Structure of Bis(isobutylammonium) Selenite and its Sesquihydrate

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Isobutylammonium selenite and its sesquihydrate were obtained in low yields by reaction of selenium dioxide with the neat amine in the presence of small amounts of water. Both structures were determined by X-ray methods and proved to contain two independent formula units. In both cases, layer structures $[(CH_3)_2CHCH_2NH_3]_2[SeO_3]$ are formed in which all NH hydrogen atoms act as single hydrogen bond donors, and all selenite oxygen atoms accept two hydrogen bonds. The layers contain six independent rings; the anhydrous substance has all rings of graph set $R_4^3(10)$, whereas the sesquihydrate has two each of $R_4^4(12)$, $R_4^2(8)$ and $R_4^3(10)$. The three independent water molecules of the sesquihydrate attach themselves to the layer structure by further classical hydrogen bonds to the selenite oxygen atoms.

Key words: Selenite, Ammonium, Hydrogen Bonds