

**Crystal Data:** Triclinic, pseudo-hexagonal. *Point Group:*  $\bar{1}$  or 1. Granular, to 5 mm.

**Physical Properties:** *Cleavage:* {001} and {110}, perfect. *Tenacity:* Brittle. Hardness = 3 VHN = 86–172, 100–165 averages.  $D(\text{meas.}) = 2.56$   $D(\text{calc.}) = 2.55$  Alters superficially to a white powder in air; slowly decomposed by  $\text{H}_2\text{O}$ .

**Optical Properties:** Transparent. *Color:* Colorless if fresh. *Luster:* Vitreous, pearly on cleavages; dull when altered.

*Optical Class:* Biaxial (-). *Orientation:*  $X \simeq \{001\}$ ;  $X \wedge a \simeq 45^\circ$ . *Dispersion:*  $r < v$ , weak.  $\alpha = 1.358(2)$   $\beta = 1.479(2)$   $\gamma = 1.530(2)$   $2V(\text{meas.}) = 62^\circ$

**Cell Data:** *Space Group:*  $P\bar{1}$  or  $P1$ .  $a = 6.472(2)$   $b = 6.735(2)$   $c = 8.806(2)$   
 $\alpha = 92.50(2)^\circ$   $\beta = 97.33(2)^\circ$   $\gamma = 119.32(2)^\circ$   $Z = 1$

**X-ray Powder Pattern:** Mt. Restin'yun, Kola Peninsula, Russia.  
 2.778 (100), 2.658 (100), 2.887 (84), 2.169 (70), 2.316 (50), 1.870 (42), 2.543 (30)

Chemistry:	(1)	(2)
$\text{CO}_2$	31.45	34.79
$\text{Al}_2\text{O}_3$	10.5	10.08
$\text{Na}_2\text{O}$	44.1	42.87
F	14.0	15.02
$\text{H}_2\text{O}$	3.59	3.56
$-\text{O} = \text{F}_2$	5.9	6.32
Total	97.74	100.00

(1) Mt. Restin'yun, Kola Peninsula, Russia; by electron microprobe, average of three analyses,  $\text{H}_2\text{O}$  and  $\text{CO}_3$  by microchemical methods;  $\text{CO}_3^{2-}$  and  $(\text{OH})^{1-}$  confirmed by IR; corresponds to  $\text{H}_{1.96}\text{Na}_{6.99}\text{Al}_{1.01}(\text{CO}_3)_{3.51}\text{F}_{3.62}$ . (2)  $\text{H}_2\text{Na}_7\text{Al}(\text{CO}_3)_4\text{F}_4$ .

**Occurrence:** Rare in hydrothermal veinlets in alkalic pegmatites in a differentiated alkalic massif.

**Association:** Shortite, villiaumite, cryolite, neighborite, bonshtedtite, natrite, albite.

**Distribution:** From Mt. Restin'yun, Khibiny massif, Kola Peninsula, Russia.

**Name:** To honor Willem Barents (1550–1597), the famous Dutch seafarer, for whom the Barents Sea, northeast of the Kola Peninsula, was named.

**Type Material:** Geology Museum, Kola Branch, Academy of Sciences, Apatity; Mining Institute, St. Petersburg, 2046/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 82753.

**References:** (1) Khomyakov, A.P., T.A. Kurova, G.N. Nechelyustov, and G.O. Piloyan (1983) Barentsite,  $\text{Na}_7\text{AlH}_2(\text{CO}_3)_4\text{F}_4$ , a new mineral. Zap. Vses. Mineral. Obshch., 112, 474–479 (in Russian). (2) (1984) Amer. Mineral., 69, 565 (abs. ref. 1). (3) Trinh Le Thu, Y.A. Pobedinskaya, V.S. Fundamenskiy, T.N. Nadezhina, and A.P. Khomyakov (1983) Crystal structure of barentsite. Doklady Acad. Nauk SSSR, 273, 699–704 (in Russian).