08.2.15 INTERSTITIAL CRISTOBALITE TYPE COMPOUNDS
(Na2O)0.56NaAlSiO4. 
By P. Klingenberg and J. Felsche, 
Fakultät für Chemie, Universität Konstanz, Postfach 5560, 7750 Konstanz, FRG.
A new series of interstitial compounds (Na2O)0.56NaAlSiO4 reveals cubic symmetry of the cristobalite type NaAlSiO4-carnegieite host lattice as concentrations of 0.01-0.13 Na2O are intercalated at elevated temperatures under closed system conditions 200-1100°C. The lattice expands correspondingly from a=7.3001(5) to 7.3209(1) Å. The structure model of the end member (Na2O)0.56NaAlSiO4 shows unique (Na2O)- (Na,0) in the high temperature form of 3.17 Å from structure factor calculations based on X-ray powder diffraction data. 67Na sodium atoms and 1/3 oxygens occupying the cage-like 1/3fold oxygen-coordinated position of space group F-43m statistically form a diamond type sublattice in the high cristobalite type host lattice [AlSiO4]4-. Long-term annealing experiments (200 h, 1000-600°C) indicate complex ordering mechanisms from super structure characteristic on X-ray Guinier powder diffraction data. 
At temperatures >1300°C intercalated Na2O is released under open system conditions with Na2O·3.4 H2O. The lattice collapse of the NaAlSiO4 host lattice from cubic to triclinic which is the regular symmetry of NaAlSiO4-carnegieite at temperatures <673°C.
Various single crystal growth experiments failed so far, unfortunately.

08.2.16 CRYSTAL STRUCTURE OF NaFe2(SO4)3·9H2O ·11H2O AND ITS RELATIONSHIPS WITH OTHER SIMILAR COMPOUNDS. By F. Scordari and G. Misella, Departement of Geomineralogy, Bari University, 70121 Bari, Italy.
The title compound has been crystalized from a solution containing Na2SO4·10H2O (3.4g) and Fe2(SO4)3·6H2O (4.3g) at about 35°C. It is the Na-end member of the compounds obtained in the system K2SO4-Na2SO4-Fe2(SO4)3-Na2O (Scordari, B37, 312 (1981) and references therein). All three structures contain Fe3+(SO4)3-(H2O)3-P21/21/22 clusters. The nature of the monovalent cations, as the disorder involving some waters, hydronium and part of the alkaline, seems to be responsible of the different crystallochemical relationships between the clusters quoted above. This is reflected on the symmetry and on the stability of the salts. The main crystal data for our compound are : 

Na(Na)(Na2(NaFe2(SO4)3(CH2OC12H2O) (Cmcm, a = 15.015(1), b = 11.15(3), c = 18.385(4), 4777, R = 0.064 for 1143 observed reflections.)

08.2.17 X-RAY CRYSTALLOGRAPHIC STUDY OF HEXAKIS(PHENYLTHIO)CYCLOTRIPHOSPHAZATRIENE N3P3(SPh)6 
By M.Krishnamoorthy*, L.Ramamurthy*, H.Manohar**, S.Krishnamoorthy*** and J.B.Cameron***
* Department of Physics, Sri Venkateswara University, Tirupati 517502, India.
** Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bangalore 560012, India.
*** Department of Chemistry, Dalhousie University, Halifax, N.S., Canada.
The structure of the title compound has been undertaken as part of a programme on the studies of cyclophosphazenes containing sulphur substituents.
The crystals are orthorhombic, space group P21 21 2 with two molecules in the unit cell of dimensions a = 19.392(2), b = 7.559(2) and c = 12.685(2) Å. The structure was solved by direct methods using visually measured intensities from photographic data and subsequently refined by least-squares with diffractometer data using anisotropic temperature factors to R-value of 0.029 for 1540 observed reflections.
The molecule lies on a two-fold axis. The phosphazene ring is planar. The structural features will be discussed and compared with those of N3P3(103)2 and N3P3(SPh)6 solved earlier.