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Johns-Manville Research Laboratory
Manville, New Jersey

CONFIDENTIAL

COTTRELL FLOATS AND NO. 2 CRUDE FIBER FROM ASBESTOS
EXAMINATION FOR FREE QUARTZ CONTENT BY X-RAY DIFFRACTION

Requested By: H. K. Sherry

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I. SUMMARY:

1. Samples of dust from the Cottrell collectors in the mill and a sample of No. 2 Crude fibre, were submitted for examination for free quartz.

2. X-ray Diffraction photographs of the submitted samples, made by the Debye Scherrer Powder method, showed no trace of a line in the 3.35 A° position where the strongest alpha quartz line is located.

3. To determine the concentration of quartz in mixture with the Cottrell Floats, that would be necessary to produce a distinguishable line, mixtures of the Floats and 5% and 1% of finely ground free quartz, respectively, were made.

The 5% mixture showed a very pronounced line and the 1% mixture a fainter but still well defined line in the 3.35 A° position.

4. From the evidence of the diagrams, it is concluded that the samples of Cottrell Floats and No. 2 Crude do not contain free quartz in any amount above a limit which is shown to be less than 1%.

5. Reproductions of films of diffraction patterns of quartz, Cottrell Floats, No. 2 Crude Fibre, Cottrell Floats plus 5% quartz and Cottrell Floats plus 1% quartz, are attached to this report in Appendix A.

6. Since the interest in possible quartz content of the subject samples is connected with silicosis, a bibliography of references and some extracts from the literature are attached to this report in Appendix B.

I. SUMMARY-Cont'd.

7. The search of the literature required for the assembly of the references showed that expert opinion generally is agreed that silicosis is caused by free quarts and not by combined silica, or colloidal silica and that this free quarts content of a rock dust must be high in order for that dust to be dangerous.

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