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# Effects of Dry Grinding and Leaching on the Crystal Structure of Chrysotile

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**Abstract:** The structural damage produced by dry grinding and acid leaching of chrysotile was studied by transmission and scanning electron microscopy, infrared spectroscopy, X-ray powder diffraction, and thermogravimetric analysis. Severe dry grinding converted the chrysotile fibers into fragments having strong potential basic reaction sites. These sites were immediately neutralized by molecules present in the atmosphere (e.g., H<sub>2</sub>O, CO<sub>2</sub>). Acid leaching transformed the chrysotile fibers into very porous, non-crystalline silica, which was easily fractured into short fragments. The damage produced in the chrysotile structure by grinding or leaching was assessed by monitoring the intensity of various infrared absorption bands.

**Key Words:** Acid leaching • Asbestos • Chrysotile • Dry grinding • Infrared spectroscopy • Thermal gravimetric analysis • Transmission electron microscopy

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