

EXCERPTS OF REPORTS ON ASBESTOS STUDIES CONDUCTED ON

JOHNSON & JOHNSON TALC PRODUCTS

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An x-ray diffraction study of Lewin's sample of Johnson & Johnson's Shower-to-Shower talcum powder using slow, continuous scanning, diffractometer techniques with monochromatized Cu radiation showed that two forms of chlorite, phlogopite, magnesite, dolomite and calcite are minor contaminants (< 10% total) of the talc. No evidence of chrysotile or tremolite in Lewin's sample was found. Examination of the 20 regions around 12° and 24° alone is not necessarily sufficient to establish the presence of chrysotile asbestos because of the similar peak positions of two other non-fibrous serpentine polymorphs, lizardite and antigorite.

The x-ray data on J&J's Shower-to-Shower powder presented by S. Z. Lewin in a written report (May 16, 1972) to the Cosmetic, Toiletry and Fragrance Association and during a hearing Sept. 21, 1972) before officials of the Food and Drug Administration show no evidence of chrysotile or tremolite when examined carefully. Moreover, the fibrous-looking particles in the photomicrographs also presented by Lewin at the Sept. 21 hearing can best be interpreted as rolled talc particles, which are sometimes produced during grinding. Lewin's claim that chrysotile is present in J&J's Shower-to-Shower powder is not supported by his data or by any of the results (from x-ray and electron diffraction, optical dispersion staining, transmission and scanning electron microscopy, electron microprobe analysis, differential thermal analysis, petrographic examination of the uncrushed Italian talc and detailed field study of the Italian mine) amassed by Johnson & Johnson's team of consultants.

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An extensive examination of samples of Johnson & Johnson's product Shower-to-Shower using x-ray diffraction, light microscopy, scanning electron microscopy, transmission electron microscopy and electron diffraction has shown that this product is free from asbestos or asbestiform minerals. A report that chrysotile was present in a sample from batch number 15012 was erroneous and most likely a mis-identification for a form of chlorite.

None of the techniques employed in this examination revealed any trace of chrysotile in any of the retained samples of Shower-to-Shower nor in the fraction of the sample obtained from Professor Lewin in which he had reported the presence of chrysotile.

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I made x-ray diffraction studies on the sample of talc product Shower-to-Shower. The objective of these studies was to determine the nature of a reported double X-ray diffraction peaks in the vicinity of 7 to 7.5 angstroms. The x-ray diffraction scan for the sample indicates the presence of talc and chlorite. Since the major peaks of chrysotile occur near the chlorite peaks, step scanning was used in order to better determine if any chrysotile peaks occur. The enclosed three charts show the results of these scans. The data does not indicate the presence of chrysotile.

Frederick D. Pooley, Mineral Exploitation, University College, Cardiff,
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The 'Shower-to-Shower' talc specimen was subjected to electron microscope examination, x-ray analysis and also to density separation tests. X-ray examination of the specimen indicated that no amphibole asbestos at the level of detection of the X-ray technique (i.e. 1.0%) was present. Electron microscope examination of the sample revealed no chrysotile fibers in the sample. The conclusions to be drawn from the examination are that no detectable chrysotile or amphibole asbestos is present in the 'Shower-to-Shower' talc sample.

S. S. Pollack, Fellow, X-ray Diffraction Laboratory, Carnegie-Mellon
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Dr. Lewin's identification of asbestos appeared to be based on the presence of particles which he thought looked like asbestos. He could not support this identification with any of the necessary electron microscopy, electron diffraction or optical microscopy evidence.

Since x-ray diffraction cannot be used to make a positive identification of asbestos when it makes up less than about three percent of a sample, the combination of electron micrographs showing a hollow fiber, and then the characteristic electron diffraction pattern from the fiber, make the most definitive identification. Dr. Lewin did not show these. Optical microscopy is another sensitive technique for identifying very small amounts of asbestos but no evidence of crystals with the indices of refraction characteristics of chrysotile was presented.

"To me, Dr. Lewin indicated . . . lack of fundamental understanding of crystallography . . ."

John P. Schelz, Group Leader, Analytical Instrumentation Laboratory,
Johnson & Johnson, New Brunswick, New Jersey

Three product lots of 1971 Johnson & Johnson Medicated Powder (P-4811, P-4812, and P-5059) and three production lots of the 1972 Medicated Powder (P-6243, P-6244, and P-6245) have been analyzed by continuous scanning x-ray diffractometry for the presence of trace quantities of amphibole asbestos minerals such as tremolite. Qualitative scans were run on two samples from each lot of the powder through the region of analytical importance. The lower limit of detection by this method is 1% w/w of the amphibole asbestos minerals in talc. The diffractograms do not indicate the presence of amphibole impurities. Therefore, the samples of Johnson & Johnson Medicated Powder do not contain tremolite within the limit of detection of the continuous scanning x-ray diffractometry technique.
