

Surite: Its Structure and Properties

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ABSTRACT

Surite has been reported to be a mineral that intercalates cerussite-like materials in a smectite interlayer. However, the chemical analysis and infrared absorption spectra indicate that the interlayer material has the composition of $\text{Ca}_{0.5}\text{OH}\cdot 2\text{PbCO}_3$. A one-dimensional Fourier synthesis of electron density for acid-treated surite shows that the 2:1 layer of surite has the structure of a general smectite (the distance between the Si plane and the apical O atom plane is about 1.6 Å). Moreover, the one-dimensional Fourier synthesis method showed that the crystal structure of surite is a 2:1 dioctahedral smectite interlayered with basic lead calcium carbonate.