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FOSECO INTERNATIONAL LIMITED
INTER-COMPANY AND INTER-DEPARTMENTAL CORRESPONDENCE

To: Mr. A.F. Ekar,
Foseco Inc., U.S.A.

Name
Department
and/or Company

Date: 1st September, 1972.

From: D.G. Braddy. Division:

Our Ref: DGB/MP

Your Ref:

Copies to:
(Please quote in full)

Mr. M.J. Meilode;
Mr. V. Mellows.
File.

Analysis of Asbestos - Containing Dusts.

In my opinion, X-Ray diffraction techniques would be the most suitable for the quantitative determination of asbestos fibres in the presence of other fibres such as slag wool and also, I presume, other particles such as silica, iron oxide etc.

At present, we do not have a method available which can be applied directly to this specific problem. However, it should not prove impossible (in theory, at least) to extend the technique which we already use for the quantitative determination of silica (quartz) in foundry and steelworks dusts. The asbestos patterns are much more complicated than that of quartz and also give less strong lines. For this reason, I think that various problems might arise before a satisfactory procedure could be developed, but there is no obvious reason why this technique could not be made to work. The percentages of chrysotile and amosite asbestos could be determined separately, as their diffraction patterns are quite dissimilar. The other fibres which you mention are normally completely amorphous and thus do not give X-Ray patterns.

Analysis of dust is frequently carried out by collecting the sample on a suitable membrane filter and then counting the number of particles in the deposit under the microscope. For the following reasons, I do not think that this would prove suitable for the current problem.

(a) The asbestos fibres could only be distinguished from the other fibres by means of different shape, diameter etc., which might well be extremely difficult.

(b) Any microscope technique for particle counting is extremely tedious and tiring to the operator, if a sufficiently large number of particles are to be examined in order to obtain a reasonably accurate result.

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