$ScOH(CH_3SO_3)_2$, a Basic Methanesulfonate of Scandium with Chain Structure

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Single crystals of $ScOH(CH_3SO_3)_2$ were obtained from a solution of $Sc_2(CO_3)_3$ in methanesulfonic acid at pH 7. According to the X-ray single crystal structure determination, the compound crystallizes with the non-centrosymmetric orthorhombic space group $Pmc2_1$ ($Z = 8$, $a = 743.92(8)$, $b = 1497.7(3)$, $c = 1540.1(2)$ pm, $R_{all} = 0.0925$) and contains the Sc^{3+} ions in octahedral coordination of oxygen atoms which belong to two OH^- and four $CH_3SO_3^-$ ions. The linkage of the Sc^{3+} ions leads to chains according to the formulation $^1_\infty[Sc(CH_3SO_3)_{4/2}(OH)_{2/2}]$ which are oriented along the [100] direction and connected *via* hydrogen bonds. The IR spectrum of the compound shows the typical bands of the $CH_3SO_3^-$ ion.

Key words: Scandium, Methanesulfonate, Crystal Structure