

# **PYROAURITE AND BRUCITE INTIMATELY ASSOCIATED WITH CHRYSOTILE: A WAY TO OVERESTIMATE THE NOA HAZARD**

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Naturally occurring asbestos (NOA) is a major concern at ophiolitic settings. At the first glance, chrysotile seems a more straight forward enemy than amphiboles that produce a variety of elongated mineral particles (EMP), ranging from stubby cleavage fragments over acicular crystals to extremely fibrous forms. However, chrysotile occurrences may be biased by the presence of other EMPs.

Pyroaurite-2H ( $\text{Mg}_6\text{Fe}^{3+}_2(\text{OH})_{16}(\text{CO}_3)_x4\text{H}_2\text{O}$ ) is a relatively common accompanying phase in serpentinite bodies. Being part of the hydrotalcite supergroup, pyroaurite-2H belongs to the layered double hydroxides. Pyroaurite-2H is most frequently having a lamellar habit, but fibrous occurrences have been reported, too.

The fibrous form of pyroaurite-2H has been identified in a chrysotile asbestos-rich serpentinite mass, part of Gomsiqe ultramafic massif in Korthpulë, Albania. In slip-fiber arrangement, fibrous chrysotile appears closely associated with pyroaurite-2H and brucite ( $\text{Mg}(\text{OH})_2$ ). From the initial macroscopic and microscopic investigation a clear discrimination between these phases was not at all possible. Scanning electron microscopy equipped with energy dispersive spectrometry (SEM-EDS) and Raman-microspectroscopy was used for the discrimination of the fibrous phases closely related in the serpentinite mass.

The appearance of a clearly hazardous (carcinogenic) fibrous phase (chrysotile, regulated asbestos) in intimate mixture with less hazardous, possibly fibrous phases (brucite – variety nemalite; pyroaurite-2H) points to the fact that detailed local phase and chemical analysis is unavoidable to properly estimate the asbestos hazard at NOA localities. Only a macroscopic evaluation would lead us to an overestimation of the chrysotile asbestos fibers present in the host rock.

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