

PURE

MEASUREMENT OF DUST EXPOSURES IN THE ASBESTOS TEXTILE INDUSTRY

J. R. Lynch and W. E. Ayer
Division of Occupational Health, U. S. Public Health Service
Cincinnati, Ohio

range
is
grad-
para-
per-
ing

Data obtained from environmental surveys of nine asbestos tex-
cile mills are presented. These plants constitute a majority of
asbestos textile operations in the United States and the environ-
mental data from them represent the baseline for the textile seg-
ment of the Public Health Service epidemiological study of asbes-
tos processing industries. Over 1800 membrane filter, 1100 mid-
ge impinger and 400 special samples have been collected during
these surveys.

tion
by-
ch
sinal
y, as
curves
ex-
the
Med-
to of

Since these data are intended for eventual correlation with
medical findings, concentration ranges with significance ($p < 0.05$)
differences were established from coefficients of variation of
concentrations of typical sample groups. Another set of ranges,
with narrower limits, was prepared by using the derived coeffi-
cients of variation for resultant body burdens. These analyses
were made possible by the large amount of data available and the
use of a computer for data processing.

Variance ratio tests revealed that none of the methods of samp-
ling were significantly less variable than any other and suggested
that the variance observed in dust concentrations was predominantly
a characteristic of the environment.

Weight count ratios obtained by magnesium analyses related to
asbestos mass on 250 membrane filter samples gave the following
approximate count/weight ratios.

Type Count	Fibers/ μ gm
Total Fibers	11,000
>5 μ fibers	5,000
>10 μ fibers	3,000

Independent results by sizing of electron micrographs gave a
typical value of 8,000 fibers/ μ gm. Possible relationships between
these ratios and total and respirable mass equivalents are discussed.

031

DUP 0900515

DU 021912