

TO: #151 - J. N. WALKER
FROM: #151 - K. S. FREEMAN
SUBJECT: IDENTIFICATION OF ASBESTOS FIBERS

APRIL 11, 1979

On April 9, 1979, the ACGIH sponsored a Symposium at the OSHA Training Institute in Des Plaines on the subject of The Identity and Measurement of Airborne Asbestos which I attended with Messrs. C. Roe, C. Peterson, and S. Berning. The most significant feature of the Symposium was a presentation by Mr. Willard C. Dixon from the OSHA Analytical Lab at Salt Lake City. The discussion covered the OSHA methodology for evaluating the concentration and determining the identity of "fibers" in samples submitted from the field.

Mr. Dixon stated that all samples are tested by all of the following methods:

1. Light microscopy using both phase contrast and polarized illumination.
2. Petrographic techniques including dispersion staining.
3. SEM and Transmission Electron Microscopy with energy dispersive x-ray analysis (EDXA).

Mr. Dixon stated that these procedures are used to assure that citations for asbestos compliance could be defended in court on the basis that the only fibers that are counted were from the group of six minerals listed in 29 CFR 1910.1001. This is a new policy and differs significantly from the procedure in the OSHA Standard that specifies light microscopy with phase contrast illumination.

The procedure used by the OSHA Analytical Lab will result in a lower count. However, industry has established policy and set up procedural and engineering controls based on an analytical technique that can indicate significantly higher airborne concentrations. This disclosure was met with surprise by the attendees.

An example of how this policy can affect our situation is in the evaluation of talc for joint compounds and textures. When we follow the procedure in the OSHA Standard for evaluating a talc, we must assume that asbestiform particulates that are longer than 5 microns and have an aspect ratio greater than 3 are "asbestos", since the mineral identity of the "fiber" cannot be determined by the official phase contrast illumination method. We have not pursued the use of alternate analytical methods, either at our lab or at outside labs, as a routine screening method, although we recognized that it might be a possible alternative in a defensive situation.

Although the disclosure by Mr. Dixon is not reflected in official OSHA Standards, it is my recommendation that we become skilled in the identification of "fibers" in talc, vermiculite, etc, in order to provide positive identification as asbestos, only those fibers from the list of six minerals specified by OSHA.

It appears that the dispersion staining technique is best suited for our use, and the McCrone Research Institute offers a 1-week course in this procedure. If necessary under special circumstances we can obtain confirmation at outside laboratories using classic petrographic methods or TEM with EDXA.

I would like to discuss with all persons on the distribution to set up policy and procedures.

KSF

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