Silver, Caesium, Borate, Synthesis, Crystal Structure.

Single crystals of $\text{Ag}_2\text{Cs}[\text{B}_{15}\text{O}_{24}]$ were prepared by using a $\text{B}_2\text{O}_3$ flux technique with $\text{Ag}_2\text{CO}_3$ and $\text{Cs}_2\text{CO}_3$ in a closed silver tube at 650 °C. X-Ray investigations led to a new crystal structure in the space group $P\overline{2}12_12_1$ (Nr. 18) with lattice parameters $a = 1778.7$ (4); $b = 2219.2$ (4); $c = 512.2$ (1) pm, $Z = 4$. The silver atoms are part of distorted $\text{AgO}_4$ tetrahedra and planar $\text{AgO}_3$ units while the caesium atoms are eightfold coordinated by oxygen. The compound contains an as yet unknown borate anion $[\text{B}_{15}\text{O}_{24}]^{3-}$ with twelve $\text{BO}_3^-$ and three $\text{BO}_4^-$ units per formula. The $\text{BO}_3^-$ units are connected to eight cords twisted to helices which are combined via $\text{BO}_4^-$ tetrahedra to a three dimensional framework with large tunnels occupied by the cations.

* Sonderdruckanforderungen an Dr. K. Bluhm.