

Die Kristallstruktur von $[\text{YbCl}_2(\text{THF})_5]^+[\text{WOCl}_4(\text{THF})]^-$

Crystal Structure of
 $[\text{YbCl}_2(\text{THF})_5]^+[\text{WOCl}_4(\text{THF})]^-$

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Sonderdruckanforderungen an Prof. Dr.
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Z. Naturforsch. **54b**, 1609–1610 (1999);
eingegangen am 23. August 1999

Ytterbium, Chloro-THF-Complex, Tungsten,
Crystal Structure

Blue moisture sensitive single crystals of $[\text{YbCl}_2(\text{THF})_5]^+[\text{WOCl}_4(\text{THF})]^-$ were obtained as a by-product from the reaction of the ytterbium trisamide $\text{Yb}[\text{N}(\text{SiMe}_3)_2]_3$ with tungsten hexachloride in THF solution. The crystals were suitable for an X-ray crystal structure determination. Space group $P2_1/c$, $Z = 2$, lattice dimensions at -80°C : $a = 1192.5(1)$, $b = 1117.1(1)$, $c = 1349.9(1)$ pm, $\beta = 104.115(7)^\circ$, $R = 0.0424$. The structure consists of cations $[\text{YbCl}_2(\text{THF})_5]^+$ in which the ytterbium atom is coordinated in a pentagonal-bipyramidal way by the chlorine atoms in the axial positions and by the oxygen atoms of the THF molecules in equatorial positions. Counterions are the well-known $[\text{WOCl}_4(\text{THF})]^-$ ions.