Charoite and its morphological variety charoite-mimic asbestos were studied by various methods (mineralogical, chemical, electron microscopy, SAED-patterns). The obtained crystallographic characteristics (a = 19.60(5), b = 32.01(5), c = 7.25(5) Å, β = 94°, Z = 4, space group one of P2/m) and crystallochemical formula (K,Na)5(Ca, Ba,Sr)8[Si6O15]2[Si2O16](OH,F)·nH2O differ from those suggested by the discoverers.

Taking into account the real relations of minerals in the rock (miserite, charoite, apophyllite, fodorite), a model for the charoite crystal structure has been constructed (space group P2/m, 87 independent atoms, 237 positional parameters) which inherits the structural peculiarities of muscovite-planes formed by rings of Si6O15 along the "a" axis. The construction of a model and its further refinement is probably the only possible way to determine the structure of charoite which is too fine-grained for a X-ray single-crystal study.

**08.4-8 GEOMETRY OF OCTAHEDRAL COORDINATION IN MICA - A REVIEW OF REFINED STRUCTURES.**

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Data for 62 refined crystal structures of micas yielded octahedral bond lengths cation-anion and were used to calculate MEFIR (mean fictive ionic radii) of octahedral cations, octahedral angle ψ, counter-rotation of anion triads θ, and two ratios of octahedral edges R1, R2. All of these were used as variables in a statistical analysis. The most important results are as follows.

All octahedra are flattened, those around larger cations usually more than those around smaller ones. Flattening dominates over counter-rotation in octahedra with large cations and vice versa, apparently because the sheet tends to maintain a uniform thickness.

Mean counter-rotation in a sheet θ correlates well with the scatter of bond lengths or MEFIR and results from interactions in the whole sheet.

Both counter-rotation and octahedral angle for individual octahedra can be predicted by regression equations from bond lengths or MEFIR for all octahedra in the 1K subcell. The regressions permit one to predict octahedral geometry from chemistry and an assumed cation ordering or, inversely, to check the results obtained.

Multiple linear regressions yielded a set of bond lengths cation-oxygen and effective ionic radii for octahedral cations and the vacancy.