Naujakasite $Na_6(Fe^{2+},Mn^{2+})Al_4Si_8O_{26}$

Crystal Data: Monoclinic. *Point Group:* $2/m$, 2, or m. As aggregates of pseudohexagonal plates, to 2 cm.

Physical Properties: *Cleavage:* Perfect micaceous on {001}; {$\bar{4}$01} and {010}, distinct. *Tenacity:* Brittle. Hardness = 2–3 D(meas.) = 2.615–2.622 D(calc.) = 2.661

Optical Properties: Semitransparent. *Color:* Gray to silver-white; colorless in thin section. *Luster:* Pearly on {001}.
Optical Class: Biaxial (–). α = 1.536–1.538 β = 1.548–1.551 γ = 1.555–1.557
2V(meas.) = 52°–71° 2V(calc.) = 62°–75°

Cell Data: *Space Group:* $C2/m$, Cm, or $C2$. a = 15.025(1) b = 7.991(2) c = 10.486(1) $\beta = 113°40(5)'$ Z = 2

X-ray Powder Pattern: Ilímaussaq intrusion, Greenland.
3.99 (100), 3.56 (70), 2.26 (70), 3.69 (60), 3.44 (60), 3.06 (60), 2.79 (60)

Chemistry:

	(1)	(2)
SiO_2	50.95	50.65
TiO_2		0.03
Al_2O_3	20.63	20.64
Fe_2O_3	2.76	2.18
FeO	5.25	4.46
MnO	0.57	1.09
MgO	0.10	
CaO	0.55	0.3
Na_2O	14.51	18.37
K_2O	0.80	0.49
H_2O^+	2.60	1.71
H_2O^-	1.02	
P_2O_5		0.07
Total	99.74	[100.00]

(1) Ilímaussaq intrusion, Greenland. (2) Tuperssuatsiait, Greenland; CaO 0.2%–0.4%, Fe^{2+}:Fe^{3+} and H_2O by TGA, recalculated to 100.00%; corresponds to $(Na_{5.67}K_{0.10})_{\Sigma=5.77}(Fe^{2+}_{0.60}Mn_{0.14}Ca_{0.06})_{\Sigma=0.80}(Al_{3.87}Fe^{3+}_{0.27})_{\Sigma=4.14}Si_{8.08}O_{26}\bullet 1.83H_2O$.

Occurrence: In an alkalic intrusion.

Association: Arfvedsonite, sodalite, steenstrupine, analcime.

Distribution: In southern Greenland, in the Ilímaussaq intrusion, at Naujakasik, at Tuperssuatsiait Bay, and on the Kvanefjeld Plateau, all around the Tunugdliarfik Fjord.

Name: For the locality of original discovery, Naujakasik, Greenland.

Type Material: University of Copenhagen, Copenhagen, Denmark, 1933.31; National Museum of Natural History, Washington, D.C., USA, 97479.

References: (1) Bøggild, O.B. (1933) Igalikite and naujakasite, two new minerals from South Greenland. Medd. Grønland, 92(9), 1–12. (2) (1935) Amer. Mineral., 20, 138 (abs. ref. 1). (3) Peterson, O.V. (1967) The mineralogy of naujakasite. Medd. Grønland, 181(6), 1–18. (4) (1968) Amer. Mineral., 53, 1780 (abs. ref. 3). (5) Petersen, O.V. and S. Andersen (1975) The crystal habit of naujakasite. Geol. Sur. Greenland, Rep. 116, 5–9. (6) Basso, R., A. Dal Negro, A. Della Guista, and L. Ungaretti (1975) The crystal structure of naujakasite. Geol. Sur. Greenland, Rep. 116, 11-24. (7) (1976) Chem. Abs., 84, 129188 (abs. ref. 6). (8) Khalilov, A.D., N.K. Dzhafarov, and K.S. Mamedov (1977) Crystal structure of naujakasite – $Na_6\{Fe^{2+}[(Si,Al)_8Si_4O_{26}]\}$. Dokl. Acad. Nauk Az. SSR, 33(7), 35–40 (in Russian). (9) (1978) Chem. Abs., 88, 113658 (abs. ref. 8).