Kanemite $NaHSi_2O_4(OH)_2 \cdot 2H_2O$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals platy with {010} dominant; in spherulites, to 2 mm, isolated and as aggregations.

Physical Properties: *Cleavage:* Perfect on {010}, good on {100}. Hardness = ∼4
D(meas.) = 1.926(4) D(calc.) = 1.933

Optical Properties: Translucent to transparent. *Color:* White to brown. *Luster:* Silky. *Optical Class:* Biaxial (–). *Orientation:* $X = b$; $Y = a$; $Z = c$. *Dispersion:* $r > v$. $\alpha = 1.451(2)$ $\beta = 1.470(2)$ $\gamma = 1.478(2)$ 2V(meas.) = 46(2)°

Cell Data: *Space Group: Pnmb.* $a = 7.282(2)$ $b = 20.507(5)$ $c = 4.956(1)$ $Z = 4$

X-ray Powder Pattern: Andjia, Chad.
10.33 (10), 4.014 (10), 3.435 (9), 2.480 (8), 3.162 (7), 3.093 (7), 2.386 (6)

Chemistry:

	(1)	(2)
SiO_2	56.68	57.5
Al_2O_3	0.40	
CaO	0.20	0.5
Na_2O	13.25	13.2
K_2O	0.10	1.2
$H_2O(>280°)$	4.25	
$H_2O(170°-280°)$	8.45	
$H_2O(<170°)$	16.30	
H_2O		27.5
Total	99.63	99.9

(1) Andjia, Chad; corresponding to $(Na_{0.93}K_{0.07})_{\Sigma=1.00}H_{1.03}(Si_{2.06}Al_{0.01})_{\Sigma=2.07}O_{4.13}(OH)_{2.04} \cdot 1.97H_2O$. (2) Lake Bogoria, Kenya; by AA, H_2O by TGA.

Occurrence: In evaporites in an interdunary depression (Andjia, Chad).

Association: Gaylussite, trona (Andjia, Chad); magadiite, analcime, mordenite (Lake Bogoria, Kenya).

Distribution: In the Kanem region, near Andjia, Chad. From Lake Bogoria, Rift Valley, Kenya.

Name: After Kanem, a region on the northeastern edge of Lake Chad, Chad, where the mineral was discovered.

Type Material: National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 123219, 142501.

References: (1) Johan, Z. and G.F. Maglione (1972) La kanemite, nouveau silicate de sodium hydraté de néoformation. Bull. Soc. fr. Minéral., 95, 371–382 (in French with English abs.). (2) (1974) Amer. Mineral., 59, 210 (abs. ref. 1). (3) Perinet, G., J.-J. Tiercelin, and C.E. Barton (1982) Présence de kanemite dans les sédiments récents du lac Bogoria, Rift Gregory, Kenya. Bull. Minéral., 105, 633–639 (in French with English abs.). (4) Beneke, K. and G. Lagaly (1977) Kanemite – innercrystalline reactivity and relations to other sodium silicates. Amer. Mineral., 62, 763–771.