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ELECTRON MICROSCOPE MEASUREMENT OF AIRBORNE ASBESTOS CONCENTRATIONS

A Provisional Methodology Manual

INSTITUTE OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH MONTREAL, CANADA

Environmental Sciences Research Laboratory
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NOTICE OF REVISED PROVISIONAL METHODOLOGY MANUAL

The enclosed copy of the EPA publication "Electron Microscope Measurement of Airborne Asbestos Concentrations - A Provisional Methodology Manual" represents a revised edition of document EPA-600/2-77-178 which was first published in August 1977.

The changes are mostly minor and have been made primarily for the sake of clarity. The most important changes are in the section (2.5.2.4) on Fiber Classification Rules, wherein the procedure is described in more explicit terms and should be easier to follow.

Please discard any copies you may have of the earlier edition.

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ABSTRACT

This manual describes a provisional optimum electron microscope (EM) procedure for measuring the concentration of asbestos* fibers** in air samples. The main features of the method include depositing an air sample on a polycarbonate membrane filter, examining an EM grid specimen in a transmission electron microscope (TEM), and verifying fiber identity by selected area electron diffraction (SAED).

This provisional manual results from a study to develop an optimum EM procedure for airborne asbestos determination. The analytical data supporting the provisional methodology are included in a separate final report.

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* Asbestos is used as a collective term for the six minerals: chrysotile, amosite, crocidolite, and the asbestiform varieties of anthophyllite, actinolite and tremolite.

** The term fiber is used for a particle with an aspect ratio 3:1 or greater and with substantially parallel sides.

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