

Synthesis and Structure of Benzyltriethylammonium Trichlorogermanate(II)

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Z. Naturforsch. **53 b**, 430–433 (1998); received January 30, 1998

Germanium Dichloride, Trichlorogermanate(II)

The reaction of equimolar quantities of $\text{GeCl}_2 \cdot \text{dioxane}$ with $[\text{BzEt}_3\text{N}]^+ \text{Cl}^-$ in tetrahydro-naphthaline gives high yields of $[\text{BzEt}_3\text{N}]^+ [\text{GeCl}_3]^-$. The asymmetric unit of the monoclinic single crystals (from CH_2Cl_2 , space group $\text{P}2_1/c$, $Z = 8$) are comprising two pairs of crystallographically independent cations and anions, each with very similar molecular dimensions. The isolated $[\text{GeCl}_3]^-$ anions have a trigonal pyramidal structure with narrow Cl-Ge-Cl angles in the range from $93.41(5)$ to $98.27(5)^\circ$ and Ge-Cl distances between $2.293(2)$ and $2.305(2)$ Å. This structure is thus very similar to that of the isoelectronic AsCl_3 molecule and of the $[\text{SeCl}_3]^+$ cation.

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