

## **Amphibole asbestos from Libby, Montana: Aspects of nomenclature**

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### **ABSTRACT**

Richterite-asbestos and winchite-asbestos are not listed in the federal regulations governing asbestos. However, asbestiform winchite is found in the gangue at the Libby, Montana, vermiculite deposit, where asbestos-related diseases have been reported among the miners and millers. Changing amphibole nomenclature, uncertainties in  $\text{Fe}^{2+}/\text{Fe}^{3+}$ , and natural compositional variability result in samples of the asbestiform amphibole from Libby being variably classified as soda tremolite, richterite, sub-calcic actinolite, and winchite. A classification of winchite-asbestos is assigned for two samples of Libby asbestos analyzed for this report, consistent with the most recent International Mineralogical Association classification system. Although some of the unit-cell parameters and optical properties reported here are distinctive, others are very similar to the tremolite-actinolite series.