

Zur Kristallchemie der Silber-Mangan-Oxovanadate $\text{Ag}_2\text{BaMnV}_2\text{O}_8$ und $(\text{AgCa}_2)\text{Mn}_2(\text{VO}_4)_3$

On the Crystal Chemistry of the Silver Manganese Oxovanadates $\text{Ag}_2\text{BaMnV}_2\text{O}_8$ and $(\text{AgCa}_2)\text{Mn}_2(\text{VO}_4)_3$

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Z. Naturforsch. **53 b**, 291–295 (1998); eingegangen am 12. Januar 1998

Barium, Calcium, Manganese, Vanadium Oxide, Crystal Structure

Single crystals of $\text{Ag}_2\text{BaMnV}_2\text{O}_8$ (**I**) and $(\text{AgCa}_2)\text{Mn}_2(\text{VO}_4)_3$ (**II**) have been prepared by reactions of metallic silver and mixtures of $\text{MnCO}_3 \cdot \text{H}_2\text{O}$, V_2O_5 and **I/II**: $\text{BaCO}_3/\text{CaCO}_3$. Crystal structure investigations by X-ray methods led to **I**: trigonal symmetry, $C_{3i}^1\text{-P}\bar{3}$, $a = 5.5693(4)$, $c = 7.2706(6)$ Å, $Z = 1$ and **II**: cubic symmetry, $O_h^{10}\text{-Ia}\bar{3}d$, $a = 12.6084(9)$ Å, $Z = 8$. Despite of different symmetry compound **I** is strongly related to the monoclinic compounds $\text{Ag}_2\text{SrCuV}_2\text{O}_8$ and $\text{Na}_2\text{BaCuV}_2\text{O}_8$, respectively. **II** belongs to the garnets. Compound **I** is characterized by $[\text{BaO}_8]$ nets with incorporated V^{5+} and Ag^+ ions. The $[\text{BaO}_8]$ nets are connected by Mn^{2+} ions. A discussion of structural details of **I** with respect to $\text{Ag}_2\text{SrMnV}_2\text{O}_8$, $\text{Na}_2\text{BaCuV}_2\text{O}_8$ and the two modifications of $\text{K}_3\text{Na}(\text{CrO}_4)_2$ is given.

* Sonderdruckanforderungen an Prof. Dr. Müller-Buschbaum.