

**Natromontebrasite****(Na, Li)Al(PO<sub>4</sub>)(OH, F)**

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**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . Anhedral to rough crystals, showing {001}, {010}, {100}, {1 $\bar{2}$ 0}, {0 $\bar{2}$ 1}, { $\bar{1}$ 01}, to 15 cm; usually in cleavable masses. *Twinning:* Polysynthetic, in two directions.

**Physical Properties:** *Cleavage:* {001}, good; {100}, fair. *Fracture:* [Uneven to subconchoidal] (by analogy to amblygonite). *Tenacity:* [Brittle.] *Hardness* = 5.5 *D*(meas.) = 3.01–3.06 *D*(calc.) = n.d. Fluoresces greenish yellow-orange under SW UV, cream-white under LW UV.

**Optical Properties:** Translucent to opaque. *Color:* Grayish to white. *Luster:* Vitreous to greasy, chalky on weathering.

*Optical Class:* Biaxial (+).  $\alpha = 1.594$   $\beta = 1.603$   $\gamma = 1.615$  *2V*(meas.) = Very large.

**Cell Data:** *Space Group:*  $P\bar{1}$ . *a* = n.d. *b* = n.d. *c* = n.d.  $\alpha$  = n.d.  $\beta$  = n.d.  $\gamma$  = n.d. *Z* = n.d.

**X-ray Powder Pattern:** n.d.

<b>Chemistry:</b>	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	44.35	45.81
Al <sub>2</sub> O <sub>3</sub>	33.59	32.90
Na <sub>2</sub> O	11.23	10.02
K <sub>2</sub> O	0.14	
Li <sub>2</sub> O	3.21	4.82
F	5.63	6.13
H <sub>2</sub> O	4.78	2.90
–O = F <sub>2</sub>	2.37	2.58
<b>Total</b>	<b>100.56</b>	<b>100.00</b>

(1) Eight Mile Park, Colorado, USA. (2) (Na, Li)Al(PO<sub>4</sub>)(OH, F) with Na:Li = 1:1 and OH:F = 1:1.

**Mineral Group:** Amblygonite group.

**Occurrence:** In granite pegmatites.

**Association:** Lepidolite, quartz, elbaite, mica (Eight Mile Park, Colorado, USA).

**Distribution:** In the USA, from Eight Mile Park, about six km northwest of Cañon City, Fremont Co., Colorado; in the Strickland quarry, Portland, Middlesex Co., Connecticut. At Jeclov, near Jihlava, Czech Republic. From the Tremearne pegmatite, Breage, Cornwall. In Brazil, large crystals from Presidente Bueno, Rio Doce Valley, Minas Gerais. At the Rusororo pegmatite, Gatumba district, Rwanda.

**Name:** For its content of sodium, *natrium*, and relation to *montebrasite*.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 86843, 87490.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 823–827. (2) Heinrich, E.W. (1948) Pegmatites of Eight Mile Park, Fremont County, Colorado. *Amer. Mineral.*, 33, 550–587, esp. 561–562.