Singly Charged $\lambda^6Si$-Silicate Anions with an $SiF_5C$ Skeleton: Syntheses and Crystal Structure Analyses of the Ionic Hexacoordinate Silicon Compounds $[Me_3NH][F_5SiCH_2NMe_2H] \cdot H_2O$ and $[Me_3NH][F_5SiCH_2NMe_3] \cdot H_2O$

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The zwitterionic $\lambda^5Si$-tetrafluorosilicates $F_4SiCH_2NMe_2H$ (1) and $F_4SiCH_2NMe_3$ (2) behave as Lewis acids and react with $[Me_3NH]F$ (molar ratio 1:1) in aqueous solution to yield the ionic $\lambda^6Si$-pentafluorosilicates $[Me_3NH][F_5SiCH_2NMe_2H]$ (3) and $[Me_3NH][F_5SiCH_2NMe_3]$ (4), respectively. These hexacoordinate silicon compounds contain singly charged $\lambda^6Si$-silicate anions ($[F_5SiCH_2NMe_2H]$−, $[F_5SiCH_2NMe_3]$−) with an $SiF_5C$ skeleton. Compounds 3 and 4 were isolated as the crystalline hydrates $3 \cdot H_2O$ (yield 80%) and $4 \cdot H_2O$ (yield 82%) which were structurally characterized by single-crystal X-ray diffraction. The $Si$-coordination polyhedra in the crystals of $3 \cdot H_2O$ and $4 \cdot H_2O$ are slightly distorted octahedra.