

Crystal Data: Monoclinic. *Point Group:* 2/m. Rough crystals, to 1 cm; as druses, massive.

Physical Properties: *Cleavage:* Indistinct on {111} and {1 $\bar{1}$ 1}. *Hardness* = 4.5
D(meas.) = 3.29 D(calc.) = 3.29

Optical Properties: Transparent. *Color:* Gray, pale yellow to pale green, almost white; colorless in transmitted light. *Luster:* Vitreous, pearly on cleavages.
Optical Class: Biaxial (-). *Dispersion:* $r < v$. $\alpha = 1.546(1)$ $\beta = 1.563(1)$ $\gamma = 1.580(1)$
2V(meas.) = 89(1)^o 2V(calc.) = 89.1^o

Cell Data: *Space Group:* C2/c. $a = 6.414$ $b = 8.207$ $c = 6.885$ $\beta = 115.47^{\circ}$ $Z = 4$

X-ray Powder Pattern: Greifensteine, Germany.
3.155 (100), 2.895 (98), 2.476 (57), 4.73 (51), 2.166 (43), 4.627 (32), 1.578 (27)

Chemistry:	(1)	(2)
P ₂ O ₅	44.7	43.30
Al ₂ O ₃	32.1	31.09
Na ₂ O	16.4	18.90
F	12.3	11.59
-O = F ₂	5.17	4.88
Total	100.3	100.00

- (1) Greifensteine, Germany; by electron microprobe; (OH)¹⁻ absent by IR and structure analysis.
(2) NaAl(PO₄)F.

Occurrence: In druses in granite (Greifensteine, Germany); an alteration product rimming natromontebbrasite in a complex granite pegmatite (Rusororo, Rwanda).

Association: Morinite, viitaniemiite, apatite, childrenite, roscherite, feldspar, tourmaline, quartz (Greifensteine, Germany); montebbrasite, scorzalite, berlinite (Rusororo pegmatite, Rwanda); apatite, augelite, brazilianite, natromontebbrasite (Strickland quarry, Connecticut, USA).

Distribution: Large crystals [from the Koppar quarry,] on the Greifensteine, near Ehrenfriedersdorf, Saxony, Germany. At Lázně Kynzvalt, near Mariánské Lázně (Königswart, near Marienbad), and Ječlov, near Jihlava, Czech Republic. From Montebbras, Creuse, France. In the Rusororo and Buranga pegmatites, near Gatumba, Rwanda. At the Strickland quarry, Portland, Middlesex Co., Connecticut, and in the Mount Rubellite quarry, Hebron, Oxford Co., Maine, USA.

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References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 783. (2) Lahti, S.I. and A. Pajunen (1985) New data on lacroixite, NaAlFPO₄. Part I. Occurrence, physical properties and chemical composition. Part II. Crystal structure. Amer. Mineral., 70, 849–855. (3) Fransolet, A.-M. (1989) The problem of Na–Li substitution in primary Li–Al phosphates: new data on lacroixite, a relatively widespread mineral. Can. Mineral., 27, 211–217.