Abstract Submission

T3 - Minerals, systematics, gems, collections
Mineral Classification: Archetypes, Species, and Natural Kinds

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Two new minerals: zinconigerite-2N1S and zinconigerite-6N6S

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Abstract Content: Zinconigerite-2*N*1*S* $ZnSn_2Al_{12}O_{22}(OH)_2$ and zinconigerite-6*N*6*S* $Zn_3Sn_2Al_{16}O_{30}(OH)_2$ are two new minerals with different numbers and ratios of nolanite (*N*) and spinel (*S*) modules. Both phases have been discovered in the Xianghualing skarn, Hunan Province, China. Both phases occur as aggregates, sub-to-euhedral crystals, with maximal dimensions up to 100 μm, within fluorite aggregates, and are closely associated with phlogopite, chrysoberyl, magnetite, cassiterite etc.. They do not show fluorescence in long- or short-wave ultraviolet light. The calculated densities are 4.456 g/cm^3 for zn-2*N*1*S* and 4.438 g/cm^3 for zn-6*N*6*S*. Both phases have trigonal symmetry; the unit cell parameters of zn-2*N*1*S* (*Pm*1) and zn-6*N*6*S* (*Rm*), refined from single-crystal X-ray diffraction data, are, a = 5.7191 (2) and 5.7241 (2) Å, c = 13.8380 (6) and 55.5393 (16) Å, V = 391.98 (3) and 1575.96 (12) Å^3, and Z = 1 and 3, respectively. The structure of zn-*2N1S* is characterized by the alternating O-T_1-O-T_2-O-T_1 layers stacked along the *c*-axis, showing the connectivity of *N*-*S*-*N*. Whereas the polyhedral stacking sequence of zn-6*N*6*S* is 3 × (O-T_1-O-T_2-O-T_2-O-T_1), reflecting a *N*-*S*-*S*-*N*-*N*-*S*-*S*-*N*-*N*-*S*-*S*-*N* connectivity of the polysomatic structure (Fig.2). The discovery of zn-2*N*1*S* and zn-6*N*6*S* provide new insights into the crystal chemistry of the *N*-*S* polysomatic series and their origin.

Disclosure of Interest: None Declared