Trinepheline $NaAlSiO_4$

Crystal Data: Hexagonal. *Point Group*: n.d. Pseudomorphous after jadeite, as skeletal crystals, to 20 mm, and rarely as pseudo prismatic crystals.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: Brittle. Hardness = ~5-5.5
D(meas.) = n.d. D(calc.) = 2.642

Optical Properties: Transparent. *Color*: White to yellow, colorless in thin section.
Streak: White. *Luster*: Vitreous to greasy.
Optical Class: n.d. *n*(calc.) = 1.538

Cell Data: *Space Group*: $P6_1$. a = 9.995 c = 24.797 Z = 24 [synthetic hexagonal $NaAlSiO_4$]

X-ray Powder Pattern: Calculated pattern. [identifiable only by a combination of scanning electron microscopy, electron microprobe analyses and electron backscatter diffraction]
3.163 (100), 3.834 (81), 4.133 (49), 3.272 (40), 2.403 (31), 4.328 (22), 2.401 (22)

Chemistry:

	(1)
Na_2O	21.68
MgO	0.01
SiO_2	41.76
Al_2O_3	36.19
K_2O	0.08
CaO	0.10
FeO	0.06
Total	99.88

(1) Tawmaw-Hpakant Jade Tract, Myanmar; average of 12 electron microprobe analyses; corresponding to $Na_{1.00}Al_{1.01}Si_{0.99}O_4$.

Occurrence: In serpentinized peridotite, replacing jadeite during late stage metamorphism along veins, likely related to decompression.

Association: Nepheline, fabriesite, more rarely with albite, banalsite, stronalsite.

Distribution: From the Tawmaw-Hpakant Jade Tract, Hpakant Township, Mohnyin District, Kachin State, Myanmar.

Name: For the naturally occurring polymorphs of synthetic $NaAlSiO_4$ with a value of the c crystallographic dimension that is three times that of nepheline.

Type Material: National Museum of Natural History, Paris, France (MNHN 212.001).

References: (1) Ferraris, C., G.C. Parodi, S. Pont, B. Rondeau, and J-P. Lorand (2014) Trinepheline and fabriesite: two new mineral species from the jadeite deposit of Tawmaw (Myanmar). European Journal of Mineralogy, 26(2), 257-265. (2) (2014) Amer. Mineral., 99, 1808-1809 (abs. ref. 1).