layers and motive of their interstratifications have been defined.

The established crystallochemical features and the regularities in distribution of clay minerals allowed decomposition zones at significant depths to be found out and the character as well as the degree of epigenetic transformations of Triassic rocks of West Siberian Plate penetrated by TCG-6 well to be refined.

This work was supported by RFFI grant No 96-05-65943.

PS08.02.17 CRYSTAL-CHEMICAL STUDY OF KAlSi3O8-
KFeSi3O8 SOLID SOLUTION SERIES. V.V. Turoev, V.L. Tauson, H. Kroli, J. Gottlicher.

The monoclinic mixed crystals K(Fe,Al)Si3O8 are synthesized under hydrothermal conditions from pure oxides in KOH solution at temperatures 500 and 600°C and pressure ca. 100 MPa. The mixed crystals up to 2 mm were obtained. An extensive formation of solid solution was observed only when sufficiently high oxygen fugacities corresponding to Cu-CuO buffer assemblage (up to 60 mole per cent of KFeSi3O8). The unit cell edges vs. mole fraction of oxide can be approximated using the well-known Eberhard's solvus for monoclinic Al-Fe-potassium feldspar (Eberhard, 1965). The descripancy may be explained by the dispersed state of phases in Eberhard's experiments, and the possibility of crystallite size effect (Tauson & Akimov, 1993) or the absence of oxygen fugacity control.

References:

PS08.02.18 TRANSFORMATIONS OF CUBIC LAZURITE
WITH INCOMMENSURATE-MODULATED STRUCTURE. V.L. Tauson, A.N.Sapozhnikov, K.E. Kuznetzov, and V.V. Akimov, Institute of Geochemistry, Irkutsk, 664033, Russia.

The sodalite-like minerals are the convenient object for studying different types of structure modifications, especially that ones which can be considered as the result of forced equilibria attainment (Tauson & Akimov, 1993; 1994). The set of results is performed using lazurite sample of composition (Na,Ca1.7)4.5Si2Al0.5O7(SO4){Si2Cl}(Baika1 region) deposit. The sample is characterized with the three-dimensional incommensurate modulation of structure with the modulation parameter a0=0.217. When annealed in air, the sample changes the initial modulation to the commensurate one with a0=0.168 via an intermediate state without superstructure. The diagrams of lazurite stability on coordinates of equilibriums T, P=0 atm are presented. The lazurite is unstable under O2>10-14-10-12 bars and decomposes with the formation of complex sulphates of Na, Ca and Al which are qualitatively similar to the clusters observed in lazurite and lazurite, structures. However, the actual reason of lazurite instability lies in the high SO4, not high SO2, value. Under a sufficiently low SO2, lazurite undergoes the transformation to the sulfide sodalite because the SO2- ion loses its stability. This is accompanied by a strong contraction of the lazurite lattice. Under very low SO2 (<10-14 bar) at 550°C, a new phase with incommensurate modulation of 0.136 is observed in addition to S-sodalite. For moderate SO2 values, the ordering and condensation of clusters occure before lazurite decomposition. As a result, a persistent density modulation is formed which originates from the balance of cluster ordering energy and Na-Ca mixing energy because the formation of cluster condensates needs a local change in solid solution composition for its accommodation to the clusters stoichiometry. This state is recognized as metastable forced equilibrium of type II.

References:

PS08.02.19 THE INFLUENCE OF COMPOSITION AND EXTERNAL ACTIONS ON MICA CRYSTALS STRUCTURE. V. V. Veyna, V.A. Lioppo, Phys. & Engin. Dept., Grodno State University, Grodno, BELARUS. 230202

Structural variations of the mica crystals with different degrees of hydration (G) in the processes of heating and mechanical deformations were studied. The G-values of phlogopite (Ph) crystals, their interplanar distances (d=(001)), the relative K-maximum altitude on Z-projection of electron density (Z), the IR-absorption factor for 3550 sm-1 (A), concentrations of 14 Å layer (W), microhardnesses (H) are bounded by relations G=d−Z1=A−W−H1. Symmetries of the thermal expansion tensor and the tensor of elasticity for trioctahedral Ph and dioctahedral muscovite (M) were γ=mmmm and γmμm respectively. The ratios of major axes of these tensors are determined. The scheme of the thermic destruction for different mica crystals was investigated. The measure of crystal defectivity is a ratio of structural deformation to the macro ones when external forces are the same. The structural variations in the heating and strain processes for mica crystals with different hydration degrees are the biggest ones in the interlayer interval. The changes of geometrical sizes of the structural polyhedrons and their turnings at heating depend on the crystal composition and external forces. The principal differences between the tri- and dioctahedral micas (Ph and M in our case) crystals structural variations in the processes of heating and strain are determined by possibility of trioctahedral mica to form mixed-layer structures.

PR08.02.20 THE CRYSTAL STRUCTURE OF
SCOMIOKITE-(Y), Na3Y(CO3)3.H2O, Pushcharovsky, Dmitry Yu., Rastsveneva, Ramisa K3, Pekov, I.V., 1Department of Geology, Moscow State University, 119899 Moscow, Russia; 1Institute of Crystallography RAN, 117333 Moscow, Russia.

Among 11 carbonate minerals, which contain Y atoms in the individual positions, schomikolite-(Y), Na3Y(CO3)3.H2O is chemically related to orthorhombic tengerite Y3(CO3)2.3H2O, kimurite CaY(CO3)3.6H2O, lokkite CaY(CO3)3.9H2O and tetragonal kargasheikite-(Y) CaY(CO3)3(OH).H2O. The aim of the present study is to determine the position of schomikolite inside of this crystal chemical family.

The parameters of the orthorhombic cell are: a=7.358, b=10.034, c=5.946Å, sp. gr. Pnma. The structure was refined up to R=0.059 for 1973 observed reflections. The structure contains isolated mixed complexes, formed by YO6 polyhedra, which share their three edges with CO3 groups. YO6 polyhedra can be considered as 3-capped pseudotetragonal antiprisms, where one base is formed by three H2O molecules. Three CO3 groups are characterized by pyramidal distortion with the deviations of C atoms from the planes, formed by O atoms, 0.006, 0.003 and 0.01 Å respectively.

The mixed complexes are considered as relicts of the corruagated polyhedral layers, described in tengerite, kimurite and lokkite, and are connected by Na octahedra and 5-fold polyheda as well as by a system of H-bonds. The interpretation of the structure in terms of the interrupted layers is confirmed by the values of its lattice parameters ~6 and 10 Å, which are parallel to the plane of the sheet and are close to the corresponding values of tengerite, kimurite and lokkite.