Virta et al, 1983

# AEROSOLS
## In the Mining and Industrial Work Environments

## VOLUME 2
## Characterization

Edited by

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ANN ARBOR SCIENCE
THE BUTTERWORTH GROUP

CHAPTER 47

# SIZE AND SHAPE CHARACTERISTICS OF AMPHIBOLE ASBESTOS (AMOSITE) AND AMPHIBOLE CLEAVAGE FRAGMENTS (ACTINOLITE, CUMMINGTONITE) COLLECTED ON OCCUPATIONAL AIR MONITORING FILTERS

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## ABSTRACT

The objective of this study by the Bureau of Mines (BOM) was to determine if particle populations from asbestiform and nonasbestiform mineral sources can be distinguished through least-squares regression analyses using the relationship:

$$\log_{10} \text{width} = F \log_{10} \text{length} + b$$

where F = fibrosity index, the slope of the regression line
b = intercept on the $\log_{10}$ width axis

Amphibole particles on air monitoring filters from three mining and two industrial sites were characterized by scanning electron microscopy (SEM) and energy-dispersive X-ray spectroscopy (EDS) analysis. The data are evaluated using particle length and width summary statistics and compared with analyses by linear regression.

Conclusions based on comparison of data manipulation using these two techniques follow: The mining site particle populations are morphologically