

OCCURRENCE OF SURSASSITE, $Mn_2Al_3(SiO_4)(Si_2O_7)(OH)_3$, IN THE LIENNE VALLEY, STAVELOT MASSIF

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In quartz veinlets crosscutting the red purple schists of the Ottré Formation (Salm Group) in the core of the Lienne syncline, sursassite occurs as orange red needles associated with manganese oxide masses mostly constituted by cryptomelane. Detailed petrographic observations coupled with electron microprobe analytical work reveal sursassite in close association with spessartine, manganooan clinocllore, fluorapatite, and hematite.

The chemical composition of sursassite shows the presence of about 2 wt % MgO, and up to 4 wt % CaO, whereas FeO does not exceed 1 wt %. These substitutions are interpreted in comparison with pumpellyite-(Mg), $Ca_2MgAl_2(SiO_4)[Si_2O_6(OH)](OH)_3$. Heterogeneities have also been detected in the distribution of V and As. From a chemical point of view, these zones rich in V and As correspond to ardennite s.l., $Mn_4(Al_5Mg)(SiO_4)_2(Si_3O_{10})[(V,As)O_4](OH)_6$, previously identified in Bierleux.

The unit-cell parameters of sursassite are given and its infrared spectrum is briefly discussed. Sursassite constitutes a new additional phase among the minerals characteristic of the low-grade metamorphism known in the Lienne valley, in the western part of the Stavelot Massif, i.e. about 300°C and 1.5kb. As for the occurrence of the manganooan clinocllore, it is reasonable to envisage the formation of sursassite in the quartz veins during the retrograde process at the beginning of the temperature decline.