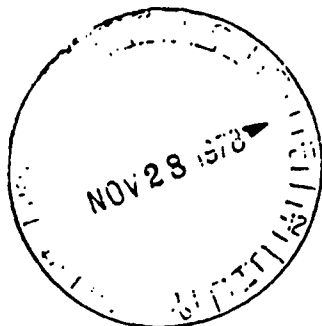


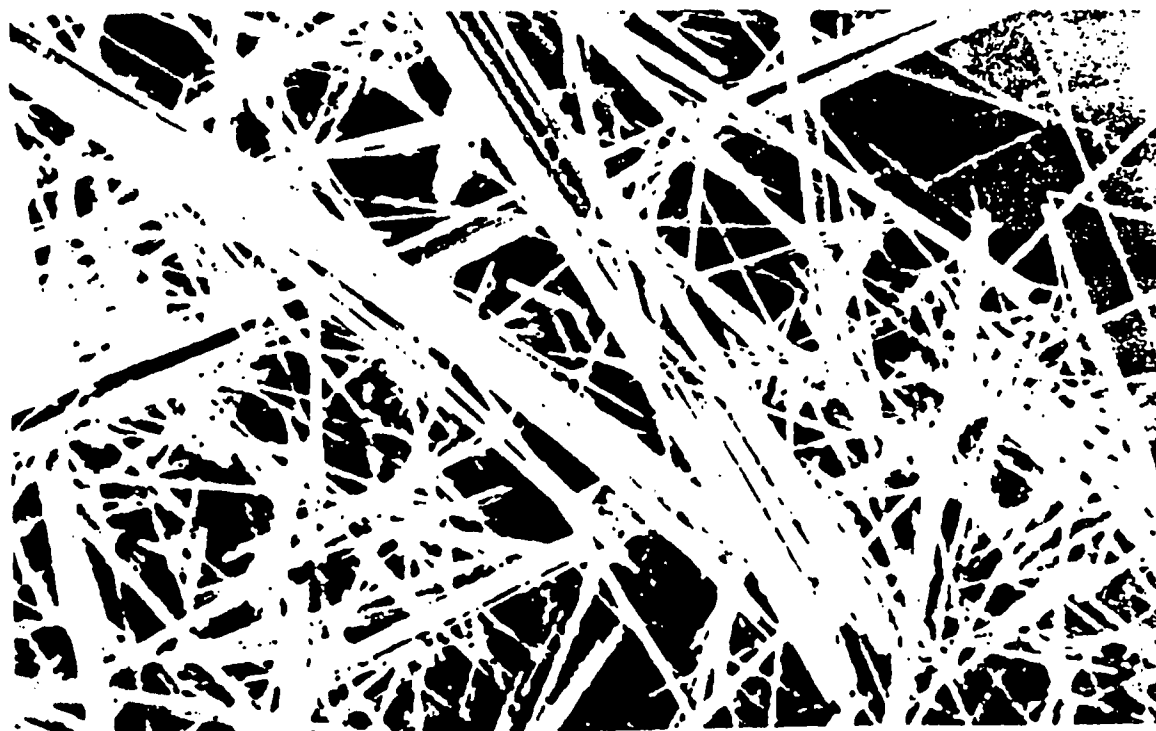


NBS SPECIAL PUBLICATION 506

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards



## Workshop on Asbestos: Definitions and Measurement Methods



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ASBESTOS WORKSHOP IN REVIEW

JULY 18-20, 1977

NATIONAL BUREAU OF STANDARDS

The workshop was organized to discuss a definition of asbestos and suitable measurement methods for regulating against asbestos health hazards, prior to the issuance of a standard. Four hundred persons from the mining industry, asbestos manufacturing, U.S. and Canadian health agencies, and medical and research facilities attended the workshop.

The National Bureau of Standards concluded in May from analysis of 80 industrial samples that OSHA's present techniques for analyzing for asbestos in industrial talc is useful only for determining fiber content and not asbestos content. This and other unresolved issues were discussed at the workshop. Divergence of opinion was expressed in two camps: U.S. Government Agencies and Medical representatives v.s. Industry and the U.S. Geological Survey. The Bureau will consider these viewpoints in making its final report to OSHA.

Significant segments of the proceedings include the following:

Mearl Stanton, National Cancer Institute

Cancer-causing danger of fibrous materials is related to fiber dimension. Greatest carcinogenicity came from fibers with dimensions that were equal to or less than .25  $\mu$  by more than 8  $\mu$ . Smaller fibers were controlled by phagocytes\* in the body. Knowledge on why long fibers are carcinogenic is presently inadequate. Continued effort must be done on inhalation studies to allow extrapolation to human experience in understanding the effects of asbestos.

Paul Kotin, Johns-Manville Corporation, Denver

Exposure to Asbestos under the present standard level does not result inevitably in lung cancer, mesothelioma or asbestosis. There is no such thing as a single threshold for a carcinogen but a series of thresholds can be identified. Nothing rules out a dose-response relationship for asbestos.

William Nicholson, Arthur Langer, Mt. Sinai/Hospital- N.Y.

Thresholds exceed present scientific capability. Excesses of lung cancer and mesothelioma from mortality studies were cited from job related asbestos exposure. In one study spouses, children and other family members of workers in an amosite asbestos factory were studied for asbestos related disease. Out of 626 persons, approximately one-third were found to have abnormal lung x-rays.

\* phagocyte - white blood corpuscles that ingest and destroys organisms or particulates that result in disease.

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Asbestos Workshop in Review

Malcolm Ross, U.S. Geological Survey

According to the present OSHA definition for asbestos, rocks from Maine to Georgia could be viewed as containing asbestos and be considered unsuitable for quarrying for crushed stone. Evidence is lacking on any environmental health threat from such operations. Canadian mining studies with higher concentrations of chrysotile asbestos indicate no adverse health effects. The 1976 NIOSH (National Institute for Occupational Safety and Health) can be criticized on the basis there is no safe level of exposure to asbestos and questions the safety of the crust of the earth.

Paul Gross, Medical University of S. Carolina

Animal studies which have produced tumors by inhalation have not been cited.

The conference concluded with presentations on the advantages and limitations of available analytical methods and counting techniques for detection and measurement of the workplace contaminants. Studies have been done using x-ray diffraction, (TEM) transmission electron microscopy, thermo-analysis, phase contrast and optical microscopy.

Proceedings will be published and sent to all those who attended.  
Additional copies may be ordered through the National Bureau of Standards.

C. B. Zelek  
Vehicle Materials Engineering  
August, 1977

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