

## **Minealogical Characteristics of Naturally Occurring Asbestos from Ultramafic Rocks in the Hongseong, Korea.**

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Most of the Naturally Occurring Asbestos (NOA) has been known to form under ultramafic rocks undergoing deformation. NOA is exposed and scattered as a result of natural weathering processes around Hongseong areas. So, the purpose of this study was to investigate mineralogical characteristics and elucidate alteration process of NOA in Hongseong, Korea.

Fibrous asbestos and ultramafic rocks near abandoned asbestos mines in Hongseong, Korea were sampled. XRD and thin-section analyses were conducted to examine the mineral assemblages and mineralogical characteristics of the rock samples. SEM-EDS analysis was used for the morphological and chemical composition.

As results of XRD and thin-section, the ultramafic rocks in Hongseong occurred in the range from strongly to completely serpentinized peridotite. All samples contained serpentine (chrysotile and antigorite), magnetite and talc. Some samples consisted of serpentine (nearly 70%) with a small amount of tremolite, calcite and dolomite. Mesh textures comprised serpentine mesh rims and relict olivine mesh cores. Most olivines were altered with serpentine vein replacing olivine and commonly replaced by fibrous amphibole (tremolite) between pyroxene and spinel. SEM-EDS results on the chrysotile fibres presented parallel and continuous over the vein width in morphology and composed of Mg, Si and O. Tremolite fibres consisting of Ca, Mg, Si and O were asbestiform but single crystals might occur as individual asbestiform, non-asbestiform and cleavage fragments derived from larger crystals.

These results suggested that chrysotile and tremolite may coexist in the ultramafic rocks. The mesh textures indicated the formation of fibrous chrysotile and the main sources of  $\text{SiO}_2(\text{aq})$  may have released during pyroxene serpentinization and then followed by the formation of tremolite fibres.