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Inorganic Fibers with Cover Memo

American Society for Testing and Materials, Task Group on Naturally Occurring Inorganic Fibers

1976-1977: Committee was mainly comprised of representatives of industrial corporations, including WR Cooling fo Asbestos Corporation Ltd. (Relative of ACL Treasurer WC Cooling, who died from pleural mesothelioma in 1949?), and reps from WR Grace, QAMA, R.T. Vanderbilt, and Eternit, S.A. (Appendix 1 to top document). Group opposed lowering statutory occupational exposure limit below 5 f/cc ("entirely safe and prudent"--p. 3 of 11/16/76 meeting notes).

Johns-Manville

Internal Correspondence

To: R. P. Carter
W. A. Cooper
W. B. Reitze

F. J. Solon, Jr.
S. Speil
W. C. Streib

Date: July 31, 1974

From: E. M. Fenner

Copies: File & C

On calendar

Subject: MEETING - 9:00 A.M., AUGUST 6, 1974
DEFINITION OF AN ASBESTOS FIBER - OSHA STANDARD

As you are aware, there has been considerable discussion concerning the definition of an asbestos fiber as presently used by OSHA, particularly in regard to the prescribed aspect ratio of 3 to 1.

ASTM has organized Committee E-34, "Committee on Occupational Health and Safety Aspects of Materials, Physical and Biological Agents". There are a number of subcommittees and task groups within this committee. One of these task groups is concerned with "naturally occurring inorganic fibers".

This task group is presently engaged in writing for submittal to OSHA through normal ASTM channels a revised standard for occupational exposure to asbestos fibers. One of the important sections being written by this task group is concerned with the definition of asbestos fiber.

The next meeting of the Task Group on Naturally Occurring Inorganic Fibers takes place on August 14 and 14 in Canada. I would very much like to be able to submit to the group a Johns-Manville definition of an asbestos fiber.

In order to accomplish this, I am requesting that you attend a meeting to discuss the subject at 9:00 A.M. on Tuesday, August 6, in our Conference Room, 4 North.

For background information prior to the meeting, I enclose the following:

- (1) A letter to F. J. Solon, Jr., describing ASTM Committee E-34.
- (2) A definition for asbestos fiber as prepared by a subsection of the task group for affirmative or negative balloting by the group members.

(3) A series of definitions of asbestos as previously submitted by the following people:

- A. A. Hodgson, Cape Asbestos Fibres Limited
- G. Gagnon, Lake Asbestos of Quebec Limited
- M. Grimard, M.D., Department of National Health & Welfare of Canada
- R. B. Steele, Asbestos Corporation Limited
- A. A. Harvey, R. T. Vanderbilt Company

- (4) A definition of an asbestos fiber as prepared by Dr. Steven Holmes of the Asbestosis Research Council.
- (5) The ASTM present definition of asbestos fiber.
- (6) & (6A) Two anonymous definitions of asbestos.
- (7) An anonymous definition of naturally occurring inorganic fibers.
- (8) A copy of the original proposal for the formation of the Task Group on Naturally Inorganic Fibers.
- (9) A listing of active members of the task group and all others on the mailing list for material.

E. M. Fenner

APPENDIX I

ATTENDANCE

Third meeting of the Task Group on Naturally Occurring Inorganic Fibers,
Philadelphia, Pa. 18 and 19 April 1974

W. H. Ashton	- Johnson & Johnson Co.
M. Cossette	- Recording Secretary -
	Quebec Asbestos Mining Association
E. M. Fenner	- Vice-Chairman, Johns-Manville
G. J. Foy	- Department of Natural Resources of Quebec
A. M. Harvey	- R. T. Vanderbilt Co.
S. Holmes	Secretary of the Asbestosis Research Council
	T.B.A. Industrial Products Limited
H. H. Kaufman	- GAF Corporation
A. M. Kooiman	- Representative of the Editorial Subcommittee
	- Motor Vehicle Manufacturers' Association
J. F. Martonik	- MESA, Department of the Interior Washington
	D.C.
R. McCarthy	- International Talc
P. W. McDaniel	- Union Carbide Corporation
R. H. Mereness	- Asbestos Information Association/North
	America
• P. V. Pelnar, M.D.	- Institute of Occupational and Environmental
	Health
G. S. Thompson	- R. T. Vanderbilt Company.
A. A. Winer	- Chairman, Department of Energy, Mines and
	Resources of Canada

MAILING LIST

Dr. J. W. Axelson	- Johns-Manville Research and Development
	Center
Dr. E. Berry	- Department of Materials Chemistry
R. A. Bramley-Moore	- Chrysotile Corporation of Australia
	Pty. Ltd.
W. R. Cooling	- Asbestos Corporation Limited
H. A. Eschenbach	- Industrial Hygienist
	W. R. Grace & Co.
P. A. Filteau	- Quebec Asbestos Mining Association
G. Gagnon	- Assistant Mill Superintendent
	Lake Asbestos of Quebec Limited
G. W. Gibbs	- McGill University
	Department of Epidemiology and Health
Dr. M. Grimard	- Department of National Health and Welfare
	of Canada

MAILING LIST (suite)

A. Goodwin	- Head, Health Division
A. A. Hodgson	- Cape Asbestos Fibers Limited
Dr. R. A. Kuntze	- Ontario Research Foundation
Dr. J. Lepoutre, M.D.	- Eternit S. A.
B. Lincoln	- Turner Newall Fibre Laboratory
C. G. Morgan	- North American Asbestos Corporation
K. Morgarcidge	- Food and Drug Research Laboratories, Inc.
T. D. Oulton	- Research Associate, Minerals & Chemicals Division
L. C. Piuze	- Lake Asbestos of Quebec Limited
M. Q. Scowcroft	- Asbestos Textile Institute
W. H. Smith	- Bell Asbestos Mines Limited
R. B. Steele	- Asbestos Corporation Limited
C. E. Stiefken	- American and Refining Co. Ltd.
E. T. Triglea	- Engelhard Chemical & Mineral Industries

American Society for Testing and Materials
Committee E-34
Task Group on Naturally Occurring Inorganic Fibers
Minutes of the thirteenth meeting.

St-Louis Mo.
4 May 1976

PRESENT

The list of those present is presented in Appendix 1

AGENDA

The agenda is presented in Appendix 2

BUSINESS

13.1 Chairman's introductory remarks

13.1.1 It was announced that the Chairman and the Recording Secretary had appeared before the Executive Subcommittee E-34.90 on Monday morning (3 May 1976) to answer questions regarding the submission of comments to OSHA

13.1.2 It was mentioned that representatives of this Task Group had attended each of the subcommittee meetings scheduled on Monday afternoon (3 May 1976)

13.1.3 It was announced that it was anticipated that the Engineering Controls Subcommittee E-34.30 and the Medical-Toxicology Subcommittee E-34.20, might join this meeting to discuss jointly the actions taken with regard to the ninth draft of the standard on asbestos.

13.2 Minutes of the last meeting

13.2.1 The minutes of the last meeting were adopted.

13.3 The ninth draft of the standard for occupational exposure to asbestos.

- 13.3.1 It was agreed that the resolution of the negative votes received by the subcommittees would receive first priority.
- 13.3.2 Negative vote from Mr. D.G. Sarvadi, to the Test Methods Subcommittee:-
'Section 5.5. The first paragraph in this section refers to a paragraph in Appendix XI. In this Appendix, there is an exemption for materials containing less than 5 percent asbestos. I disagree strenuously with this exemption. We have had experience with monitoring asbestos concentrations in materials containing less than 2 percent of asbestos fibre greater than five microns in length. The airborne concentrations of these materials were well in excess of the peak limit of ten fibers per cm^3 .'
- 13.3.2.1 It was argued that the negative vote should be regarded as non-persuasive because the reasons stated are not specific enough. It was pointed out that the identity of the product referred to was not revealed, nor was there any indication volunteered of the method used.
- 13.3.2.2 It was also argued that fibers coated with binders have been shown to be inert with regard to biological activity.
- 13.3.2.3 It was countered that the 5 percent concentration mentioned is not relevant in view of the paucity of data to support this value.
- 13.3.2.4 It was explained that the requirement had originally been limited to products containing 5 percent asbestos because, if all products containing even traces of asbestos were included, then so many products would be covered that the warnings would lose their impact. It was implied that if it should be alleged that everything was dangerous, then nothing would be considered dangerous, and the warnings would not have the desired effect upon the workers.
- 13.3.2.5 It was resolved that the following statement should be added to the first sentence of XI.4.1: 'or in cases where airborne concentrations of asbestos in excess of permissible limits may result'.
- 13.3.2.6 It was resolved to change the last words in 5.5.1 from 'Appendix A1' to 'Appendix XI'.
- 13.3.3 Continuation of the negative vote mentioned in 13.3.2: - 'I also feel that the hazards referred to in this Section should be contained in the Appendix on toxicology and epidemiology'.

- 13.3.3.1 It was felt that this negative was non persuasive because it would be redundant to repeat the material twice, and contrary to directives on brevity received from ASTM. Changing the location of this information was opposed because it was felt that the information quoted was not considered as firmly established and properly belonged in an appendix rather than in an annex forming an integral part of the method.
- 13.3.4 Continuation of the negative vote mentioned in 13.3.2: - 'Section 5.6, work practices, paragraph 5.6.2.1 refers to demolition and removal of asbestos containing materials. I feel that there should be a statement here recommending wet methods where possible. This is a much more effective work practice control than the simple provision of respiratory protection and special clothing'.
- 13.3.4.1 It was argued that this negative vote should be ruled non persuasive on the following grounds: 'Wetting only may not be effective. Trials were referred to where airborne concentrations exceeded 5 fibers/cm³ despite thorough wetting'.
- 13.3.4.2 It was added that wet floors can be most slippery when asbestos is present and therefore can constitute a greater hazard. Thus wetting could be counterproductive.
- 13.3.4.3 It was resolved that the negative voter would be asked to submit the data showing that wetting is a much more effective work practice control, and that if this opinion can be substantiated, the negative vote would be reconsidered.
- 13.3.4.4 It was resolved to add the following statement to 5.6.2.1: 'Any appropriate method of reducing airborne concentrations of asbestos fibers should be used'.
- 13.3.5 Continuation of the negative vote mentioned in 13.3.2: - 'Under Section 7, paragraph 7.1.1 an editorial change should be made. The last sentence I would have read'. In view of the lack of precision, employers must resort to multiple sampling'.
- 13.3.5.1 This negative vote was upheld.
- 13.3.5.2 Refer to Section 13.3.15, below.

- 13.3.6 Continuation of the negative vote mentioned in 13.3.2: - 'Section 8, the analytical procedures contained in the annex should be specified by name, that is the fiber count method using phase contact using microscopy and the particle count using low power light microscopy. A statement allowing for equivalent methods should also be included'.
- 13.3.6.1 The negative vote was judged to be non valid because there is proposed only one method (not two, as the negative vote implies). It was stated that the method is clearly specified by name on page 41 Section A3. Accordingly this negative was voted (4 to 2) non persuasive.
- 13.3.6.2 However, for the sake of clarity, it was resolved to change the last sentence of 7.2 to the beginning of the paragraph.
- 13.3.7 Continuation of 13.3.2: - 'Section A-1, an editorial comment is noted that the broad uses listed under A-1.2.1 need not be itemised by number'.
- 13.3.7.1 This negative vote was ruled non persuasive.
- 13.3.8 Continuation of 13.3.2: - 'Section A-4, I feel that more detailed instructions for the methodology using a midget impinger should be contained in the standard. Also a discussion of problems associated with this method should be included'.
- 13.3.8.1 It was felt that since the midget impinger method was only mentioned as a non-referee method, for in-house purposes, and not considered as a standard method, accordingly a more detailed presentation could not be justified.
- 13.3.8.2 Regarding a discussion of problems associated with the impinger method, this was felt to be unjustified in view of the status accorded to this method.
- 13.3.9 Negative vote from Mr. C.W. Flickinger to the Test Methods Subcommittee: - 'A3.1.3 I am not aware of a justification to limit the maximum diameter to 3µm or the aspect ratio to 5:1'.

- 13.3.9.1 It was stated that the justification was contained in reference 53. 'Field Information Memorandum #74-72, OSHA, 21 Nov. 1974.
- 13.3.9.2 It was added that the original 3:1 ratio had been an arbitrary choice and that the 5:1 ratio had the merit of eliminating a significant proportion of non-asbestos particles. Reference 54 was mentioned in support of these allegations.
- 13.3.10 Continuation of 13.3.9: - 'A3.5.1.1 What about the appearance of the asbestos forms, Amosite and Anthophyllite? See the 'Particle Atlas', Edition Two., Plates 120-125, W.C. McCrone and J.G. Delley, Ann Arbor Scientific Publications, Inc. Ann Arbor, Mich. 48106.'
- 13.3.10.1 It was resolved that this objection was non-persuasive because the images referred to show individual amosite fibers at high magnification, whereas airborne samples taken from workplaces show bundles of fibers at a magnification of only 400 to 450X, and their appearance is distinguished from that of rock slivers by the striations associated with rows, and layers of fibrils.
- 13.3.10.2 With regard to anthophyllite, it was felt that the objection was non germane because anthophyllite asbestos is not produced commercially, and is only of academic interest.
- 13.3.11 Continuation of 13.3.9: - 'A3.5.1.2 What about the appearance of asbestos from brake linings or asbestos processing? See same reference as cited in A3.5.1.1'.
- 13.3.11.1 This objection was ruled non persuasive because any particle meeting the criteria required in 4.2.3 must be counted, and conversely any particle not meeting the criteria may not be counted. It was indicated that processing, and attrition of asbestos products, might yield particles that would either still have the appearance of asbestos (and therefore should be counted), or no longer look like asbestos (and be not counted). It was mentioned that the dust from brake linings has been proven by x-ray to be forsterite, a decomposition product of chrysotile, that is not biologically active.
- 13.3.12 Continuation of 13.3.9: - 'A3.6.2.7 Either 'phase' can be used. I recommend leaving 'positive' out of the sentence'.

- 13.3.12.1 It was resolved that this objection was non valid because this requirement was contained in the original British standard, and no data was available to justify the claim that either phase can be used. It was also felt desirable to seek uniformity in method whenever results could not be affected adversely.
- 13.3.13 Continuation of 13.3.9: - 'A3.6.3.1 The statement is too specific. I see no reason why any glass slide cannot be used'.
- 13.3.13.1 This objection was upheld. It was decided to change 'slides' to 'slides such as'.
- 13.3.14 Negative vote submitted by Mr. L.H. Hecker: to the Test Methods Subcommittee: - 'I believe that the midjet impinger method is adequate for asbestos dust as stated. However, asbestos has been defined as a fiber in this document and the validity of impinger sampling for fibers to my knowledge has not yet been demonstrated. Its collection efficiency and degree to which fibers would fragment upon collection and result in a bias toward lower than factual results has not been established.
- 13.3.14.1 This objection was considered as a statement of opinion. It was noted that the objector states that 'the impinger method is adequate for asbestos dust as stated'. Accordingly no revisions were adopted.
- 13.3.15 Further discussion of item 13.3.5, above:
- 13.3.15.1 It was resolved to revise the proposal adopted by changing 'employers' to 'analysts'.
- 13.3.16 Negative vote submitted to the Engineering Controls Subcommittee by Dr. A.E. Moffit, Jr.: 'A fifty year record retention period is excessive. This requirement would present serious compliance problems even for the large employer. If such record retention is for epidemiologic purpose, then NIOSH should be the repository for such records. Bethlehem's position on this matter has always been that the employer retain medical and monitoring records for the duration of employment plus 10 years and that retention for longer periods should be the responsibility of NIOSH. ASTM should not adopt a procedure which has not been adequately justified in previous OSHA proposed standards. OSHA has been petitioned by NAM and other concerned groups to clarify the purposes of their recordkeeping requirements'.

- 13.3.16.1 This topic was discussed at length, and the reasons for adoption of a 50-year period were reviewed. In view of the progressive nature of asbestosis, and its long (30 years, or more) period of latency after first exposure, it was concluded that the negative vote was non-persuasive.
- 13.3.17 Negative vote submitted to the Engineering Controls Subcommittee by Mr. M.B. Lore: - 'An overall negative vote is cast on the basis of (a) the apparent duplication of effort vis-a-vis the existing OSHA standard for asbestos and the proposed revision thereof and (b) the absence of documented justification for this ASTM standard in view of these existing OSHA documents. ASTM's most constructive action might be to comment on the OSHA proposal rather than to generate a separate standard'.
- 13.3.17.1 It was objected that the Executive Subcommittee of E-34 has approved this activity. It was agreed that the Task Group was not competent to change ASTM policy. Accordingly, the negative vote was judged to be not valid.
- 13.3.17.2 It was commented that the ASTM is international in scope and that the ASTM asbestos standard could be used outside the USA.
- 13.3.17.3 It was added that this Task Group has commented on the proposed OSHA revision.
- 13.3.18 Continuation of 13.3.17: - 'Section 5.3.2 Posting - The signs and labels are not sufficiently instructive. The standard is an improvement over the OSHA standard since nontoxic dusts can be exempted from labeling, and there are no regulated areas'.
- 13.3.18.1 In view of the lack of specific suggestions, it was resolved that this objection was non persuasive.
- 13.3.19 Continuation of 13.3.17: - 'Section 5.4 Personal Protective Equipment - Respirators are permitted only during emergencies, unforeseen occurrence, and while engineering controls are being installed. They should also be allowed where engineering controls are technically or economically infeasible'.

- 13.3.19.1 It was objected that the regulating agencies may grant a variance for such cases. The negative vote was ruled non persuasive.
- 13.3.20 Continuation of 13.3.17: - 'Section 5.5 Appraisal of Employees of Hazards - The standard would require that employees be given the epidemiology and toxicity information contained in 11 pages of the standard's appendix. Such detail would only result in confusion'.
- 13.3.20.1 It was objected that the material contained in Annex A2 was intended only as source to be translated by supervisors. Accordingly, the negative vote was judged to be non persuasive.
- 13.3.20.2 However, it was resolved to change Section X1.4.1, line 3, so that 'Annex A3' will be replaced by 'Annex A2'.
- 13.3.21 Continuation of 13.3.17 - 'Section 5.6 Work Practices - Engineering control should be required only where economically and technically feasible.'
- 13.3.21.1 It was argued that when it can be proven that requirements are not feasible, the regulating agencies will grant a variance. Accordingly, the negative vote was judged to be not valid.
- 13.3.21.2 However, it was resolved to revise Section 5.7.2.3, line 4, by changing 'shall' to 'may'.
- 13.3.22 Continuation of 13.3.17 - 'Section 5.7 Monitoring - Both personal and environmental monitoring are not necessary.'
- 13.3.22.1 It was pointed out that both methods are allowed but not mandatory. Therefore the negative vote was judged not valid.
- 13.3.23 Continuation of 13.3.17 'Section 5.7.4 Monitoring Records - The 50-year period of record retention would be overly burdensome. Considering the latency period of cancer, a 20-year period would be more reasonable.
- 13.3.23.1 The negative vote was judged non persuasive for the reasons presented in Section 13.3.16.1 above.
- 13.3.24 Negative vote submitted to the Engineering, controls Subcommittee by Mr. K. E. Slusser:
'I have voted "negative" on all issues of the proposed standard for Asbestos.'

There are thirty-one subrules in which thirty-three "shoulds" or recommendations are made as compared to seven "shall" or mandatory statements.

I have been under the impression that exposure to asbestos was hazardous but, from the looks of the rules, a standard is not needed.

Also, para 5.4.2.3 lacks a "verb" to require any action."

- 13.3.24.1 It was ruled that the negative vote contained essentially editorial comments, and it was decided to defer these objections to the Editorial Subcommittee.
- 13.3.24.2 However, it was resolved to revise Section 5.4.2.3 by adding a colon after the first sentence, and by changing 'to reduce' on line 4 to 'shall be used to reduce'. In addition, it was resolved to revise Section 5.4.2.4 by changing 'should' to 'shall'.
- 13.3.25 Negative vote submitted to the Engineering Controls Subcommittee by Messrs J. Van Schelt and W.F. Paton: - In Section 5.3.2 Posting" - The words "can be in excess" are very broad terminology and if adopted by OSHA could cause problems. Posting should not be required in areas in which it had been demonstrated that exposure levels are less than the action level. At a minimum, the phrase should be changed to "likely to be in excess."
- 13.3.25.1 The negative vote was upheld. It was resolved to accept 'likely to be in excess.'
- 13.3.26 Continuation of 13.3.25 - 'Section 5.3.2.1 Current OSHA standards contain a section on caution and dangers ^{signs} I suggest that this area be eliminated and reference should be limited to "a caution sign shall be posted."
- 13.3.26.1 To accomodate the negative voter, it was resolved to add the clause 'or equivalent' at the end of line 3.
- 13.3.27 Continuation of 13.3.25 - 'Section 5.4.1 In addition to the circumstances and conditions cited, there are situations under which respiratory protection should be permitted. For example, infrequent maintenance operations such as duct cleaning should require use of respirators. Engineering controls obviously are not warranted. In fact, in section 5.6.2.1 the standard requires use of respirators for a normal operation.'
- 13.3.27.1 The negative vote was upheld. It was resolved to delete the first two sentences of 5.4.1.
- 13.3.28 Continuation of 13.3.25 - 'Section 5.4.2.5 The requirements for a respirator program are currently covered by OSHA standards and restatement

of such program seems extraneous and unnecessary.'

13.3.28.1 This negative vote was withdrawn by the originator.

13.3.29 Continuation of 13.3.25 - 'Section 5.5 This paragraph is confusing because it refers first to "X1.4 in Appendix A1" and this reference then refers to "Annex 3."

13.3.29.1 The negative vote was upheld. It was resolved to change 'Annex 3' to 'Annex 2'.

13.3.30 Continuation of 13.3.25 - 'Section 5.7.1 This particular section poses a very real problem and departs from the methodology used for other health standards which distinguish between environmental evaluation and personnel monitoring. In essence, they indicate that the employer shall evaluate the environment to determine which operations or areas may pose an exposure problem and then specifies the personnel monitoring to be used to evaluate that exposure. The employee's rights to observe monitoring so far has been limited to the personnel monitoring phase of the operation and indeed this does seem to be a reasonable approach. Should you take the approach that employees have the right to observe all monitoring, then in essence you would have a union representative accompanying each industrial hygienist throughout his tours of duty. This obviously was not the intent of Congress in passing the act.'

13.3.30.1 It was determined that Section 5.7.1 does not pertain to the above objection. Therefore the negative vote was judged not valid.

13.3.31 Negative vote submitted by Mr. E. F. Lawrence regarding Section 5.1.2: 'Others define TWA =
$$\frac{(h \times \text{conc. task A}) + (h \times \text{conc. task B}) + \dots}{8 \text{ (or hours worked)}}$$

Thus the TWA is calculated by the product of time and concentration of contaminant for each task, and the summation of products is divided by 8, or by the number of hours worked.

13.3.31.1 It was judged that the definition in 5.1.2 was less appropriate and the negative vote was upheld.'

13.3.32 Negative vote submitted to the Medical and Toxicology Subcommittee by Mr. M. B. Lore: 'Section 4. Definitions - Only asbestiform varieties of asbestos are included in the definition of asbestos. The aspect ratio is maintained at 5:1 rather than the 3:1 ratio of the OSHA standard. However, the coverage of talcs is not clear. The following addition should be made to Annex A1 (page 3): "A1.2.1.14 Talcs containing asbestos."

- 13.3.32.1 It was objected that talcs are not an accepted usage for asbestos as defined in A1.2.1. Accordingly, the negative vote was judged not valid.
- 13.3.33 Negative vote submitted to the Medical and Toxicology Subcommittee by Mr. H. Grinsfelder: 'Section 5.1.1 - Inasmuch as the Federal Government is calling for an eight hour time weighted average value of 2 fibers/cm³, I question E34 permitting up to 5 fibers/cm³.
- 13.3.33.1 This negative vote was discussed at length and no agreement could be reached. Accordingly it was left in abeyance.
- 13.3.34 Continuation of 13.3.33 - 'Section 5.1.2 - In the formula for the TWA, the mathematical symbols and designations are not clear to some potential users of this standard. Some further explanation of how an 8h TWA is calculated is believed desirable.'
- 13.3.34.1 This negative vote was upheld. It was resolved to revise 5.1.2 as explained in Section 13.3.31 above.
- 13.3.35 Continuation of 13.3.33 - 'Section 5.1.3 - What is the lower time limit? In other words, what is the minimum or shortest sampling time acceptable for determining the "peak"? As it is now stated, a "grab" sample, which would have no significant meaning, would be acceptable.'
- 13.3.35.1 The negative vote was upheld. It was resolved to defer this question to the Test Methods Subcommittee.
- 13.3.36 Continuation of 13.3.33 - 'Section 5.2.2.1 - What is one to do in the event that the employer goes out of business and in the absence of an appropriate government agency? Shouldn't the agency be spelled out? How about the Assistant Secretary of Labor?
- 13.3.36.1 It was confirmed that there are appropriate agencies in all the countries where asbestos is manufactured. Accordingly it was judged that the negative vote was not valid.
- 13.3.37 Continuation of 13.3.33 - 'Section 5.2.2.3 - Fifty years seems to be an unusually long time for record retention. I suggest that some thought be given to retaining records until the exposed employee has been dead for five years or has reached the age of 80, whichever comes sooner.'
- 13.3.37.1 This negative vote was judged non persuasive for the reasons given in 13.3.16.1 above.

- 13.3.38 Negative vote submitted to the Medical and Toxicology Subcommittee by Mr. R. A. Parent: - Section 5.1.1 - I question the level proposed. If it is based on a 1% risk as indicated in Paragraph A2.3.2, I find that risk unacceptable. I don't believe that there is sufficient basis for considering this as a "safe level" and I do believe that the credibility of the entire document is damaged as a results of this.'
- 13.3.38.1 This negative vote was left in abeyance for the reasons stated in 13.3.33.1 above.
- 13.3.39 Continuation of 13.3.38 - 'Section 5.2 - Somewhere in this section there ought to be an indication that the work habits of others living in the same household should be recorded, particularly if they are working with asbestos.
- 13.3.39.1 It was objected that this would go beyond the currently accepted responsibility of employers. Therefore the negative vote was judged not valid.
- 13.3.40 Continuation of 13.3.38 - 'Section 5.2.1.1 - Medical examinations should be made available to workers exposed to any significant amount of airborne asbestos. The question remains, what is significant? I believe that one can differentiate between standing next to a car when the brakes are applied and mining asbestos. However, where does one draw the line? Clearly, industries which mine or use raw asbestos in open systems should make medical examinations available to their employees. On the other hand, should the service station attendant who does brake jobs be offered a physical? It seems impractical but is worthy of further discussion.
- 13.3.40.1 The negative vote was upheld. It was resolved to set the action limit for medical examinations at one half the permissible exposure limit.
- 13.3.41 Continuation of 13.3.38 - 'Section 5.2.1.2 - I believe that a preplacement physical should be required by the employer simply to minimize corporate liability in case of future litigation.'
- 13.3.41.1 This negative vote was judged non persuasive because not all employers can offer this.
- 13.3.42 Continuation of 13.3.38 - 'Section 5.4.3.4 - "Unqualified" Comment I believe that stringent regulations should be enforced in order to prevent the employee from taking his work clothes home to be laundered.'
- 13.3.42.1 The negative vote was upheld. It was resolved to revise line 1 of 5.4.3.4 by changing 'clothing' to 'work clothing', and to revise line 2 by changing 'done' to 'done by the employer'.

- 13.3.43 Continuation of 13.3.38 - 'Section 5.7.1.2 - 'Unqualified' Comment
Some provision should be added so that if new equipment is added or old equipment removed, readings should be taken shortly thereafter in order to prevent undetected, elevated levels potentially over a six month period. I believe that six months is too long as is three years in Paragraph 5.7.1.3 and six months in Paragraph 5.7.2.2'
- 13.3.43 It was objected that 5.7.2.2 sets only the minimum monitoring interval and leaves the onus on the employer to ensure a frequency sufficient to represent with reasonable accuracy the levels of exposure. Therefore the negative vote was felt to be non persuasive.
- 13.3.43.1 However, it was resolved to revise section 5.7.1.2 and 5.7.1.3 by changing 'should' to 'shall'.
- 13.3.44 Continuation of 13.3.38 - 'Section A2 - The epidemiology data appears to be incomplete. I offer the following references to supplement those indicated in the document:

P. Elwood et. al., Brit. J. Ind. Med., 21, 304 (1964)
T. F. Mancuso & A.A. El-Attar, J. Occup. Med., 9, 147 (1967)
L. O. Meurman, Environ. Res., 2, 30 (1968)
P. Enterline et. al., Brit. J. Ind. Med., 30, 162 (1973)

In addition, the review indicated in the attached references (by T. J. Haley) contains a wealth of epidemiological information.

J. Assuncao, M. Corn, Am. Indus. Hyg. Assn J., 36, 811 (1975).
D. T. Hughes, Med. Sci. Law, 14 (3), 147-51 (1974).
J. S. Jones, Med. Sci., Law 14, (3) 152-58 (1974).
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- 13.3.44.1 The negative vote was upheld. It was resolved to initiate a Toxline search going back to 1970. It was also agreed to add information on where to procure referenced documents.
- 13.3.45 Continuation of 13.3.38 - 'Section A2.3.2 - One percent risk is not acceptable.'
- 13.3.45.1 It was explained that this was not accurately stated. It was indicated that the one percent refers to the probability of detecting the earliest clinical signs of pulmonary change, and not to a one percent rate of mortality or morbidity. The negative vote was upheld and it was agreed that this section would be revised accordingly.
- 13.3.46 Continuation of 13.3.38 - 'Section X1.4.1 - How about the person heavily exposed to dust containing less than 5% asbestos? Is there no risk to this individual?'
- 13.3.46.1 In the absence of supporting data, this negative vote was ruled as non persuasive.
- 13.3.47 Continuation of 13.3.38 - 'Section X1.6.1 - Is there any indication that sputum cytology could be of use as a diagnostic tool here? If so, couldn't this be included as a possible supplemental procedure? Are there other supplemental procedures that could be suggested but not required here? How about clinical/blood chemistry?'
- 13.3.47.1 In the absence of supporting data, this negative vote was ruled non persuasive.
- 13.3.48 It was resolved to revise 3.2.3.1 by changing 'cancer' to 'tumour'.
- 13.3.49 In view of the lack of time, it was resolved to defer the review of the other negative votes to the next meeting of the Task Group.
- 13.4 A document entitled 'Ref. The Asbestos Situation in Sweden', from Skandinaviska Elernit AB, was submitted, and a copy is attached hereto in Annex 3.
- 13.5 A document entitled 'News About Work Environment - Sweden' was submitted, and a copy is attached hereto in Annex 4.
- 13.6 An article entitled 'Some Common Questions Answered' by J. D. Christian: Northern Miner, Dec 11, 1975 was submitted and is attached hereto in Annex 5.

- 13.7 A memorandum containing comparative data for chrysotile counts at 3:1 versus 5:1 was submitted, and a copy is attached hereto in Annex 6.
- 13.8 A handwritten manuscript giving the disposition of negative votes by the Engineering Control Subcommittee was submitted and is attached hereto in Annex 7.
- 13.9 A handwritten manuscript giving the disposition of negative votes by the Test Methods Subcommittee was submitted and is attached hereto in Annex 8.
- 13.10 Date and place of the next meeting.
 - 13.10.1 It was resolved to meet again at the beginning of November 1976 at the Institute of Occupational and Environmental Health, in Montreal. Members will be notified of the exact meeting date and time.

ATTENDANCE

Thirteenth meeting of the Task Group on Naturally Occuring Inorganic Fibers of ASTM Committee E 34, at St. Louis, MO., 4 May 1976

Mr. Angstrom	-
Mr. W. Ashton	- Johnson & Johnson
Mr. G. F. A. Brink	- Quebec Asbestos Mining Association
Mr. P. Brown	- American Society for Testing and Materials
Mr. W. R. Cooling	- Asbestos Corporation Limited
Mr. M. Cossette	- University of Sherbrooke
	Recording Secretary
Miss D. Decima	-
Miss S. J. Ellis	- Dupont
Dr. M. Grimmard	- Environmental Health, Health and Welfare, Canada
Mr. A. M. Harvey	- R. T. Vanderbilt Co.
Mr. R. M. Kirkpatrick	- Dupont
Mr. P. Kostic	- W. R. Grace & Co.
Mr. E. F. Lawrence	- Tennessee Eastman Co.
Dr. J. Lepoutre	- Eternit, S.A.
Mr. R. W. Murry	- National Paint and Coatings Association
Mr. T. D. Oulton	- Engelhard Minerals and Chemicals Co.
Mr. D. G. Sarvadi	- Sherwin-Williams Co.
Mr. Van Shelt	- Pratt & Whitney Aircraft Co.
Mr. A. A. Winer	- CANMET Department of Energy, Mines, and Resources of Canada Chairman

Task Group on Naturally Occuring Inorganic Fibers

ASTM Committee E-34

AGENDA

13th Meeting

Time: 4 May 1976 from 9:00 to 16:00 h

Place: Chase Park Plaza Hotel, St-Louis, Missouri

Business:

1. Chairman's introductory remarks
2. Minutes of the last meeting
3. The ninth draft of the Standard for occupational exposure to asbestos
4. The 6th draft of the Submission of comments on the notice of proposed rulemaking; occupational exposure to asbestos
5. OSHA Hearings on their latest proposal
6. Old business
7. New business
8. Date and place of the next meeting.

American Society for Testing and Materials
Committee E-34
Task Group on Naturally Occurring Inorganic Fibers
Minutes of the fifteenth meeting

Denver, CO
16 November 1976

PRESENT

The list of those present, together with the mailing list, is presented in Annex 1.

AGENDA

The agenda is presented in Annex 2.

BUSINESS

15.1 Chairman's opening remarks.

15.1.1 Attendees were welcomed by Chairman Winer.

15.1.2 It was emphasised that the need for an ASTM standard was becoming urgent.

15.2 Minutes of the last meeting.

15.2.1 It was resolved to revise Section 14.3.1.4 line 3, by changing 'not' to 'not necessarily'.

15.2.2 It was decided to modify Section 14.3.1.5.1, line 9, by changing 'proposed' to 'discussed'.

15.2.3 It was agreed to correct Section 14.5.1, line 8, by deleting 'and manmade'.

15.2.4 Editorial note: In a letter dated 29 November 1976, Mr. A.M. Harvey indicated that Section 14.5.1, line 13 should be corrected by changing '5-2' to '12-0'.

15.2.5 It was resolved to revise Section 14.2.2 by deleting the last two sentences.

15.2.6 With the above revisions, the minutes were adopted.

15.3 Business arising out of the minutes.

15.3.1 It was announced that the following document had been distributed with the agenda: G.W. Gibbs and C.Y. Hwang: Physical parameters of airborne asbestos fibres in various work environments - preliminary findings. It was stated that this document supports the adoption of a double standard. In particular, it was pointed out that this document reports the percentage of chrysotile fibers with diameters less than 0.5 μ m, and length greater than 5 μ m, that are invisible in the optical microscope at 400 to 450 X, as follows:

Dryer	1.45 percent
Bagging	1.0 percent
Carding	0.4 percent

It was also announced that additional work is underway.

15.3.2 It was commented that higher fiber counts in the manufacturing and end use industries may be partly due to the presence of extraneous (non asbestos) fibers.

15.3.3 It was reported that the U.S. Bureau of mines is setting up a particulate mineralogy unit. Their scope was said to include assistance in identifying minerals that are important to health

regulation. It was commented that it is most important to identify the particles in question. Those interested in obtaining further information were urged to communicate with the Program Coordinator, Dr. William Campbell, Metallurgy Research Center, College Park, MD.

- 15.3.4 It was reported that the manufacturing industry experience at one large factory in England had shown that a limit of 2 fibers/cm³ (8h TWA) with 5 fibers/cm³ maximum excursions, could contain health hazards completely. Accordingly, it was said that they regard the 2 fibers'/cm³ limit as one that they must not exceed under any circumstances. It was also mentioned that all pertinent areas of the factory are checked by means of the gridded Royco tester on a weekly basis. It was explained that this apparatus shows a red reading for counts above five, and yellow for two to five, and green for two or less.
- 15.3.5 The opinion was voiced that plant monitoring is a vital adjunct to personal monitoring.
- 15.3.4 It was stated that based on McDonald's extensive epidemiological studies, a limit of 5 fibers/cm³ was entirely safe and prudent. Therefore, it was emphasized, the proposal for a 3 year time period for reducing the limit from 5 to 2 fibers/cm³ could not be supported. It was added that the best practicable technology could not allow better concentrations to be attained in mines and mills. Therefore it was urged that the 10th draft of the Standard be revised accordingly.
- 15.3.4.1 It was countered that the uninformed public would object to a double standard.

15.3.5 It was proposed that a limit of 2 fibers/cm³ was needed to protect the health of workers and to afford them an adequate safety margin.

15.3.5.1 A counter-proposal to the effect that 2 fibers/cm³ should be considered as a goal rather than a limit.

15.3.6 It was stated that a voice vote had been taken at the last meeting, and it was pointed out that the possibility of such a crucial vote had not been placed on the agenda. It was demanded that a letter ballot be issued to allow other Task Group members to voice their opinions.

15.3.6.1 The question was raised as to what limit should appear in the next draft until such time as the letter ballot could be completed.

15.3.6.2 The timetable for adoption of the asbestos standard was reviewed, and the following forecast was established:

17 November 1976 - Mail out a letter ballot requesting a vote on the following four options for an exposure limit:

- 1.- Five fibers/cm³
- 2.- Two fibers/cm³
- 3.- Five fibers/cm³ in mines and mills, and two fibers/cm³ in manufacturing and end-use industries.
- 4.- Five fibers/cm³ in mines and mills, reducing to two fibers/cm³ in three years; and two fibers/cm³ in manufacturing and end-use industries.

17 December 1976 - Deadline for ballot

- Mail results to Mr. P. Brown at ASTM
for transmission to Subcommittee Chairman.

17 Dec76 to 7 Feb 1977 - Push to get subcommittee ballots
completed

7 February 1977 - End of subcommittee ballots

7-14 Feb 1977 - Resolve negative_s from the subcommittees

14 February 1977 - Submit resolutions to Mr. P. Brown

17 April 1977 - Main E-34 meeting; submit for adoption.

15.3.7 It was proposed that Section 5.1.1 in the 10th draft of the standard, be revised by changing 'promulgation by ASTM', on line 8, to 'adoption', and by adding the following sentence: '2 fibers/cm³ Is a desirable level for all industry, and also desirable for mining and milling when the technology is available'.

15.3.7.1 The question was raised as to what is the best available technology, and who would have the authority to decide. It was stated that the best current technology could reduce airborne concentrations to 5 fibers/cm³ at best in mines and mills.

15.3.8 It was proposed that the fourth option mentioned in 15.3.6.2 above, be modified by calling for a limit of 5 fibers/cm³ in mines and mills only until such time as technology could be demonstrated that would permit attainment of 2 fibers/cm³.

15.3.8.1 It was proposed that the following statements be substituted for this last proposal: 'Because of the constraints of engineering

feasibility, and the limitations of presently available materials, the limit of 5 fibers/cm³ is to undergo annual review to determine if the technology has progressed sufficiently to permit the adoption of more demanding exposure limits.

- 15.3.9 It was reported that the Baudry Commission had studied the coefficient of correlation between the midjet impinger data of J.C. McDonald, and the values obtained by the membrane filter technique. It was said that for 623 readings a median value of 0.72 has been found versus the coefficient of 4.96 used.
- 15.3.10 It was proposed that option No.4 as stated in 15.3.6.2 above, be dropped, leaving only Nos. 1,2 and 3. This proposal was alleged to be based upon the absence of a proven need to reduce concentrations to the levels called for in No.4, and upon the impossibility of winning any substantial consensus.
- 15.3.11 It was proposed that information on the magnitude of the safety factor inherent in a limit of 5 fibers/cm³ be added to allay any reservations on the wisdom of observing this limit until the more desirable limit of 2 fibers/cm³ can be made possible when the required technology becomes available.
- 15.3.12 After extensive discussion, it was resolved to retain only the first three options presented in 15.3.6.2 above, on the letter ballot.
- 15.3.13 It was stated that presently available studies indicate that the exposure limit of 5 fibers/cm³ is located below the level where disease becomes manifest.

- 15.3.14 It was proposed that only option No.2, and an option merging Nos. 3 and 4 be left on the ballot. This proposal was not endorsed.
- 15.3.15 It was proposed that the statement reported in 15.3.7 above, be revised as follow '2 fibers/cm³ Is a desirable level for all industry, and also desirable for mines and mills. The currently available technology permits a reduction to only 5 fibers/cm³. Attainment of a 2 fibers/cm³ limit in mines and mills is now restrained by engineering and material limitations. It is recommended that this standard be reviewed annually.
- 15.3.16 It was suggested that option No.1 be dropped, but this could not be agreed upon.
- 15.3.17 It was agreed that the words 'reducing to 2 fibers/cm³ in 3 years' would be deleted to merge options No.3 and 4 presented in 15.3.6.2 above.
- 15.3.18 It was proposed that the statement reported in 15.3.15 above be revised as follows: 'At present the best available technology does not permit total compliance with a limit of 2 fibers/cm³ in mines and mills due to restrictions imposed by engineering and material limitations.'
- 15.3.19 It was resolved to adopt the following revision to the statement presented in 15.3.18 above: 'At present the best available technology does not permit a reduction to 2 fibers/cm³ in all work places. It is considered that the margin of safety should be increased by adopting the 2 fibers/cm³ standard in mines and mills as soon as practicable. Until such time the standard will be reviewed annually'.
- 15.3.19.1 The following counter proposal based upon the medical data of McDonald and Gibbs was made: 'A limit of 5 fibers/cm³ is proposed for mines and mills only on the basis of an extensive epidemiological study

(Reference 54) carried out in mines and mills only. In addition, a greater proportion of the airborne asbestos particulates in the atmospheres of mines and mills are visible in the optical microscope and are therefore counted in accordance with the standard method (the method of monitoring the atmosphere is biased against mines and mills).

15.4 Review of the tenth draft

15.4.1 Refer to Sections 15.3.4 to 15.3.5.1, 15.3.6.1, 15.3.7 to 15.3.12, and 15.3.14 to 15.3.19.1 above.

15.5 Task Group membership.

15.5.1 This item was not discussed due to lack of time.

15.6 Old business

15.6.1 Refer to Sections 15.3.5 and 15.3.6 above.

15.7 New business

15.7.1 The following comments were voiced by the Chairman of the Medical Toxicology Subcommittee, Dr. R.A. Parent::

15.7.1.1 The Medical Toxicology Subcommittee is in a difficult situation in the case of the asbestos standard due to the large quantity of documentation published.

15.7.1.2 There is a need to clarify derivations and to state uncertainties.

15.7.1.2.1 It was commented that this has been done adequately.

- 15.7.1.3 Several references in support of the proposed environmental levels are mentioned, but none against.
- 15.7.1.4 It is not stated whether or not the levels proposed are greater than those proposed by OSHA or other agencies.
 - 15.7.1.4.1 It was mentioned that annual review of the standard would be practiced.
- 15.7.1.5 It was indicated that larger particles may not be respirable.
- 15.7.1.6 It was proposed that in view of the lack of expertise of the average medical practitioner, it was the duty of this Task Group to lead the physician by the hand. It was mentioned that a certain degree of guidance would be appreciated. Accordingly, it was urged that the Task Group reconsider its guidance on medical examinations.
- 15.7.1.7 It was suggested that the appendixes be presented as advice.
- 15.7.2 It was requested that a copy of the tenth draft be sent to Dr. Parent as soon as available. This was agreed.
- 15.7.3 It was proposed that the monitoring method be deleted and replaced by a reference to the NIOSH method.
- 15.7.4 It was proposed that medical surveillance be enforced at the 2 fibers/cm³ limit instead of beginning at one half of the limit.
- 15.7.5 It was proposed that the Medical Subcommittee be asked to write the medical appendix.

15.8 Date and place of the next meeting.

15.8.1 It was resolved that the next meeting of the Task Group would be held on 2 March 1977 at 9:00 a.m. at the Hilton at JFK International Airport, in New York.

15.8.2 It was mentioned that the subsequent meeting would be held on 18 April 1977 with Committee E-34 at the Sheraton in Philadelphia, PA.

ATTENDANCE

Fifteenth meeting of the Task Group on Naturally Occurring
Inorganic Fibers of ASTM Committee E-34, at Denver CO, 16 November
1976.

G.F.A. Brink	- Quebec Asbestos Mining Association
P. Brown	- ASTM Staff
R.A. Clifton	- U.S. Bureau of Mines
M. Cossette	- University of Sherbrooke
	Recording Secretary
E.M. Fenner	- Johns-Manville, Denver CO
A.M. Harvey	- R.T. Vanderbilt Co. Inc.
B. Holder	- Dow, Midland M I
P. Laroche	- Lake Asbestos of Quebec Ltd
B. Lincoln	- Turner & Newall Ltd, England
H.H. Kaufman	- GAF Corporation, So. Bound Brook, N.J.
A.E. Martin	- National Institute of Environmental Science Box 12233, Research Park Triangle, NC 27709
R. Orteiz	- Consumer Products Safety Commission
R. Parent	- Xerox Corp.
R.J. Schlesinger	- Biotechnics Labs. Inc. 1133 Crenshaw Blvd, Los Angeles, CA 90079
H.D. Stanley	- Pfizer Inc., MPM Div. 640 North 13th Street, Easton PA 18042
A.A. Winer	- EMR/CANMET, Ottawa, Ontario Chairman

ASTM Committee E-34

Task Group on Naturally Occurring Inorganic Fibers

AGENDA

16th meeting

2 March 1977
JFK Airport
New York, N.Y.

- 1.- Chairman's opening remarks
- 2.- Minutes of the last meeting
- 3.- Business arising out of the minutes.
- 4.- Review of the document 'Draft #1 Standard for Occupational Exposure to Asbestos, Rationale Supporting the Selection of a Dual ASTM Standard' (attached to the notice of the 16th meeting)
- 5.- Review of the 10th Draft of the Standard on Occupational Exposure to Asbestos
- 6.- Letter ballot
- 7.- Old business
- 8.- New business
- 9.- Date and place of the next meeting

American Society for Testing and Materials
Committee E 34
Task Group on Naturally Occurring Inorganic Fibers
Minutes of the 16th meeting

New York Airport
2 March 1977

PRESENT

The list of those present is presented in Annex 1

AGENDA

The agenda is presented in Annex 2

BUSINESS

16.1 Chairman' opening remarks

16.1.1 It was announced that the meeting hall was sponsored by the R.T. Vanderbilt Co. Ltd. Appreciation was extended on behalf of the Task Group

16.1.2 It was mentioned that excuses for absence had been made by the following members: G.F.A. Brink, w.R. Cooling, M. Grimmard, P.A. Filteau, and J. L. poutre.

16.2 Minutes of the last meeting

16.2.1 Photocopies of hand-written minutes were distributed, with apologies. The minutes were read.

16.2.2 These minutes were adopted, as read.

16.3 Business arising from the minutes.

16.3.1 Objections were raised with regard to item No. 15.7.3 concerning the suggestion to replace the monitoring method by a reference to the NIOSH method. This suggestion was firmly opposed on the basis that the NIOSH method was inadequate, and that the proposed monitoring method, as presented in Annex A3, differed significantly on the following points:

Section A3.1.3 Regarding aspect ratio.

Section A3.3.2 Concerning the need to verify whether or not the fibers counted are asbestos.

Section A3.4 With regard to definitions.

Section A3.5 With regard to criteria for identification.

Section A3.9.2 About the mounting technique.

16.3.1.1 Accordingly, it was resolved to retain the present monitoring method.

16.3.2 Concerning item 15.3.19.1 in the minutes of the previous meeting, concerning justification for a double standard, it was suggested that the standard be justified on the basis that OSHA enforces a two-fiber limit for manufacturing and end-use applications while MESA enforces a five-fiber limit for mines and mills. This suggestion was not adopted.

16.3.3 It was proposed that the statements in the minutes of the previous meeting (15.3.19.1 mentioned above) be modified by stating the facts that reliable epidemiological data exist for mines and mills, and that the standard will remain under continual review.

16.3.4 Further to Section 16.3.1 above, last item concerning the mounting technique, it was stated that in practice, the OSHA enforcement laboratories use a variant of the NIOSH method. It was also reported that NIOSH teaches a somewhat different method when training technologists from industry in the techniques of fiber counting, at Cincinnati. The possibility that NIOSH may have changed their methodology at the laboratory level, was raised. The Recording Secretary was directed to enquire about this from Dr. J. Finkle, Director of NIOSH.

16.4 Letter ballot on exposure limits, and adoption of the Standard on occupational Exposure to Asbestos.

16.4.1 It was announced that the ballots had not yet been fully returned; having been mailed only recently.

16.4.2 It was resolved that the following action would be taken depending upon the outcome of the letter ballot:

16.4.2.1 If the ballot favors a five-fiber limit, the statements on exposure limits such as contained in the ninth draft would be adopted.

16.4.2.2 If the ballot favors a two-fiber limit, then statements on exposure limits such as contained in the tenth draft would be adopted.

16.4.2.3 If the ballot favors a dual limit, then a statement calling for a five-fiber limit in mines and mills, and a two-fiber limit in manufacturing and end-use industries, would be adopted with a statement to the effect that the threshold limit value can be more closely approached in mines and mills because of the availability of reliable epidemiological data.

16.4.3 It was proposed that Section 5.2.1.1 of the tenth draft be revised to eliminate the requirement for initiating medical surveillance at one half of the exposure limit. It was argued that this in effect creates an additional more stringent standard. This proposal was adopted by the Task Group but it was felt that this decision would have to be confirmed by a letter ballot of the Task Group. Accordingly, the Recording Secretary was directed to mail out such a letter ballot.

16.5 Regulatory situation in England.

16.5.1 It was reported that organized labor in England has begun to react against unnecessarily stringent regulations on asbestos exposure. A newspaper article that appeared in the Daily Telegraph on 24 February 1977 was mentioned (refer to Annex 3).

16.6 Centers for the study of microscopic mineral particles.

16.6.1 It was announced that the U.S. Bureau of Mines had created a Unit for Study of Microscopic Mineral Particles, at College Park, M.D. It was explained that the main purpose of this organization was to identify minerals for regulatory purposes. It was added that their first task would be the identification of asbestos fibers.

16.6.2 General approval was voiced.

16.6.3 It was reported that the EPA (Environmental Protection Agency) have endorsed this endeavor.

16.6.4 It was also reported that Tibor and Zoltai of the University of Minnesota, strongly favor the establishment of this unit.

16.6.5 Refer to Annex 4 attached hereto for complete details.

16.6.6 The initiative of the USBM in setting up the particulate mineralogy unit was commended, and it was resolved unanimously that this Task Group favor, and recommend the establishment of similar groups with similar objectives, and personnel, internationally.

16.7 Old business

16.7.1 It was stated that the two-fiber exposure limit used as a guideline in Ontario, Canada, was not a regulation, and had not been adopted as a law. It was added that only one asbestos producing plant operated under this guideline. The opinion was expressed that the operation in question could not possibly continue to operate economically under such severe constraints.

16.7.2 It was agreed that Section 2.2.1 of the Rationale Supporting the Selection of a Dual ASTM Standard should be modified accordingly.

16.3 New business

16.8.1 Mention was made of a publication by G. Sarkis and Ampian' Asbestos Minerals and their Nonasbestos Analogs' presented at the conference on Electron microscopy of microfibers, at Penn State University 23-25 Aug 1976.

16.8.2 The correct address of Mr. W.H. Ashton was given as follows:

W.H. Ashton
Director of Geotechnology
Johnson & Johnson
Research Division
US Route 202
Raritan, N.J. 08869
Tel.: 201-524-1475

16.9 Date and place of the next meeting.

16.9.1 It was resolved to hold the next meeting of the Task Group with the main meeting of ASTM Committee E 34 at the Sheraton Hotel, in Philadelphia, PA on 18 April 1977. It was agreed that endeavors would be made so that the Task Group could meet a half day prior to the subcommittee meetings.

16.9.2 Editorial note: It was subsequently decided to meet on Monday, 18 April 1977 from 8:30 to 12:00 a.m. in addition to meeting on Tuesday, 19 April.

ATTENDANCE

Sixteenth meeting of the Task Group on Naturally Occurring Inorganic Fibers of ASTM Committee E 34, at the JFK Airport in New York, N.Y., 2 March 1977.

W.H. Ashton	- Johnson & Johnson, Research Dir.
M. Cossette	- University of Sherbrooke Recording Secretary
A.M. Harvey	- R.T. Vanderbilt Co. Ltd.
C.S. Thompson	- R.T. Vanderbilt Co. Ltd.
A.A. Winer	- IRI/CANMET, Ottawa, Ont. Chairman

ACM: Committee E-34

Task Group on Naturally Occurring Inorganic Fibers

AGENDA

16th meeting

2 March 1977
JFK Airport
New York, N.Y.

1. Chairman's opening remarks
2. Minutes of the last meeting
3. Business arising out of the minutes
4. Letter ballot on exposure limits and adoption of the Standard on Occupational Exposure to Asbestos.
5. Regulatory situation in England.
6. Centers for study of microscopic mineral particles.
7. Old business
8. New business
9. Date and place of the next meeting

TUC SAFETY LIMIT FOR ASBESTOS TOO LOW, SAYS UNION

By JOHN DUNSFORD

THE TUC recommended asbestos safety limit is too low and could wipe out the industry and create havoc throughout the economy in sectors where asbestos products are used, a union claimed yesterday.

The Association of Professional, Executive, Clerical and Computer Staff (APEX) said the limit puts thousands of jobs at risk.

The union has decided to set up its own advisory committee in opposition to the TUC's main recommendations on asbestos.

It also accused the TUC of submitting "unnecessary, unrealistic and unsubstantiated" recommendations to Government.

The TUC has urged an eventual total ban on asbestos products and, as an immediate measure, the introduction of a maximum allowable concentration of 0.2 fibres per millilitre (F/Ml) of air.

The union claims the "higher but still safe" level of two fibres per millilitre should be laid down as the legal maximum in a working environment.

Costs of £60 million

The 0.2 level would probably cost TBA Industrial Products, of Rochdale, one of the world's biggest manufacturers of Asbestos, more than £50 million in adapting existing production methods, "an impossible figure," the union claims.

"It is an unachievable level

and, if introduced, would mean the end of the asbestos industry," said Mr Peter Goodwin, APEX north west area organiser. Some 20,000 jobs, at all grades, would be lost in the region alone.

Mr Keith Standing, the union's national executive secretary, said APEX had dissociated itself from the TUC's findings and has proposed a re-examination of methods used to establish links between health hazards in the asbestos industry and to "ensure its facts are indeed facts."

The union claims the TUC arrived at its findings by only studying reports about asbestos itself to establish or check facts.

The Health and Safety Commission's recent interim report on health hazards and precautions involving asbestos had recommended 2 millilitres as the permitted maximum occupational exposure level to most asbestos dusts.

It recommends an exposure ceiling of only 0.2 millilitres for "blue" asbestos, or Crocidolite the import of which has now been banned.

DEPARTMENT of the INTERIOR

news release

BUREAU OF MINES

For Release November 15, 1976

Alan Cole (202) 634-1006

MINES BUREAU UNIT FOR STUDY OF MICROSCOPIC MINERAL PARTICLES ESTABLISHED AT COLLEGE PARK, MARYLAND

Studies of microscopic mineral particles using specialized scientific disciplines that can clearly identify such potentially harmful substances as asbestos, and distinguish them from thousands of other mineral particles, will be performed by a new research unit just established at the College Park (Md.) Metallurgy Research Center of the Interior Department's Bureau of Mines.

Formation of the new group was announced today by Bureau of Mines Director Thomas V. Falkie. He said the Bureau's recognized expertise in particulate mineralogy will be used "to help clarify a situation, with environmental and health implications, that so far has been characterized more by confusion and ambiguity than by reason and fact."

"The best-known environmental questionmark in particulate mineralogy is asbestos," Dr. Falkie said. "The entire field has been riddled by the extreme lack of precision with which the term 'asbestos' has been used."

"In many instances," the Director said, "non-asbestos mineral particles have been mistaken for microscopic fibers of related asbestos minerals. The Bureau's new particulate mineralogy unit has been assigned to clear up such confusion wherever it can, by replacing misinformation with fact. Its job is to develop a solid scientific basis for research into particle-related pollution problems and for the process of decision-making by regulatory bodies."

Dr. Falkie said the particulate mineralogy unit, besides helping in the Bureau's own minerals research, will serve as a focal point for identification of particulates involved in regulatory and research activities of Federal, State, and local agencies. Whenever technical information about the nature of asbestos and other mineral particulates is needed, such agencies can consult directly with the College Park staff, without going through the Bureau's main headquarters offices in Washington, D.C.

(more)

MILLIPORE

Recommended Practice

Procedure for rendering MF-Millipore (mixed esters of cellulose) and Celotate (cellulose acetate) membrane filters transparent.

1. Scope:

This procedure provides a chemical clearing technique that yields a transparent membrane permanently affixed to a glass slide and because of the nature of the clearing procedure, the contamination is also permanently affixed to the membrane resulting in a permanent sample.

2. Outline of Method:

Contaminants must be collected on a MF-Millipore (white or black plain) or Celotate membrane disc where vacuum has been used to impinge the particles upon the surface of the filter. The filter disc is rendered transparent by dissolution, thus, the particles can be observed using transmitted light microscopy.

3. Apparatus:

- A) Glass slides 2" x 3" (for 37 and 47mm filters)
Millipore Catalog # XX10 076 15
- B) Filter forceps, stainless, smooth-tip
Millipore Catalog # XX62 000 06
- C) Eyedroppers with rubber bulbs
- D) Watchglass (diameter greater than 47mm)
- E) Glass Syringe (50-100ml)
- F) Micro-syringe, Luer inlet, 25mm
Millipore Catalog # XX30 025 00
- G) Fluoropore membrane filters (pore size 0.2 μ m)
Millipore Catalog # FGLP 025 00
- H) Large diameter petri dishes

4. Reagents:

A) Clearing Solution A

33mls Hexane, Technical Grade

33mls 1, 2-Dichloroethane, Technical Grade

33mls 1, 4-Dioxane, Technical Grade

B) Clearing Solution B

Acetone, Technical Grade

5. Filter Clearing Procedure:

- A) Filter clearing solution A using FGLP (0.2 μ m pore size) filter into pre-cleaned container.
- B) Using an eyedropper, freshly rinsed with a filter solvent (Freon®TF is recommended), dispense sufficient clearing Solution A to thoroughly wet a cleaned 2" x 3" microscope slide.
- C) Carefully roll the dry test filter particle side up, onto the pre-wetted glass slide. (Caution: do not release membrane on this slide.) Immediately roll the wet filter onto a clean, dry glass slide and cover the glass petri dish.
- D) After 30 seconds, remove the glass petri dish and invert the sample over a watch glass half filled with acetone. Allow the sample to become completely transparent (2 to 5 minutes exposure time to the acetone vapors).
- E) Remove the sample from the watch glass and place on a level surface covering it with the petri dish.
- F) Allow the filter to dry 2 to 5 minutes at room temperature. Filter is now ready for analysis.

12/22

1. The situation in 1975

In the last years the knowledge towards a more sound ban of all asbestos has advanced rapidly.

1976-02-16 was the day of "information" (= information) that clarified the very clearly dangerousness of the attitude towards AC-products. As you will know, a long debate has preceded this final "information" of educational regulation, which in short states:

1) No employee is to be employed with any new installation of AC-products after June 1976.

2) Already existing installations of AC-products may even after June 1976 be repaired with AC-products only if this is necessary for the continued use of the original installation.

3) Without hindrance of what has been said under 1) and 2), AC-products may be used until the end of 1977 in following cases:

- a) Sheets for the insulation against fire in buildings
- b) Sheets of AC for the outside covering of roofs
- c) Pipes of AC for water, effluents and for district-heating.

4) When using products according to 3) the relevant points in Regulation 12/73 apply.

In addition the following apply:

4.1) AC-products according to a) and b) shall not contain any other asbestos than Chrysotile.

Products according to a) shall have 3% asbestos by weight at maximum, products according to b) normally 3% at most.

Products according to c) shall have at most 12.5% by weight of asbestos, of which at most 1.25% Amosite, the rest Chrysotile.

12/22

Lomma

1976-03-03

NP/BL

4.2) Products according to a) or b) have to be pre-drilled, fit for direct nailing and if possible made to finished size, so that further preparations on site are unnecessary.

Products according to c) shall be pre-cut to size, so that further adjustments can be avoided.

4.3) The surface of the products shall be treated so that they will not give off any asbestos-containing dust.

4.4) If exceptionally any cutting, drilling or similar adjustments have to be performed outside of the permanent working place, the points 29-31 of the Regulations 52 apply. By smaller adjustments cutting with ritz or handcutter may be done. The employer has to consult the deliverer (of AC-products) for suitable equipment for the work.

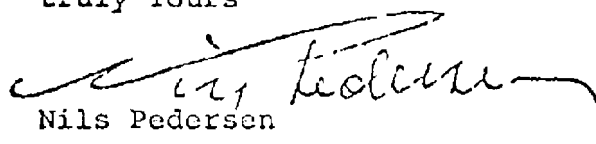
In point 5 it is indicated that in special circumstances even after June -76 (or end of -77) AC-products may be used for isolation against heat and fire on special permit from case to case of the Occupational Health Authorities.

This effectively puts an end to the AC-era in Sweden. It can also be mentioned that in another regulation, still to appear from the printers, it is ruled that as from 1976-07-01 the TLV is lowered to 1 fiber/ec. Informally it has been said that 0.5 is the ultimate goal wherever asbestos still is allowed to be used.

As you will notice, the production of AC-products is not specially regulated, only the use of these products. Understand this, if you can!

For us is nothing much left than to close down, sales are already dropping sharply due to all the adverse publicity in mass-media in connection with the new regulations on AC-products.

With best regards,
truly Yours


Nils Pedersen

Encl.

NEWS ABOUT WORK ENVIRONMENT — SWEDEN

Annex 4

Prohibition against work with asbestos cement products

From July 1st 1976, employee shall not be occupied with new installation of asbestos cement products. Already made installations may be kept in repair and be completed with such products if this is necessary for the use of the original installation.

In three cases asbestos cement products may be used until the end of 1977. This is for discs of asbestos cement for insulating against fire in buildings and for covering of roofs. Moreover, for pipes, drains and district heating conduits. One condition is, however, that the products as far as possible are prepared in advance in order to cut down the handling at the working places.

From July 1st 1976, the limit value for asbestos is reduced by halves, from 2 fibres per ml air to 1 fibre.

The new regulations are written in the messages 1976:8 (the use of asbestos cement products) and 1976:9 (the limit value for asbestos) from the Board of Workers' protection.

The use of asbestos cement products

In accordance with the directions No. 52 (1975) Asbestos, item 1, of the Board of Workers' Protection, asbestos shall, if possible, not be used in the industry but be replaced with not dangerous or less dangerous product. In accordance with the same item, material with asbestos content, of which the handling will give away dust with asbestos content, shall also be replaced by less dangerous, preferably by material free from asbestos, if such material with acceptable qualities is available.

In support of § 74, the law of Workers' Protection, the Board inform the following complementary directions as a guidance for the application of the above law to the use of asbestos cement products in the industry.

1. Employee must not after the end of June 1976, be occupied at work with new installations of asbestos cement products.
2. Already made installations of asbestos cement products may be kept in repair and be completed with asbestos cement products until the end of June 1976, only if this is necessary for the use of the original installation.

3. Without any hindrance from the directions in the items 1 and 2 above, asbestos cement products may be used in following cases until the end of 1977.

A. Discs of asbestos cement for insulation against fire in buildings.

B. Discs of asbestos cement for covering of roofs.

C. Pipes of asbestos cement for the use of water- or drain pipes or in district heating conduits.

4. At the use of products in accordance with item 3 the asbestos directions (No. 52) shall be observed. In addition to this the following is valid.

4.1. Asbestos cement product in accordance with A or B must not contain other asbestos than chrysotile. Product in accordance with A is allowed to contain max. 9 weight percent asbestos, thereof max. 1,25% "amosit" and the remaining chrysotile.

4.2. Product in accordance with A or B shall be ready to be nailed, drilled in advance or the like and if possible made in ready size so that further handling is avoided.

Product in accordance with C shall be cut in advance so that further handling is avoided.

4.3. The surface of the products shall be treated so that it does not give away dust with asbestos content.

4.4. If, in exceptional cases, sawing, drilling or similar handling must be executed outside specific working place with dust combating, the items 29-31 in the asbestos directions shall be observed. At easy adjustment works cutting by marking off or by scissors is allowed. Employee shall, when needed, ask supplier about suitable equipment for the work.

5. Without hindrance from the directions under 1, the Factory Inspection can in a specific case, in support of item 19, second part, forth line in the asbestos directions (No. 52) admit that employee is occupied with installation of asbestos cement products for, at first hand, insulation against strong heat and fire.

Item 19, second part, third line in the asbestos directions (No. 52) is abolished from the 1st of July, 1976.

Stockholm, February 26th, 1976

The Board of Workers' Protection

PART II. MISCELLANEOUS - Asbestos and Health.

SOME COMMON QUESTIONS ANSWERED. J.D. Christian. Northern
 Miner, Dec. 11, 1975. p.13 (Extract of article)-
 Continuation of abstract from No: 2 issue 1976.

A hazard to the public?

You have heard about the risk of living in Toronto, as compared to
 Sheffield or Soledad. Most of the studies on the relationship of
 asbestos dust to mortality rates have been carried out in the
 occupational field, and before absolutely denying any public health
 risk, scientists agree that more data must be collected over an
 extended period of time. However, a number of studies have already

been carried out and there is to date no evidence, scientific or
 otherwise, to suggest that anyone in the general public has ever
 contracted any disease from exposure to the minute amounts of
 asbestos released into the community air through the use, or
 wearing, or weathering of finished asbestos products.

As far as water is concerned the Conference of the International
 Agency for Research on Cancer, held in Lyon, France, in the fall
 of 1972 - which I feel should represent as qualified and authoritative
 an opinion as is available - provided the following information:

Question: "Is there evidence of an increased risk of cancer resulting
 from asbestos fibres present in water, beverages, foods, or in fluids
 used for the administration of drugs?"

Answer: "Such evidence as there is does not indicate any risk".

You might well ask at this point "If this is so, then why the great
 hue and cry?" In the scientific, legal and bureaucratic world,
 there are those who have a tendency to push the panic button and who
 define "a hazard" as "something which may possibly occur" even though
 they are unable to produce any evidence to support their contentions.
 No one denies that there have been - and still are - problem areas.
 The world too has many, many problems, all of which must
 be viewed in their proper perspective, and "panic" legislation is not
 the answer. The asbestos and other industries are working hard to
 correct the conditions which are thought to create a health hazard.
 Unfortunately, good science will not be available for 20, 30 or even
 40 years. In the meantime, the best that any prudent person can
 do is to continue to research all aspects of the problem, to analyse
 the facts and to let science become known, and to set goals and
 strategies which will actively reduce the element of risk and
 hopefully will eliminate it entirely.

ASBESTOS CORPORATION LIMITED
INTER-OFFICE MEMORANDUM

From: D. Dion

Date: April 29, 1976

To: Mr. W.R. Cooling

Re: Special Counting

Please find enclosed results of the special request concerning the counting of five (5) samples with ratio 3:1 and 5:1 from 5 to 100u.

Samples were counted by four counters but counting the same field of view. One hundred fields were counted for each sample.

The results were as follows:

Counter	Sample #1		Sample #2		Sample #3		Sample #4		Sample #5	
	3:1	5:1	3:1	5:1	3:1	5:1	3:1	5:1	3:1	5:1
A	148	122	54	46	68	52	150	125	68	60
B	157	135	50	43	65	58	148	133	70	65
C	152	135	57	45	60	47	151	128	56	50
D	158	128	63	48	77	54	148	110	73	63

Grand Total

Counter	<u>3:1</u>	<u>5:1</u>
A	188	405
B	490	434
C	476	405
D	519	403

DD/DS

D. Dion / W.R. Cooling

INTERPRETATION

Make an appropriate use of should and shall throughout the text. The decision on which to use is to be made by the writer of the document since pertinent technical knowledge is required.

Concerning appendixes:

Negatives concerning appendixes, or which result in transfer to an appendix, need not be balloted.

Negatives received by the Engineering Control Subcommittee:

From Mr. Lore, regarding 5.3, non persuasive

5.3.2, non persuasive

From Mr. Sarvadi, regarding 5.5, non persuasive

From Mr. Lore, regarding 5.6, non persuasive

From Mr. VanSchelt, regarding 5.7, non persuasive

From Mr. Moffitt, regarding 5.7.4, non persuasive

From Mr. Lore, regarding ?, non persuasive

Objections withdrawn 5.3, 5.3.7, 5.5, and 5.6 from Mr. Sarvadi.

The rest of the objections were upheld.

Should & shall. E1

ANNEX 7

A technical decision to be made by
writers of documents.

Appendix

Negatives on appendix or which result
in placement into appendix need not be
ballotted.

Resolve letters from D22 - Negative?

Denver, November 15+16

<u>Eng Control</u>		
5.3 Lore	Non Review	5.3 withdrawn
5.3.2	"	5.3.2.161
5.5 Savaride	"	5.5
5.6 Lore	N.P.	5.6 Savaride withdrawn
5.7 Van der	N.P.	Rest upheld
5.7.4 Moffett	N.P.	
M. Hore	N.P.	

INTERPRETATION

To: Asbestos Task Group from Test Methods Subcommittee

Re: Subcommittee negatives reviewed by Subcommittee E 34.5 on
3 May 1976 in St. Louis, MO.

Mr. Flickinger

A3.1.3 - A 5:1 ratio is used as a result of unpublished data obtained in a round robin counting sample. The 5:1 ratio yielded essentially the same counts as the 3:1 ratio with questionable particles excluded.

A3.5.1.1 - The problem is one of terminology. These substances are still considered fibers by the Asbestos Task Group.

A3.5.1.2 - Non persuasive. Asbestos from brake linings, etc., can be fibrils and in such a case they would still be counted.

A3.6.2.7 Referred to the Asbestos Task Group. This may be left as it is or it may be taken out. This phraseology is used by OSHA in its method.

A3.6.3.1 Same as above. Recommend change.

Mr. Hecker

Negative withdrawn with an editorial explanation.
This midget impinger was used because extensive background data was obtained by means of this instrument. Therefore there are historical reasons for referring to this method even though the referee method is that based upon the membrane filter.

Mr. Sarvadi

7.1.1 Editorial

8. Non persuasive

A1.2.1 Editorial

A4 Referred to the Asbestos Task Group with no comment. Deemed not necessary.

Sub-Committee negatives

Reviewed by E34.5 May 3, 1976 St Louis

Test Methods

Lickinger

A3.1.3 - 5:1 ratio used as result of unpublished data obtained in a round robin counting sample.

5:1 ratio obtained essentially the same count as 3:1 ratio with questionable particles excluded.

A3.5.1.1 - Problem is in terminology these substances are still considered fibers by ~~Asbestos task force~~. Asbestos task force

A3.5.1.2 - non-persuasive - asbestos from brake linings etc can be fibrils and will still be counted.

A3.6.2.7 - referred to Asbestos task force. may ~~as is~~ be left as is or taken out. Used, as this is phrase used by OSHA method.

A3.6.3.1 - same as above. - Reco change.

Lecher - negative withdrawn with editorial explanation

used because background data obtained this way historically even tho' accepted method is membrane

Sarvadi

7.1.1 - editorial.

sect. 8 - non persuasive

A-1.2.1 - editorial

A-4 - referred to Asb. task force with no comment.
discussed in meeting