Magadiite $NaSi_7O_{13}(OH)_3 \cdot 4H_2O$

Crystal Data: Monoclinic. *Point Group:* n.d. Crystals minute, very thin, platy, with a near-orthogonal habit, may be equant, aggregating into spherulites composing thin laminae; less commonly powdery.

Physical Properties: *Tenacity:* Puttylike. Hardness = Soft. D(meas.) = n.d. D(calc.) = [2.25]

Optical Properties: Translucent to opaque. *Color:* White.
Optical Class: [Biaxial.] $n = 1.48$ 2V(meas.) = n.d.

Cell Data: *Space Group:* n.d. $a = 7.22(5)$ $b = 15.70(5)$ $c = 6.91(5)$ $\beta = 95°54(5)'$ Z = [2]

X-ray Powder Pattern: Lake Magadi, Kenya.
15.41 (100), 3.44 (80), 3.146 (50), 3.30 (35), 5.18 (19), 4.46 (18), 5.01 (16)

Chemistry:

	(1)	(2)	(3)
SiO_2	77.62	77.78	76.38
TiO_2	0.06	trace	
Al_2O_3	0.79	0.20	
Fe_2O_3	0.55	0.12	
MnO	0.01	< 0.01	
MgO	0.26	0.44	
CaO	0.14	0.12	
Na_2O	5.55	5.74	5.63
K_2O	0.35	0.10	
H_2O^+	5.28	5.96	
H_2O^-	9.32	9.46	
H_2O			17.99
Total	99.93	99.92	100.00

(1) Lake Magadi, Kenya. (2) Alkali Lake Playa, Oregon, USA. (3) $NaSi_7O_{13}(OH)_3 \cdot 4H_2O$.

Occurrence: In silts of upper Pleistocene to recent age, precipitated by evaporation of saline brines (Lake Magadi, Kenya); in veins cutting playa sediments and in muds associated with alkali salts and brines (Alkali Lake Playa, Oregon, USA); in altered volcanic rocks (Trinity Co., California, USA); in marble xenoliths in an intrusive alkalic gabbro-syenite complex (Mont Saint-Hilaire, Canada); in miarolitic cavities in a nepheline syenite sill (near Saint-Amable, Canada).

Association: Kenyaite, calcite (Lake Magadi, Kenya); kanemite (Lake Chad, Chad); bavenite, pectolite, apophyllite, phlogopite, quartz, thaumasite (Mont Saint-Hilaire, Canada); varennesite, natroite, eudialyte, shkatulkalite, makatite, pectolite, sphalerite, monazite-(Ce), serandite, zakharovite, lorenzenite, aegirine, tuperssuatsiaite (near Saint-Amable, Canada).

Distribution: From Lake Magadi and Lake Bogoria, Rift Valley, Kenya. In the Kanem area, Lake Chad, Chad. In the USA, on Alkali Lake Playa, Lake Co., Oregon, and about five km north of Trinity Lake, Trinity Co., California. From Mont Saint-Hilaire and near Saint-Amable, Quebec, Canada.

Name: For the Kenyan locality, Lake Magadi.

Type Material: National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 121336.

References: (1) Eugster, H.P. (1967) Hydrous sodium silicates from Lake Magadi, Kenya: precursors of bedded chert. Science, 157, 1177–1180. (2) (1968) Amer. Mineral., 53, 510 (abs. ref. 1). (3) McAtee, J.L., Jr., R. House, and H.P. Eugster (1968) Magadiite from Trinity County, California. Amer. Mineral., 53, 2061–2069. (4) Rooney, T.P., B.F. Jones, and J.T. Neal (1969) Magadiite from Alkali Lake, Oregon. Amer. Mineral., 54, 1034–1043. (5) Brindley, G.W. (1969) Unit cell of magadiite in air, in vacuo, and under other conditions. Amer. Mineral., 54, 1583–1591. (6) Eugster, H.P. (1969) Inorganic bedded cherts from the Magadi area, Kenya. Contr. Mineral. Petrol., 22, 1–31.