

Über $\text{CuDy}_2[\text{B}_8\text{O}_{16}]$ und $\text{CuHo}_2[\text{B}_8\text{O}_{16}]$: Zwei neue „Metaborate“ mit einem ${}^1_{\infty}[\text{B}_8\text{O}_{16}]^{8-}$ -Anion

On $\text{CuDy}_2[\text{B}_8\text{O}_{16}]$ and $\text{CuHo}_2[\text{B}_8\text{O}_{16}]$:

Two New “Metaborates” with a ${}^1_{\infty}[\text{B}_8\text{O}_{16}]^{8-}$ Anion

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Nearly colourless single crystals of the compounds $\text{CuDy}_2[\text{B}_8\text{O}_{16}]$ (**I**) and $\text{CuHo}_2[\text{B}_8\text{O}_{16}]$ (**II**) have been obtained by a B_2O_3 flux technique. They crystallize in the structure of $\text{CuTb}_2[\text{B}_8\text{O}_{16}]$ (**I**) or in an orthorhombic variant (**II**). X-ray investigations on single crystals led to the space group $\text{C}_{2h}^5 - \text{P}2_1/c$ (Nr. 14) with lattice parameters $a = 1025,5(10)$; $b = 836,99(10)$; $c = 621,2(8)$ pm, $\beta = 90.47(10)^\circ$; $Z = 2$ (**I**) and $\text{D}_{2h}^9 - \text{Pbam}$ (Nr. 55) with $a = 840,7(2)$, $b = 616,6(2)$, $c = 1022,0(2)$ pm, $Z = 2$ (**II**). The structures contain ${}^1_{\infty}[\text{B}_8\text{O}_{16}]^{8-}$ chains isolated from each other, which include tri- and tetracoordinated boron. The chains consist of alternating twelve and eight-membered rings of boron and oxygen atoms connected by BO_4 units. Dy^{3+} and Ho^{3+} are octacoordinated and Cu^{2+} is hexacoordinated in elongated octahedra by oxygen. The relation between these two structures is discussed.

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