Chessexite $Na_4Ca_2(Mg,Zn)_3Al_8(SiO_4)_2(SO_4)_{10}(OH)_{10}\cdot 40H_2O$

Crystal Data: Orthorhombic. *Point Group:* n.d. As euhedral, thin, square or rectangular plates, to 0.03 mm.

Physical Properties: *Cleavage:* Indistinct ∥ [101]. Hardness = n.d. D(meas.) = n.d. D(calc.) = 2.21

Optical Properties: Semitransparent. *Color:* White. *Luster:* Silky. *Optical Class:* Biaxial (+). *Orientation:* $X = a$; $Y = c$; $Z = b$. $\alpha = 1.456$ $\beta = 1.460$ $\gamma = 1.480$ 2V(meas.) = 47°

Cell Data: *Space Group:* n.d. $a = 13.70$ $b = 27.96$ $c = 9.99$ Z = 2

X-ray Powder Pattern: Maine mine, France.
13.91 (100), 3.422 (100), 4.85 (90), 3.982 (60), 3.451 (40), 3.322 (40), 2.908 (30)

Chemistry:

	(1)
SiO_2	3.64
Al_2O_3	15.30
ZnO	3.73
MgO	3.50
CaO	3.92
Na_2O	4.44
K_2O	0.30
H_2O	31.11
SO_3	31.91
Total	97.85

(1) Maine mine, France; Ca, Mg, Zn, Si, and Al by AA, Na and K by flame photometry, S by chromatography, and H_2O by TGA; corresponds to $(Na_{3.75}K_{0.17}Ca_{0.08})_{\Sigma=4.00}(Ca_{1.75}Mg_{0.25})_{\Sigma=2.00}(Mg_{1.87}Zn_{1.20})_{\Sigma=3.07}(Al_{7.85}Mg_{0.15})_{\Sigma=8.00}Si_{1.58}S_{10.42}O_{53.46}\cdot 45.13H_2O$.

Occurrence: As a coating on fluorite.

Association: Fluorite, gypsum.

Distribution: From the Maine fluorite mine, near Autun, Saône-et-Loire, France.

Name: For Professor Ronald Chessex, petrographer, University of Geneva, Geneva, Switzerland.

Type Material: Natural History Museum, Geneva, Switzerland, 435/70.

References: (1) Sarp, H. and J. Deferne (1982) Le chessexite, un nouveau minéral. Schweiz. Mineral. Petrog. Mitt., 62, 337-341 (in French with English abs.). (2) (1984) Amer. Mineral., 69, 406 (abs. ref. 1).