

American Society for Testing and Materials
Committee E-34
Task Group on Naturally Occurring Inorganic Fibers
MINUTES OF THE NINTH MEETING
First Session

Norwalk, Connecticut
8-9 October 1975

PRESENT

The list of those present, together with the mailing list, is given in Appendix 1.

AGENDA

The agenda is presented in Appendix 2.

BUSINESS

9.1 Chairman's opening remarks.

9.1.1 The attendees were welcomed to Newark by MR. A. M. Harvey.

9.1.2 Chairman Winer extended the thanks to the Group to the R.T. Vanderbilt Company for accepting to host the meeting. Compliments were extended for the elegant accommodations placed at our disposal.

9.1.3 Mention was made of a letter from Chairman Winer to the Recording Secretary, dated 25 September 1975, stating that the draft document must be completed at the ninth meeting and sent to the subcommittees before the November 1975 meeting of the subcommittees in New Orleans.

9.1.4 I. was announced that OSHA are proposing new regulations reducing permissible levels to 0.5 fibers per cubic centimeters (Docket No. H-033) with an allowable peak of 5 fibers. In their proposal of rule making, the Department of Labour seek opinions on whether the proposal is feasible and by when?; is it feasible for small employers?; should it have a delayed effective date?; what will be the economic impact?

- 9.1.4.1 It was explained that OSHA offer the following justification: "There is new evidence revealing uncertainty that a two-fiber limit may be effective against asbestosis. It has now been ascertained that many abnormalities were observed during the period from 1966 to 1970 based upon the data of Selikoff, Wagner, Mulhouse and Johns-Manville Corporation."
- 9.1.4.2 It was the stated position of OSHA that it is not yet technically feasible to attain such a low limit and according^{ly} delay in implementation may be inevitable.
- 9.1.4.3 It was reported that the monitoring method concerns fibrous particulates with a maximum diameter of 5 micrometers with a 3:1 aspect ratio (this was incorporated before by reference to the test method).
- 9.1.4.4 It was stated that objections must be submitted by 8 December 1975. It was also mentioned that hearing may be requested by 8 December 1975.
- 9.1.4.5 It was reported that the concept of regulated areas, that must be posted, for which authorization to enter (even on an intermittent basis) must be granted and recorded, (including a full roster of those entering) was being proposed.
- 9.1.4.6 It was announced that the proposal included clauses calling for monitoring every three months for areas below TLV unless five days of monitoring during a given month gave results below TLV. For areas where TLV was exceeded, monthly monitoring was reportedly proposed.
- 9.1.4.7 It was commented that the precision of the counting method was such that at the 95 percent confidence level, an error of ± 40 percent can be expected at concentrations of two fibers/cc. It was stated that precision was much poorer for concentrations of 0.5 fibers/cc.
- 9.1.4.8 It was further reported that the proposal calls for engineering controls even if an area is below TLV. It was explained that these include work practice controls. It was added that personal protective equipment could only be worn as a means of protection during the installation of appropriated control systems and during emergencies.
- 9.1.4.9 It was mentioned that the proposal calls for verification of the ventilation system every three months and recording of all pertinent parameters.
- 9.1.4.10 It was stated that it is proposed that a program be written stating how limits may be achieved by engineering controls and work practices.

- 9.1.4.11 The proposal was said to state that respirator wearers may leave the job to wash faces without limit. In addition, mandatory showering is called for, and washing before eating, drinking and smoking is made obligatory. Dual lockers separated by showers are made compulsory.
- 9.1.4.12 Medical examination for any exposure is being reportedly proposed. In addition, annual sputum cytology for workers with ten years of exposure, or over 45 years of age, was said to be called for.
- 9.1.4.13 The proposal was said to cover training programs and the need to keep records of the latter.
- 9.1.4.14 The proposal was said to call for posting (Asbestos, Cancer hazard), and for labelling (Danger, Cancer Hazard Contains Asbestos Fibre).
- 9.1.4.15 It was reported that this proposal excludes the construction, Mining, and Milling Industries.
- 9.1.4.16 It was reported that Union representatives had professed surprise upon learning of this proposal.
- 9.2 Submission of the draft standard to balloting:
- 9.2.1 It was resolved that the following steps should be taken to be in a position to present an ASTM working documents to the OSHA hearings:
- 9.2.1.1 Every effort must be made to hasten adoption of the standard. These efforts must include the following steps:
- Write a seventh (final draft including all revisions).
 - Submit the draft to the Executive Subcommittee of E-34, and to each of the Subcommittees prior to their next meetings.
 - Request permission from the Chairman of E-34 to submit an ASTM working document to the OSHA hearings. If the Chairman of E-34 is in agreement; request the permission of the ASTM Standing Committee on Standards, through the E-34 Representative of ASTM Head quarters (Mr. P. Brown) to present the working document before the OSHA hearings.
- 9.2.2 It was agreed that copies of the seventh draft standard would also be submitted to Messrs A.M. Harvey and E.M. Fenner.
- 9.2.3 It was resolved that the sanction of Committee E-34 must be requested by Chairman Winer.
- 9.3 Minutes of the last meetings.
- 9.3.1 It was announced that the minutes of the sixth meeting held on 4 and 5 March 1975 in Denver, Colorado, had been mailed.

- 9.3.1.1 These were adopted.
- 9.3.2 It was announced that the minutes of the seventh meeting held at Kenedy Airport on 24 and 25 April 1975 had been mailed recently and additional copies were distributed to the attendees.
- 9.3.2.1 The minutes of the seventh meeting were adopted.
- 9.3.3 Photo copies of the hand-written minutes of the eight meeting held in Montreal on 25 and 26 June 1975, were distributed to the attendees. It was explained that these could not be typed in time and the appendices referred to therein could not be photocopied in time.
- 9.3.3.1 The minutes of the eighth meeting were adopted.
- 9.3.4 It was reported that appendices No.2 to 9 to the minutes of the sixth meeting had been distributed in accordance with directives recieved at the eighth meeting (refer to minute 8.1.2.1).
- 9.3.4.1 Appendices 2 to 9 to the minutes of the seventh meeting were adopted.
- 9.4 Business arising out of the minutes.
- 9.4.1 A question was raised concerning section 5.10.1 of the fifth draft of the standard. It was stated that author W. Smith was referred to in error, and it was enquired as to whether this has been rectified in the sixth draft.
- 9.4.1.1 It was alleged that this point was raised in correspondence (letter from A.M. Harvey to the Recording Secretary dated 7 July 1975) and accordingly no mention is made of it in the minutes. However, it was confirmed that the revision had been incorporated in the sixth draft, which contains no statements on the dose response of tremolitic talc.
- 9.4.2 It was announced that directives had been recieved from Committee E-34 to the effect that task group minutes must be approved by the task group chairman prior to release. The Recording Secretary agreed to comply.
- 9.4.3 A report showing detailed results of the letter ballot on TLV was requested. It was replied that this is presented in Appendix 5 to the minutes of the eighth meeting.
- 9.5 Review of the sixth draft of the Standard.
- 9.5.1 It was resolved to change "is" to "can be" in line 2 of 5.1.1

- 9.5.2 It was agreed to change "a very significant factor in producing increases" to "the most significant factor in producing increases in the incidence" in section 5.2.2
- 9.5.3 It was resolved to add the following statement to 5.3.1: "However, other cases have occurred without any known exposure to asbestos".
- 9.5.4 It was agreed to replace 5.3.3 by: "Mesothelioma has been produced in animals exposed to crocidolite, amosite, anthophyllite and chrysotile, but never with tremolite or actinolite".
- 9.5.5 It was agreed to change 5.3.3 in the sixth draft to 5.3.4.
- 9.5.6 It was agreed to change 5.3.4 in the sixth draft to 5.3.5
- 9.5.7 In 5.3.3, line one, it was decided to change "other" to "many other".
- 9.5.8.5. In 5.3.4, line one, it was agreed to change "mesothelioma" to mesothelioma in humans".
- 9.5.9 It was agreed to add: "tremolite or actinolite". to 5.3.4
- 9.5.10 In 5.4.1, line 2, it was agreed to change "other cancers" to "cancer of the digestive tract".
- 9.5.11 It was agreed to add to 5.4.1, the words: "with the same degree of certainty".
- 9.5.12 In AI.1.1, line 2, it was agreed to delete "that".
- 9.5.13 It was decided to change AI.1.1 to: "One theory that is increasingly accepted proposes that the particle dimensions appear to be most significant from a cytologic point of view (Wright and Kushner). Fibers larger than 10 micrometers in length and smaller than 0.5 micrometer in diameter appear to be the most significant. If length is shorter, then the entire particle can be taken up by the cell, thus allowing the cytoplasmic membrane to seal itself and preventing leakage into or out of the cell. It is postulated that such leakage may be implicated in pathologic reactions. If the diameter of the fibrous particulate exceeds 0.5 micrometer, the cell appears to be less likely to be punctured". See Appendix 5
- 9.5.14 It was resolved to change AI.1.2. to: "The smallest particles, those with lengths less than 10 micrometers, have no apparent effect (P. Gross). They are expelled from the respiratory system, or are totally encapsulated by the cells.

- 9.5.15 It was resolved to delete A1.1.3
- 9.5.16 In A1.1.4, line 1, it was decided to change "study" to "experimental study with radioactive asbestos".
- 9.5.16.1 In A1.1.4, line 2, change "percent" to "Percent".
- 9.5.16.2 In A1.1.4, line 3, change "be" to "from".
- 9.5.16.3 In A1.1.4, refer to the studies of Morgan at the Atomic Energy Establishment in Harwell.
- 9.5.17 It was resolved to change "refer to" to "refer to 7.1.2 and to Appendix 3, respectively", in 7.1.1, line 2.
- 9.5.18 It was decided to add the following statements to 7.1.2:
$$TWA = \frac{N_i T_i}{T_i}$$

where TWA = Time Weighted Average
N_i = Number of fibrous particulates/cc in the ith sample,
T_i = Time period over which the ith sample was collected,
i = subscript denoting any one particular sample taken during the interval of time to which the TWA applies".
- 9.5.19 It was agreed to delete 7.2 and to relocate this to Appendix 3 and to identify it as section 3.2
- 9.5.20 It was resolved to change "A record of exposure levels" to "The record of exposure", in 8.5, line 1.
- 9.5.21 It was agreed to relocate "(8 to 12 samples/8h for TWA)" from 8.3, line 8, to Appendix 3, section 9.8.2.
- 9.5.22 It was decided to add the following sentence after the first sentence in 8.3: "(the number of samples required may range from 2 to 12 samples)".
- 9.5.23 It was agreed to change "employer and the employee" to "employee and the employer." in section 9.1.1.1, lines 2 and 3.
- 9.5.24 The dual levels of exposure proposed in 7.1 were again questioned and discussed at some length. It was then decided to delete the separate limits for crocidolite and to mention the British regulations calling for 1/10 TLV for crocidolite, in the Annex. It was decided to state that the evidence in support of the British standard has been evaluated and was not found convincing, and accordingly was not incorporated in this standard.
- 9.5.25 It was agreed to change "exposed" to "exposed in excess of the action level", in 9.1.1.2, line 3.

- 9.5.26 It was resolved to change 9.1.1.2, line 10, from "over 1 second" to "over a period of one second".
- 9.5.27 It was decided to add to 7.1 the values for the action levels set at 50 percent of the TWA and peak values.
- 9.5.28 It was resolved to add section 4.2 to define "action level".
- 9.5.29 It was agreed to change 9.1.1.2 by adding a period after "examination" on lines 4 and 5, and by relocating the rest of that section in an Appendix.
- 9.5.30 It was resolved to change 9.1.1.2, line 6, from "UICC" to "UICC/Cincinnati".
- 9.5.31 It was decided to change 9.1.4, line 2, from "before or after the " to "of his".
- 9.5.32 It was agreed to change 9.1.3, line 9, from " at 1 second" to "over period of 1 second".
- 9.5.33 It was resolved to relocate the second and third sentences from 9.1.3 to an appendix.
- 9.5.34 It was agreed to change 9.1.6.1, line 7, from "government" to "appropriate".
- 9.5.35 In 9.1.6.2, line 1, it was decided to change "The contents" to "Medical confidentiality shall be maintained and the contents".
- 9.5.36 In 10.1.3, line 2, it was agreed to change "may" to "can".
- 9.5.37 It was resolved to change line 2 in 10.2.2.1 to: "approved by the ".
- 9.5.38 It was decided to add to 10.2.3, the following words: "for every employee exposed to airborne concentrations of asbestos particulates that exceed the ceiling levels prescribed in 7.1
- 9.5.39 It was agreed to delete from 10.2.3.1 the words: "for any employee, etc."
- 9.5.40 It was agreed to change 10.2.3.2 to: "change rooms: At any fixed place of employment, the employer shall provide change rooms for employees working regularly at the place.
- 9.5.41 It was decided to change 10.2.3.4 (c), line 2, from "sealed impermeable bags" to containers impermeable to asbestos" and to delete "or other, etc."
- 9.5.42 It was agreed to delete "atmospheric" from 11.1

- 9.5.43 It was resolved to change 11.2.2, line 2, from "gouvernement" to "authorized"
- 9.5.44 It was decided to change 11.2.2, line 3, from "of an" to "to".
- 9.5.45 It was agreed to change 11.2.2., line 1, from "They" to "The medical confidentiality of these records shall be maintained and records".
- 9.5.46 It was resolved to change 9.1.6.2, line 1, to: "The medical confidentiality of these records shall be maintained and they".
- 9.5.47 It was decided to change 9.1.6.2, line 4 by deleting "to his physician".
- 9.5.48 It was resolved to delete Appendixes A and B and to replace them with a note to the effect that these documents may be obtained from the Asbestos Information Association/North America.
- 9.5.49 It was agreed to change "MENERAL" to "MINERAL" in the heading of the second column of the table in Appendix 1, section 1.1.2, line 3.
- 9.5.50 It was resolved to delete 6.2 to 6.2.13 and to refer instead to Appendix 1, section 2.1.
- 9.5.51 It was decided to add section 6.3 as follows: "If the airborne fibrous particulates can be proven to be pathologically inert, then this standard is not applicable". In addition, it was decided to refer to Cogen's paper (in Russian) and to H. Rhodes (Detection of chrysotile asbestos in airborne dust from thermoset resin grinding, Quebec 20 Aug 75).
- 9.5.52 It was agreed that 10.1.1.1 should also refer to Cogen and to Rhodes. See Appendix 7 for a translation of Cogen.
- 9.5.53 It was decided to change "1910.93a" in Appendix 1, section 3.1, line 2, to "1910.1001"
- 9.5.54 It was resolved to change Appendix 1, section 3.2, line 2, from "pollutants". to "pollutants- asbestos".
- 9.5.55 It was decided to revise Appendix 1, section 10.3 in line with item 9.5.24 of these minutes. It was also decided to refer to "Epidemiology of Mesothelioma from Estimate of Incidence" by A. McDonald and J.C. McDonald (this is enclosed as Appendix 3 to these minutes).
- 9.5.56 It was agreed to add a section 3.5 to Appendix 1 to read as follows: "Federal Metal and Non-metal Mines Safety Act (30 USC 725)."

- 9.5.57 It was resolved to add a section 3.2 to Appendix 3 to read as follows:
"For the purpose of establishing compliance with the standard, when the threshold limit values or the action levels are exceeded it must be verified that the fibrous particulates counted are indeed asbestos as defined in A3.4.2 and A3.11.4
- 9.5.58 It was agreed to change "Satic" to "Static" in Appendix 3, section 9.2.1
- 9.5.59 It was resolved to delete from Appendix 3.1 the section 3.1.6 and 3.1.7
- 9.5.60 It was decided to change Appendix 3, section 9.8.2, line 4, from "4 to 7 " to "4 to 7 (may range from 2 to 12)".
- 9.5.61 It was resolved to add to 8.1.1 the following subsection: "8.1.1.1 The precision of the counting method is such that by combining the variations in fiber concentrations over an entire filter with those for different observers, the standard deviations are estimated at 25 percent for high concentrations of very fine fibers. The corresponding 95 percent confidence interval is associated with an estimated possible error of ± 50 percent. The latter error does not include the sampling error for which no estimates are available at this time." It was also decided to refer to Document No.8 (Appendix 9 to minutes of the second meeting) by LFE Corporation. It was further decided to add " In view of the lack of precision, multiple sampling must be resorted to.
- 9.5.62 It was decided to add the statements contained in section 9.5.62 above to Appendix 3.
- 9.6 The review of the sixth draft of the standard was followed by an extensive discussion of the TLV.
- 9.6.1 Concern was expressed that a TLV of 5, although justified by the toxicity data, might not be credible from a political point. On that basis, it was felt prudent to opt in favor of TLV's of 5 now and 2 in 1976.
- 9.6.2 It was commented that page 30 of the new OSHA proposal contains statements implying that the TLV is of little real significance for while a limit value may exist for some people, this may not hold for other individuals. Therefore, it was deduced that the regulations proposed are not based upon strict scientific bases.

9.6.3 It was mentioned that the basis of earlier regulations was a study by Knox that is being increasingly challenged. It was said that the proposal is aimed at a target that may represent a compromise between the desirable and the attainable. Accordingly it was urged that the ASTM Standard should be a responsible document and should consider both the regulator and the regulated and concern itself with the total quality of life.

9.6.4 IT was criticised that the OSHA Standard had been based upon the British Standard which in turn had been based upon one study covering only 200 employees in one English factory. It was added that the TLV for crocidolite had been set at 1/10 the TLV for chrysotile by the British on strictly emotional grounds with no scientific basis whatsoever. It was stated that the MacDonald study is the only legitimate study giving statistically valid data, and it was felt regrettable that this data is based upon impinger dust counts.

9.7 New OSHA proposal.

9.7.1 The latest OSHA proposal was reviewed in detail and commented upon as follows:

9.7.2 It was stated that the new proposals exclude the mining and milling, and construction industries.

9.7.3 Mention was made of the preamble that calls for a TLV of 0.5 on the 8h TWA and a peak ceiling of 5 for a period not exceeding 15 min.

9.7.4 It was said that the major issues raised include:

9.7.4.1 - Whether the standard is feasible and when?

9.7.4.2 - Would the safety margin be adequate?

9.7.4.3 - What date could be acceptable for enforcing the ceiling?

9.7.4.4 - Is the peak sampling of 15 min. acceptable?

9.7.4.5 - How long should records be kept?

9.7.4.6 - What specific data is required?

9.7.4.7 - What rules should be observed for transfer of records?

9.7.4.8 - Would the standard impose unbearable burdens upon employers; particularly small employers?

9.7.4.9 - To what extent should the standard be applicable to transient, non permanent conditions?

- 9.7.4.10 - Should the standard be delayed until more data is available from certain sectors?
- 9.7.4.11 - What would be the inflationary impact of such a standard?
- 9.7.5 It was mentioned that the proposal covers tremolite (and tremolitic talc) and actinolite. Also products containing eight percent firmly bound asbestos were said to be implicated.
- 9.7.6 Mention was made of the 186,000 tons used for the year 1972, in the USA, for non-construction applications.
- 9.7.7 It was mentioned that new data and technology were required before the new proposal could be considered.
- 9.7.8 It was criticised that the proposal is biased to the extent that no mention is made of the MacDonald study while flimsy evidence from other sources is referred to.
- 9.7.9 It was noted that the proposal mentions the Knox study as the basis for present regulations and states that new data on the same cohort reveals changes in the incidence of neoplasia, even for low exposures.
- 9.7.4.10 It was commented that levels low enough to control asbestosis may not be low enough to control carcinomas.
- 9.7.4.11 It was reported that Lewenson has stated that his data is being misinterpreted and that the data indicate that the incidence of cancer among cigarette smokers is eight times higher than among non-smokers.
- 9.7.4.12 It was stated that the OSHA proposal touches upon the Knox study that covers 200 workers from 1933 to 1950, and their morbidity; and upon new data covering 290 workers from 1971 to 1975 when an excess incidence of mesothelioma was diagnosed.
- 9.7.4.13 It was mentioned that separate proposals for construction workers are considered due to the transient nature of construction employment.
- 9.7.4.14 It was summarized that the salient features of the OSHA proposal include:
- Concept of regulated areas. Need for the maintenance of a roster.
 - Signs and labels branding asbestos as a carcinogen.
 - Requirements to shower and to wash.
 - 42 References.

- 9.7.5 It was criticised that the proposal quotes only one side of the argument using sources such as Selikoff, Jos. Waggoner, and Nicholson, and even refers to the New Yorker's article but does not give counterarguments from other respected sources such as Chris. Wagner*. This is not objectively reporting the various arguments. It was also stated that the proposal cites the case of the Homestake coal mine, placing the complete blame on the presence of asbestos while dismissing the effect of arsenic and silica.
- 9.8 It was felt that the entire mining industry would be affected by the OSHA proposal, particularly in the event that MESA should be engulfed by the U.S. Department of Labor. It was felt that the American Mining Congress and the American Institute of Mining Engineers should be made aware of the dire implications of the OSHA proposal.
- 9.9 It was reported that trials on amosite and crocidolite had shown no significant differences in counts at 3:1 and 5:1 aspect ratios.
- 9.10 It was announced that the Representative from MESA, Mr. J. Martenick, had been assigned to a new area of responsibility (noise control) and would no longer serve the Task Group.
- 9.11 It was resolved that an ASTM Representative must represent the Task Group at the OSHA hearings and Mr. A.M. Harvey was appointed to this post. It was resolved that the Task Group Representative should state the point that TLV are of limited significance due to individual sensitivity, and that regulations must be envisaged as a question of responsible public decision.
- 9.12 It was indicated that the Asbestos Producing Industry would probably request a delay from OSHA to permit completion of a study to correlate impinger and membrane data, before the hearings.
- 9.13 Dr. Lepoutre's medical report (Appendix 6) was reviewed and endorsed.
- 9.14 Date and place of the next meeting.
- 9.14.1 It was resolved to meet on 17 and 18 November 1975, together with the main E-34 Committee, at the Braniff Place Hotel in New Orleans, La. (The Delta Towers Hotel was mentioned as an alternative accommodation.)

*Refer to Appendix 4.

APPENDIX 1

ATTENDANCE

Ninth meeting of the Task Group on Naturally
Occurring Inorganic Fibers of ASTM Committee
E-34, Norwalk, Connecticut, 8 and 9 October 1975

Messrs:

M. Cossette	Recording Secretary QAMA Testing Research Laboratory
E.H. Fenner	Vice-Chairman Johns-Manvill Corporation
J.G. Foy	Department of Natural Resources of Quebec
A.M. Harvey	R.T. Vanderbilt Company Inc.
P. Laroche	Lake Asbestos of Quebec Limited
Dr. J. Lepoutre	Eternit S.A.
Dr. P.V. Peinar	Institute of Occupational and Environmental Health
C.S. Thompson	R.T. Vanderbilt Company Inc.
A.A. Winer	Chairman Canmet, Government of Canada

Mailing List

W.H. Ashton	Dr. R.A. Kuntze
Dr. J.W. Axelson	M. Lachance
R.A. Brumley-Moore	R. Lambert
G.F.A. Brink	P. Laroche
D.P. Bridge	Dr. J. Lepoutre
P.G. Brown	B. Lincoln
R.A. Clifton	J. Martonik
W.R. Cooling	P.W. McDaniel
M. Cossette	R.H. Mereeness
E.M. Fenner	C.G. Morgan
P.A. Filteau	K. Morgareidge
G.J. Foy	T.D. Oulton
G. Gagnon	Dr. P.V. Pelnar
G.W. Gibbs	L.C. Piuze
J.K. Gilmore	J. Salvina
Dr. M. Grinard	W.H. Smith
A.M. Harvey	C.E. Stiefken
J.W. Hawking	R.A. Stolberg
A.A. Hodgson	A.A. Winer
S. Holmes	Dr. W.R. Paul

AGENDA

Ninth Meeting

Task Group on Naturally Occuring Inorganic Fibers
ASTM Committee E-34

Norwalk, Conn., 8-9 October 1975

1. Chairman's opening remarks
2. Minutes of the last three meetings
3. Business arising out of the minutes
4. Review of the sixth draft of the standard
5. Decision regarding submission of the standard to ASTM Committee E-34
6. Date and place of the next meeting