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EPA Report No.

July 1984

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**METHODOLOGY FOR THE MEASUREMENT OF AIRBORNE ASBESTOS
BY ELECTRON MICROSCOPY**

by

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Contract No. 68-02-3266

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25057369
u/20/01

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FOREWORD

PREFACE

ABSTRACT

The provisional electron microscope methodology for measuring the concentration of airborne asbestos fibers was refined. The methodology is divided into separate protocols. The step-by-step procedures for each protocol are nearly identical, so that cumulative data can be obtained and uncertainties, especially in asbestos identification, can be clarified. The operational steps encompass (1) type of sample, (2) collection and transport, (3) sample preparation, (4) examination under the transmission electron microscope (TEM) and data collection, (5) data reduction and reporting of results, and (6) quality control-quality assurance.

The TEM analytical protocol is subdivided into three levels of analysis: Level I, for screening many samples; Level II, for regulatory action; and Level III, for confirmatory analysis of controversial samples. Because identification of asbestos structures is critical, the level of analysis is directly related to the information sought:

Level I—morphology and visual selected area electron diffraction (SAED) pattern recognition.

Level II—morphology; visual SAED; and elemental analysis.

Level III—morphology; visual SAED; a selected number of SAED micrographs of zone-axis patterns; and elemental analysis.

This report was submitted in fulfillment of Contract No. 68-02-3266 by IIT Research Institute under the sponsorship of the U.S. Environmental Protection Agency. This report covers the period September 19, 1979, to June 19, 1981, and work was completed as of September 30, 1981.

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