

IV. SAMPLING AND DETECTION OF ASBESTOS IN AIR, FOOD, SOIL AND WATER

Sampling

A serious obstacle in the study of the interaction between potential toxic substances in the environment - like asbestos - and man is that the quantities of pollutants fluctuate in space and time. Keeping the latter factor in mind, it is the purpose of proper sampling techniques to arrive at a quantitative estimate of the exposure which results in an increase of the "body burden" of the general population.

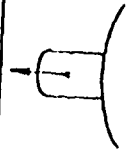
On the basis of present knowledge on the biological effects of asbestos it primarily seems that the average exposure over a period of time is of interest. This simplification means that for an inventory of exposure levels a large number of samples (e.g. 8 hrs. samples) taken consecutively can be added together (averaging in time). When the presence of asbestos in ambient air, water and food is investigated, it is often preferable to sample synchronously in several places in the vicinity following the same sampling procedure (averaging in space). For the investigation of the asbestos content of soil it will be, in general, sufficient to investigate a large number of samples from different locations since time fluctuations are in many cases of lesser importance.

Though sampling is of primary importance in the described investigations only very general guidelines on sampling procedures can be given at this stage. This combined with the lack of standardisation of analytical procedures is the reason that the results of individual investigations can only be compared with reservation.

For the determination of the asbestos content of air and water the solid content is in general separated from the carrier-medium. Due to the small size of the asbestos fibres in ambient air and water the separation methods which can be used are in practice limited (Air Sampling Instruments 1972).

For air they are: high efficiency filtration (Bakorn et al 1974, Nichol-

I,



III,

FIG. 1

IV,

N x I
W x V

N: total number of samples
I: the sample
W: number of filter
V: volume of air
FIG. IV-1
I: The sample
II: Filter
III: Before
IV: After
V: From 1

5001 0731

PRODUCED BY FORD