

As a prerequisite to any biologic testing (insofar as the lungs are concerned), it is necessary to reduce the asbestos to a respirable particle size. This will be done in the following manner: the amosite and crocidolite will be ball-milled and then fed into continuous hammer mills modified from a design by Holt and Young. (10) The dusts emerging from the hammer mills will be collected in electrostatic precipitators. This method has been used successfully by us to reduce chrysotile asbestos to a particle size, 70% of which was respirable. A sufficient quantity of finely divided chrysotile dust is available for the purposes of this investigation.

All three types of asbestos dust will be deprived of the greater portion or of all of their hydrocarbon content in one of two ways;

1. by continuous extraction with various solvents
2. by heating beyond the decomposition point of the hydrocarbons

The trace metals will be removed from the three types of asbestos dust by treatment with aqua regia followed by treatment with EDTA (ethylene diamine tetraacetic acid, a chelating agent).

One batch of each type of asbestos dust will be subjected to both procedures, i.e., removal of trace metals and removal of hydrocarbons.

Accordingly, each of the three types of asbestos dust will consist of five batches, each with a different composition:

1. the unaltered dust as collected in the precipitators
2. the dust minus the hydrocarbons (heat-treated). Here, it is anticipated that there may also have been some change in the chemical structure of the asbestos through loss of ~~some molecules~~ of water of hydration.

(10) Holt, P.S. and Young, D.K. A Dust-Feed Mechanism Suitable for Fibrous Dust. Ann. Occ. Hyg. 2:245, 1960.