Potential exposure to erionite in the New Zealand workplace

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ABSTRACT

Erionite is a naturally occurring fibrous zeolite mineral found on all continents. Airborne exposure is associated with health effects similar to those caused by asbestos, including mesothelioma and interstitial lung fibrosis. Erionite has been classified as a Group 1 human carcinogen and is believed to be more potent than asbestos in causing mesothelioma. Research on erionite-related exposure and health risks has predominantly been conducted in the Cappadocia region of Turkey, where exposure to erionite-containing building materials and soils has led to a mesothelioma epidemic, accounting for a large proportion of deaths (21-51%) in affected villages. Erionite is rarely used for commercial purposes, unlike asbestos, and its exposure pathways are therefore less well understood, and no regulatory exposure limits have been developed. In the past 13 years, concerns about occupational and environmental exposure to erionite have emerged in the United States, Italy, and New Zealand. In New Zealand, erionite has been identified in both the North and South Islands. New Zealand also has the fifth highest incidence of malignant mesothelioma in the world, which is largely attributed to occupational asbestos exposure, although some cases have had no known asbestos exposure and the specific causes therefore remain unclear. Given erionite is present in New Zealand and may result in airborne exposures when disturbed, it is important to assess this in workers who may have an elevated risk of exposure. We are currently assessing occupational exposures in 72 workers who are involved in construction, farming, outdoor maintenance and research activities. If exposure is present, effective controls need to be developed and occupational exposure limits set.