
Rectorite and the Rectorite-like Layer Structures*

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* Acknowledgement is made to the donors of the Petroleum Research Fund, administered by the American Chemical Society, for partial support of research related to this analysis.

Abstract: Recurrent reports of analyses of X-ray diffraction data from regularly alternating and nearly regularly alternating structures like rectorite provide opportunity for a descriptive discussion of their nature. MacEwan-transform-based analyses have uniformly shown higher incidence of unlike adjacent layers than would be expected from random distribution.

The continuous Fourier transforms for pairs of 2 : 1 layer silicate structures evaluated normal to the layers, provide a family of similar curves that are differently stretched out in reciprocal space for different assumed intervals between the two members of a pair.

For each exactly alternating example the relative amplitudes of the ordered reciprocal nodes distinguish the instances for which fixed interlayer populations are Na⁺ from those for which they are K⁺.

For sequences not exactly alternating scattering maxima are displaced from exact incremental positions in conformity with the Hendricks and Teller mixing functions, but relative intensities of adjacent observations still distinguish the alkali identities.

Clays and Clay Minerals; July 1970 v. 18; no. 2; p. 115-119; DOI: [10.1346/CCMN.1970.0180207](https://doi.org/10.1346/CCMN.1970.0180207)

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