" employees prior to their being furnished with respirators.

ANSWER: Not applicable.

(135) Please state whether or not any air-borne asbestos dust concentration studies were run in the field where "contract unit" employees worked.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(136) If answer to Interrogatory No. 135 is "yes", please state the date such first test was run, the place such first test or study was made, the results of said test or study, and the name, last known address and title of the person or persons conducting such test or study.

ANSWER: Not applicable.

(137) If the answer to Interrogatory No. 135 is "yes", will you attach copies of all studies and/or tests run relating to Interrogatory No. 136.

ANSWER: Not applicable.

(138) Relative to Defendant's "contract units" please state whether or not Defendant's "contract units" employees used

routers, saws, sanders, grinders, or any type device used to shape, form, cut or fabricate asbestos contained material.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(139) If the answer to Interrogatory No. 138 is "yes", please state whether on any occasion any vacuum systems, dust control devices, or watering-down systems, or systems of any kind designed to reduce asbestos dust in the air were at any; time used by employees of Defendant's "contract units".

ANSWER: Not applicable.

(140) If the answer to Interrogatory No. 139 is "yes", please state the first time such devices were used, describing in detail the type devices which were used, the job site upon which such devices were used, the names of all "contract unit" employees on said job, their last known place of address, job title and date of said job.

ANSWER: Not applicable.

(141) State whether Defendant owned or possessed an ownership interest in any asbestos mines. If the answer is "yes", please answer Number 142 through 151.

ANSWER: No.

(142) State whether Defendant's mining employees in the course of extracting asbestos from the earth were exposed to dusts other than asbestos dust.

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(143) Relative to asbestos mines owned by Defendant, please describe in detail the mining operation; that is, whether Defendant's asbestos mines are of the "gravel pit" type -- that is, above ground, where asbestos is mined by surface method; or whether its asbestos mines are "shaft type" requiring runnels and penetration into the earth to extract asbestos.

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(144) Relative to asbestos mines, please state whether or not on any occasion Defendant provided respirators to its asbestos miners.

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(145) If answer to Interrogatory No. 144 is "yes", please state whether respirators were provided to all mine employees.

ANSWER: Not applicable.

(146) If answer to Interrogatory No. 144 is "no", please state to what mine employees respirators were provided, giving job classification.

ANSWER: Not applicable.

(147) Please state the type respirators provided describing in detail from the first such respirator provided through the current date if respirators are still used.

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(148) Please state whether any physical examinations were given to any mine employees prior to their being furnished with respirators of any type.

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(149) Were any studies or tests done at any Defendant mines relative to the dangers or hazards of inhalation and/or ingestion of asbestos fibers?

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(150) If answer to Interrogatory No. 149 is "yes", please attach copies of all such studies.

ANSWER: Not applicable.

(151) If any medical examination of any mine employees of Defendant were made, did any such medical test reveal that mine

employees of Defendant were developing asbestosis even though their job was an "outside type job" as contrasted with a job wherein they worked in a confined or limited area?

ANSWER: Not applicable. Please see response to Interrogatory No. 141.

(152) State whether Defendant belonged to, or was an associate or correspondent of, the Asbestos Research Council of England.

ANSWER: No.

(153) State whether Defendant belonged to, or was an associate or correspondent of, the Asbestos Research Council of England.

ANSWER: No.

(154) State whether Defendant sold or distributed any asbestos product to English firms or corporations for any year from 1948 to 1963.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(155) State whether Defendant possessed any ownership interest in any firm or corporation involved in the mining, processed or sale of raw asbestos or insulation products containing asbestos which were domiciled, headquartered or doing business in the British Isles for any year from 1948 to 1963.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(156) State whether any such firm or corporation possessed any ownership interests in Defendant from 1948 to 1963.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(157) When was the first claim for Workmens' Compensation filed by a "contract unit" employee in which it was alleged that said claimant had contracted:

- i. Asbestosis;
- ii. Lung cancer;
- iii. Mesothelioma.

ANSWER: Not applicable. Please see response to Interrogatory No. 120.

(158) State whether the Defendant entered into licensing agreements with any British or German concerns which manufactured products containing asbestos.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(159) If the answer to the above question is affirmative, list for the years 1947 to 1964:

- (a) The name of each such British or German concern;
- (b) The year the agreement was entered into and all years between 1947 and 1964 that it was in effect;
- (c) Describe the type products manufactured by such licensees including:
 - i. The per cent composition of asbestos;
 - ii. The use of the products;
 - iii. Whether the products were marketed in the United States.

ANSWER: Not applicable.

(160) State whether the Defendant at any time between 1945 and 1970 had an International Division and if yes, state the name of said Division and its years of operation.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(161) If your company, or your predecessor ever devised a high temperature heat insulation which does not contain asbestos, state what prompted your company to devise such high temperature heat insulation not containing asbestos.

ANSWER: U.S. Mineral incorporates by reference its objections and response to Interrogatory No. 34.

(162) Has such high temperature heat insulation not containing asbestos performed satisfactorily; that is, is such insulation suitable for the purpose for which it is to be used?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(163) Give the trade names of your high temperature heat insulation products which do not contain asbestos, and state fully what such insulation contains.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Moreover, this interrogatory seeks information protected by the principles of trade secrecy. Without waiving these objections, U.S. Mineral responds as follows: U.S. Mineral's high temperature heat insulation products which do not contain asbestos are differentiated from those on Exhibit "A" by the designation "C/F".

(164) State the decade that there first existed, for commercially feasible purposes, manufacturing technology to combine chemicals and non-asbestos minerals into a high heat insulation product that was a substitute for asbestos in insulation materials.

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Moreover, this interrogatory calls for speculation.

(165) To your company's knowledge, in what decade was fiberglass first commercially available?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(166) To your company's knowledge, in what decade was calcium silicate first commercially available in the manufacturing process?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(167) Prior to 1971, did your company, or its predecessor, contend that there was no satisfactory substitute for insulation products containing some asbestos for high heat insulation?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence.

(168) Did each of your asbestos containing products or materials generally reach, or were packaged to reach, the consumer, insulation helper, insulation mechanic, or ultimate user, without substantial change in the condition in which it was sold?

ANSWER: Objection. This interrogatory is vague, ambiguous, and overly broad. Moreover, it seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. It also calls for speculation. The term "substantial change in the condition" is not defined is unclear without definition.

(169) If your answer to Interrogatory No. 168 is "No", with respect to any product, explain what way the Defendant claims its products were altered or substantially changed after sale or

distribution and before reaching the insulation helper or mechanic.

ANSWER: U.S. Mineral incorporates by reference its objections to Interrogatory No. 168.

(170) Do you admit that asbestos insulation applicators, helpers or mechanics, were foreseeable users of Defendant's asbestos-containing insulation products?

ANSWER: The only foreseeable users of U.S. Mineral's spray-applied asbestos-containing CAPCO products would be employees of the licensed applicators to whom U.S. Mineral sold its products. These employees would generally fall into the category of "plasterers".

(171) Which asbestos containing products listed by you in answers to Interrogatory 5 did you ever intend for use in construction and repair of ships and ocean-going vessels or other maritime uses?

ANSWERS: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: None.

(172) Have you ever directed the preparation and purchase of advertisements for your asbestos containing products directed to marine, maritime, ship building or ship repair uses?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(173) If the answer to Interrogatory 172 is yes, please state the dates, publications, products advertised and attach copies of said advertisements to your answers.

ANSWER: Not applicable.

(174) If the answer to Interrogatory 172 is yes, please state the specific intended or anticipated uses.

ANSWER: Not applicable.

(175) Have you ever submitted bids for the furnishing of asbestos containing products to the United States Navy and if the answer is yes, state the dates of such bids, the product names bid and the outcomes of the bid submissions?

ANSWER: Objection. This interrogatory seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(176) Have you ever sold asbestos containing products to the United States Navy and if the answer is yes, please state the dates of such sales, the quantity of each product sold and the identity of each product sold?

ANSWER: Objection. This interrogatory is overly broad and unduly burdensome. Moreover, it seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(177) Have you ever caused to be delivered to the United States Navy or a sub-contractor or contractor of the United States Navy, asbestos containing products at the shipyard located at Wilmington, North Carolina and known as the North Carolina Shipbuilding Corporation, a division of the Newport News Shipbuilding Company or at the Newport News Naval Shipyard, Newport News, Virginia or the Norfolk Naval Shipyard Norfolk, Virginia?

ANSWER: Objection. This interrogatory is overly broad and unduly burdensome. Moreover, it seeks information irrelevant to plaintiff's claim and is not reasonably calculated to lead to the discovery of admissible evidence. Without waiving these objections, U.S. Mineral responds as follows: No.

(178) If the answer to 179 is "yes", then please state the products, quantities, and dates delivered to each.

ANSWER: U.S. Mineral incorporates by reference its objections and response to Interrogatory No. 177.

VERIFICATION

Paulette A. Kaminski states that she is Assistant Secretary for U.S. Mineral Products Company; that she is acquainted with the facts set forth in the Foregoing Answers to Plaintiff's First Set of Interrogatories; that the same are true and correct to the best of her knowledge, information, and belief.

Paulette A. Kaminski
PAULETTE A. KAMINSKI

Sworn to and subscribed before me,
a Notary Public, this 11 day of
April, 1991.

Patricia M. Dooley
Notary Public

PARTICIA M. DOOLEY
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 28, 1993

As to objections:

J. A. Gardner, III
J. A. Gardner, III
HEDRICK, EATMAN, GARDNER
& KINCHELOE
P.O. Box 30397
Charlotte, NC 28230
(704) 377-1511

Date: April 15, 1991

EXHIBIT "A"

- | | |
|---|---|
| 1. CAFCO® Spray
(1954-58) | Fireproofing, insulation and
accoustical treatment of buildings |
| 2. CAFCO BLAZE-SHIELD®
(1958-71) | Fireproofing of structural
steel and steel floors |
| 3. CAFCO BLAZE-SHIELD
Type D (1965-72) | Fireproofing of structural
steel and steel floors |
| 4. CAFCO BLAZE-SHIELD Patching
Fiber (1954-71) | Same as CAFCO BLAZE-SHIELD but
fiber modified so it can be mixed
with water and hand applied. |
| 5. CAFCO BLAZE-SHIELD Patching
Fiber, Type D (1965-71) | Same as CAFCO BLAZE-SHIELD Type
D but modified so it can be mixed
with water and hand applied. |
| 6. CAFCO Spray Type 1
(1954-58) | Fireproofing, insulation and
accoustical treatment of buildings |
| 7. CAFCO SOUND-SHIELD® | Acoustical absorption |
| 8. CAFCO BLAZE-SHIELD Type H
(1969-71) | Same as CAFCO BLAZE-SHIELD Type
D; generally used for exposed
acoustical areas |
| 9. CAFCO HEAT-SHIELD®
(1958-71) | Building Insulation |
| 10. CAFCO POWER-SHIELD®
(1964-71) | High temperature power and
process insulation |
| 11. J Spray (1964-67) | High temperature power and
process insulation |
| 12. COMINCO®
sometimes called Ace-Tite
Cement or All Purpose
(pre-1958-71) | Insulating cement used for
elbow fittings |
| 13. COMINCO® Mono-ply
(1963-71) | Insulating cement used for elbow
fittings |
| 14. CAFCO HEAT-SHIELD Type 2 | Modification of CAFCO HEAT-SHIELD |
| 15. CAFCO BLAZE-SHIELD Type M | Modification of CAFCO BLAZE-
SHIELD; organic binders added |
| 16. Mark II (1967-72) | Coating for application over CAFCO
products in areas of extreme
velocity and/or abrasion |
| 17. CAFCO WEATHER-SHIELD®
(1970-72) | Coating for application over CAFCO
products to protect against
unusual exposure to the elements |

UNITED STATES MINERAL PRODUCTS COMPANY
PRIMARY LIABILITY INSURANCE COVERAGE

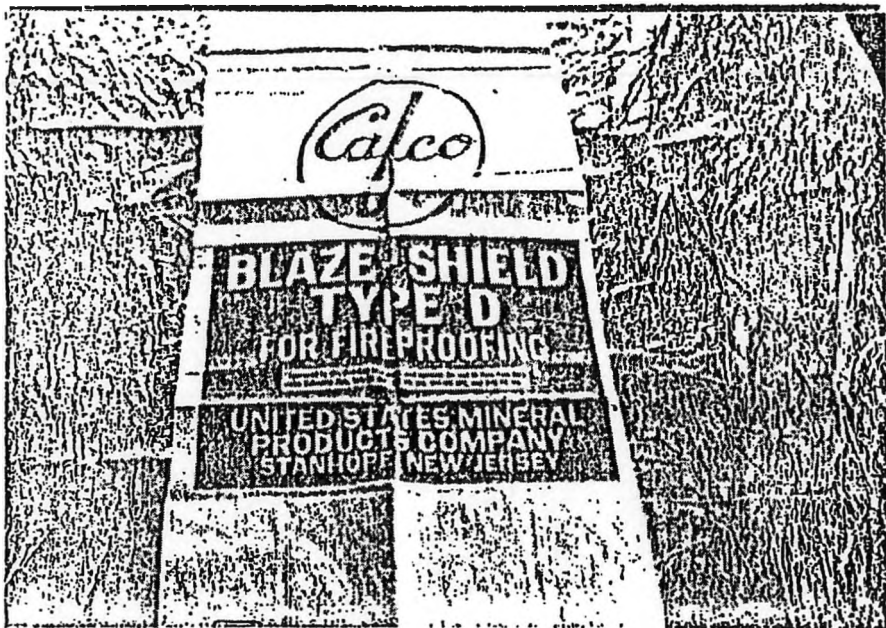
<u>Policy Term</u>	<u>Carrier</u>	<u>Policy Number</u>
11/7/57-11/7/58	Employers Mutual Liability Ins.Co. of Wisconsin	0528 00 046194
11/7/58-11/7/59	Same	0529 00 046194
11/7/59-11/7/60	Same	0520 00 046194
11/7/60-11/7/61	Same	0521 00 046194
11/7/61-11/7/62	Same	0522 00 046194
11/7/62-11/7/63	Same	0523 00 046194
11/7/63-11/7/64	Same	0524 00 046194
11/7/64-11/7/65	Same	0525 00 046194
11/7/65-11/7/66	Same	0526 00 046194
11/7/66-11/7/67	Same	0527 00 046194
11/7/67-11/7/68	Same	0528 00 046194
11/7/68-11/7/69	Same	0529 00 046194
11/7/69-11/7/70	Same	0520 00 046194
11/7/70-11/7/71	Same	0521 00 046194
11/7/71-11/7/72	Same	0522 00 046194
11/7/72-11/7/73	Same	0523 00 046194
11/7/73-11/7/74	Same	0524 00 046194
11/7/74-5/15/75	Same	0525 00 046194
5/8/75-5/8/76	St.Paul Fire & Marine Ins. Co.	529JG7793
5/8/76-5/8/77	Same	529JJ4844
5/8/77-5/8/78	Same	529JK5178
5/8/78-5/8/79	Same	529JL8551
5/8/79-8/10/79	U.S.Fidelity & Guaranty Co.	ICC C 89630

USM PRIMARY LIABILITY INSURANCE COVERAGE (continued)

<u>Policy Term</u>	<u>Carrier</u>	<u>Policy Number</u>
8/10/79-8/31/80	Hartford Fire Ins. Co.	13 CBP 130662
8/31/80-11/11/80	Continental Ins.	L1 32 70 30
11/11/80-11/11/81	Ambassador	GLA-79-11-58
11/11/81-11/11/82	Union Indemnity Ins.Co.of NY	UGL 13529
11/11/82-11/25/83	Same	UGL 23676
11/25/83-5/1/84	National Union	GLA 1167580
5/1/84-9/3/84	Home Ins.Co.	P 178958

UNITED STATES MINERAL PRODUCTS COMPANY
EXCESS LIABILITY INSURANCE COVERAGE

<u>Policy Term</u>	<u>Carrier</u>	<u>Policy Number</u>	<u>Layer</u>
10/31/72-10/31/75	Continental Casualty Co.	RDU 804 72 98	1
10/31/75-5/8/77	Same	RDU 292 70 23	1
5/8/77-5/8/78	Same	RDU 293 90 29	1
6/23/77-5/8/78	Chubb & Son, Inc.	7922-04-41	2
5/8/78-5/8/79	Continental Casualty Co.	RDU 441 58 15	1
5/8/78-5/8/79	Chubb & Son	(79) 7922-04-41	2
5/8/79-8/10/80	Puritan Ins. Co.	UL 67 21 65	1
5/8/79-8/10/80	Nat'l. Union Fire Ins. Co. of Pittsburgh, PA.	1225415	2
8/10/80-11/11/81	Midland Ins. Co.	704 247	1
8/10/80-11/11/81	Nat'l. Union Fire Ins. Co. of Pittsburgh, PA.	991-0408	2
11/11/81-11/11/82	Integrity Ins. Co.	ISX 106790	1
11/11/81-11/11/82	Ambassador Ins. Co.	ELP 001136	2
11/11/81-11/11/82	Firemens Fund	XLX 137-33-07	3
11/11/82-11/11/83	Integrity Ins. Co.	ISX 110735	1
11/11/82-11/11/83	Firemens Fund	XLX 148-57-13	2
8/8/83-11/25/84	Twin City Fire	TXS 103131	3
8/8/83-11/25/84	North River Ins. Co.	522-018613-8	4
11/11/83-11/25/84	Integrity Ins. Co.	ISX 113159	1
11/11/83-11/25/84	Firemens Fund	XLX 1618314	2



INSTRUCTIONS FOR APPLICATION OF THE GELATIN GEL

CAUTION: The GELATIN GEL is a material developed by United States National Development Corporation, St. Louis, Mo. It is a blend of natural gelatin and is not easily packaged in multiple quantities. Application instructions are supplied in the company letter and approved by the manufacturer.

EQUIPMENT

CAUTION: The GELATIN GEL is a material developed by United States National Development Corporation, St. Louis, Mo. It is a blend of natural gelatin and is not easily packaged in multiple quantities. Application instructions are supplied in the company letter and approved by the manufacturer.

The GELATIN GEL is a material developed by United States National Development Corporation, St. Louis, Mo. It is a blend of natural gelatin and is not easily packaged in multiple quantities. Application instructions are supplied in the company letter and approved by the manufacturer.

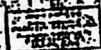
APPLICATION

The GELATIN GEL is a material developed by United States National Development Corporation, St. Louis, Mo. It is a blend of natural gelatin and is not easily packaged in multiple quantities. Application instructions are supplied in the company letter and approved by the manufacturer.

The GELATIN GEL is a material developed by United States National Development Corporation, St. Louis, Mo. It is a blend of natural gelatin and is not easily packaged in multiple quantities. Application instructions are supplied in the company letter and approved by the manufacturer.

CAUTION

This product contains substances which are not suitable for use in the presence of fire. It is not suitable for use in the presence of fire. It is not suitable for use in the presence of fire. It is not suitable for use in the presence of fire.



William R. Bradley and Associates

ENVIRONMENTAL HEALTH CONSULTANTS

18 GREEN STREET • NEWARK, N. J. 07102

201 622-4246

December 15, 1966

Sprayed Mineral Fiber Mfg. Assoc., Inc.
Suite 2300
One Wall Street
New York, New York 10005

Attention: Technical Committee

Re: Environmental Health Investigation

A study was made of airborne dusts in the work area of operators spraying mineral fiber in the two new building construction sites. Dust counts from microscopic examination of eight air samples were made. The dust counts include mineral wool particles and asbestos fiber of respirable size only. These dust particles are five microns in diameter or smaller and represent dusts that may penetrate deeply into lung tissue and that may be retained therein.

The first three dust samples were collected at a northern New Jersey location that was completely enclosed. The skilled operator used a long, approximately twenty foot pipe, in order to reach high ceiling structures from the floor.

The first sample was collected in a sheltered corner of the outside walkway having a large overhead roof. The second and third samples were collected indoors.

The second series of five samples was collected at a midtown New York City construction site. Sample number four was collected on the platform at the nose level of the spray operator. The operator had his hand directly on the nozzle and was standing on a platform within a few feet of his work. The operator did not appear to be as skilled as the first operator, causing overspray, underspray and backspray. The location was a generally open area where the wind could blow through and carry visible spray a considerable distance.

Samples one, three and four were collected at about one foot distance from the operators head and nose level and represent operators potential exposure. It was noted that operators wore approved type respirators but that operators helpers or foreman did not. It was noted that the employee dumping bags into the feed hopper wore a respirator but that his supervisor in performing the same operation did not.

Analysis of Dust Samples

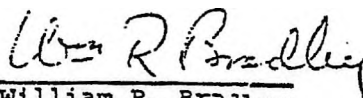
<u>Sample Number</u>	<u>Location</u>	<u>Millions Particles per Cubic Ft. of Air</u>
<u>New Jersey</u>		
1.	Outdoors in corner of sheltered walkway while spraying twenty foot high roof from ground area.	4.5
2.	Inside enclosed building. Large open area. Sample collected six foot from hopper of product feed machine.	4.0
3.	Spraying corner of enclosed room, upper wall and ceiling, operator at floor level, spray area fifteen to twenty feet. above floor.	7.0
<u>New York City</u>		
4.	On platform two to three feet from nozzle and two to six feet from area of application.	26.0
5.	Sample collected at head level sixty feet from spray operator.	9.0
6.	Sample collected at head level thirty feet from spray operator.	12.0
7.	Sample collected at head level 17 feet from spray operator.	10.0
8.	Sample collected two floors below area of spray application and in small enclosed service room.	2.7

At the New Jersey location air temperature was 46°F. and relative humidity was 96%. At the New York location air temperature was 42°F. and the relative humidity was 96%.

Summary

The recommended threshold limit value for asbestos dust is five million particles per cubic feet of air. Inert or nuisance dusts have a recommended threshold level of fifty million particles per cubic feet of air. Inert dusts have less than 1% free silica. The threshold level value applies to eight hours daily exposure, day in and day out, without damage to lung tissue likely to result in illness.

Threshold limit values are exceeded under the conditions of sampling and spray application and show concern for use of respiratory protection and for employee health maintenance. Steps taken to reduce minus five micron dust particles in the product are considered to be worthwhile.


William R. Bradley

WRB/cjn

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William R. Bradley and Associates

ENVIRONMENTAL HEALTH CONSULTANTS

18 GREEN STREET • NEWARK, N. J. 07102

201 622-4246

January 23, 1967

Sprayed Mineral Fiber Manufacturers Association, Inc.
Suite 2300
One Wall Street
New York, New York 10005

Attention: Technical Committee

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.

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 pedistal 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.

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

Test No.	Product	Water Flow Rate (lbs./ minute)	TYPE GUN		Millions of Particles per Cubic Foot of Air
			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

minute than USM application rate. It is noted that S&K fiber is most dusty with product BEH being slightly less dusty in all cases, but considerably more dusty than USMP and Asb. products.

Wm R Bradley
WILLIAM R. BRADLEY

WRB/dm

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William R. Bradley and Associates

ENVIRONMENTAL HEALTH CONSULTANTS

18 GREEN STREET • NEWARK, N. J. 07102

201 622-4246

March 8, 1967

Sprayed Mineral Fiber Manufacturers Association, Inc.
Suite 2300
One Wall Street
New York, New York 10005

Attention: Technical Committee

Re: ENVIRONMENTAL HEALTH INVESTIGATION

An environmental health investigation was made for the Sprayed Mineral Fiber Manufacturers Association, Inc., on March 1, 1967 at the United States Mineral Products Company, Stanhope, New Jersey. The area set aside for this study was indoors at a corner of a small space isolated from the rest of the research department's laboratory. The area to be sprayed was a ceiling space about nine feet above floor level and an adjoining wall space. This space was adjacent to a large rollup double door. The door could be opened and a large propeller fan used to air out the space following each test.

The spray operator held the application nozzle about five feet from the ceiling area and five feet from the wall area which was being sprayed. Air samples for dust were collected at head level at about three feet from the operator in this rather confined area of the building. The products tested for airborne dust during application were as follows:

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

The above products were sprayed at a 1:1 ratio of water to dry fiber weight. The application rate was five pounds, ten pounds, and fifteen pounds per minute of dry feed. In the case of Asbestospray, the product was applied from a 16 jet nozzle at five pounds and ten pounds per minute and from a 12 jet nozzle at the same rates. All other products were applied at the three above mentioned rates using the 16 jet air-water nozzle and the model "A" internal gun without air.

DUST SAMPLE ANALYSIS

Test No.	Product	Water Flow (lbs./min.)	Type of Gun		Millions of Particles per Cubic Foot of Air
			16 Jet	Model 12 "A" Jet	
1.	Control				1.2
2.	Asb.	5	X		8.0
3.	Asb.	10	X		6.0
4.	Asb.	5		X	9.0
5.	Asb.	10		X	7.0
6.	Control				1.4
7.	BEH	5	X		15.0
8.	BEH	10	X		14.0
9.	BEH	15	X		12.0
10.	BEH	5		X	21.0
11.	BEH	10		X	18.0
12.	BEH	15		X	17.0
13.	Control				1.4
14.	S&K	5	X		19.0
15.	S&K	10	X		17.0
16.	S&K	15	X		16.0
17.	S&K	5		X	24.0
18.	S&K	10		X	22.0
19.	S&K	15		X	20.0
20.	Control				1.4
21.	USMP	5	X		8.0
22.	USMP	10	X		7.0
23.	USMP	15	X		6.0
24.	USMP	5		X	9.0
25.	USMP	10		X	8.0
26.	USMP	15		X	7.0

SUMMARY

The results of dust studies made in a confined area of spraying mineral fibers shows that the ten pounds and fifteen pounds per minute flow rates are less dusty than the five pounds per minute rate. Also shown is that the combination of air and water in a 16 jet gun results in less airborne dust than does the use of model "A" gun without air or the 12 jet air and water combination nozzle.

The control dust levels show that there was no buildup of dust between sampling tests and the use of different products.

It is conceivable that the Asbestospray product and the United States Mineral Products product could be sprayed in an open building under construction using the most favorable air water gun, product flow rate and water to dry fiber ratio at airborne dust concentrations near or less than the threshold limit value of five million particles per cubic foot of air.

The water to dry product ratio for the application of Baldwin-Ehret-Hill and the Smith & Kanzler product is insufficient to control both asbestos fibers and clay additives.

Wm R Bradley
William R. Bradley

WRB/dm

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William R. Bradley and Associates.

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ENVIRONMENTAL HEALTH CONSULTANTS

18 GREEN STREET • NEWARK, N. J. 07102

201 622-4246

September 21, 1967

Mr. Frank M. Stumpf
Vice President - Research
United States Mineral Products Co.
Stanhope
New Jersey 07874

Re: ENVIRONMENTAL HEALTH INVESTIGATION

Dear Mr. Stumpf:

On July 26, 1967 a series of simultaneous air samples were collected during the spray application of CAFCO BLAZE-SHIELD, mineral fiber. The air sampling was conducted while an operator was spraying the product on a wall- and ceiling-test application in a partially enclosed, one-story building involving a large, open space. CAFCO BLAZE-SHIELD product was applied at a ratio of 10 pounds fiber to 10 pounds of water. A 12-hole, spray nozzle was used.

An environmental health study was conducted in order to determine if spray operators or nearby persons would be exposed to the inhalation of asbestos fibers at a concentration that might result in illness or damage to lung tissue. The test represented actual spray-application conditions that do exist in the average application. Air samples were collected at head level at the station where the spray operator was located, and then in a line perpendicular to the surface being sprayed at distances of 10 feet, 20 feet and 40 feet behind the operator. Prior to the collection of air samples, the operator had been spraying for a period of 20 minutes which again establishes testing under actual spray application conditions.

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Mr. Frank M. Stumpf

September 21, 1967

The collected air samples were analyzed for the presence of respirable-size, asbestos fibers.

Air samples were collected for 10-minute periods using the approved, Greenberg-Smith-impinger technique using triple-distilled water with three percent ethanol to prevent flocculation of dust fibers in the collected sample. A dust count was conducted in the approved manner using a Whipple disc in a 15X microscope, eye piece and with a 10X objective. Dust counts were made using a Dunn cell.

Results of Dust Counts

<u>Millions of Particles Per Cubic Foot of Air</u>				
<u>Product</u>	<u>At Source</u>	<u>10 Feet</u>	<u>20 Feet</u>	<u>40 Feet</u>
Cafco	4.4	3.3	2.7	2.1
Blaze-Shield				

Summary

The results of this investigation show that the threshold level of five million particles per cubic foot of air was not exceeded at the spray operator's breathing zone or at distances of 10 feet, 20 feet or 40 feet from the operator. The threshold level for the inhalation of asbestos fibers may be tolerated for eight-hour days, day in and day out, without danger of producing changes in lung tissue. The results of tests show that no health hazard exists from the inhalation of asbestos fibers under the conditions of these tests as above outlined.

Very truly yours,

W. R. Bradley
William R. Bradley

WRB/bg