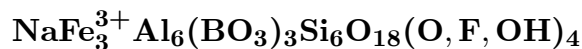


Buergerite

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Crystal Data: Hexagonal. *Point Group:* $3m$. Crystals short to long prismatic, in divergent sprays, segmented, up to 4 cm, with forms $\{11\bar{2}0\}$, $\{30\bar{3}0\}$, $\{10\bar{1}1\}$, and $\{02\bar{2}1\}$.

Physical Properties: *Cleavage:* Distinct prismatic. *Tenacity:* Brittle. Hardness = 7
D(meas.) = 3.31(1) D(calc.) = 3.29 Pyroelectric and piezoelectric.

Optical Properties: Translucent. *Color:* Dark brown to almost black with a bronze schiller.
Streak: Yellow-brown. *Luster:* Vitreous.

Optical Class: Uniaxial (-). *Pleochroism:* O = yellow-brown; E = very pale yellow.
 $\omega = 1.735(3)$ $\epsilon = 1.655(3)$

Cell Data: *Space Group:* $R3m$. $a = 15.869(2)$ $c = 7.188(2)$ $Z = 3$

X-ray Powder Pattern: Mexquitic, Mexico. (ICDD 25-703).
2.563 (100), 2.952 (64), 3.96 (52), 3.47 (48), 6.33 (45), 2.032 (43), 4.20 (40)

Chemistry:

	(1)
SiO ₂	33.86
TiO ₂	0.55
B ₂ O ₃	10.86
Al ₂ O ₃	30.79
Fe ₂ O ₃	17.62
FeO	1.27
MnO	0.13
MgO	0.13
CaO	0.69
Na ₂ O	2.46
K ₂ O	0.07
F	1.86
H ₂ O ⁺	0.40
-O = F ₂	0.78
Total	99.91

(1) Mexquitic, Mexico; corresponds to $(\text{Na}_{0.82}\text{Ca}_{0.13}\text{K}_{0.02})_{\Sigma=0.97}(\text{Fe}^{3+}_{2.29}\text{Al}_{0.27}\text{Fe}^{2+}_{0.18}\text{Ti}_{0.07}\text{Mg}_{0.03}\text{Mn}_{0.02})_{\Sigma=2.86}\text{Al}_{6.00}(\text{B}_{1.08}\text{O}_3)_3\text{Si}_{5.85}\text{O}_{18}[\text{O}_{2.59}\text{F}_{1.02}(\text{OH})_{0.46}]_{\Sigma=4.07}$.

Mineral Group: Tourmaline group.

Occurrence: Of probable pneumatolytic origin, in cavities in a rhyolite.

Association: Quartz, potassic feldspar, plagioclase, biotite, muscovite.

Distribution: From near Mexquitic, San Luis Potosi, Mexico.

Name: To honor Professor Martin Julian Buerger (1903–1986), eminent crystallographer, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA.

Type Material: Royal Ontario Museum, Toronto, Canada, M25021; American Museum of Natural History, New York City, New York, 35468; National Museum of Natural History, Washington, D.C., USA, 122200.

References: (1) Donnay, G., C.O. Ingamells, and B. Mason (1966) Buergerite, a new species of tourmaline. *Amer. Mineral.*, 51, 198–199. (2) Tippe, A. and W.C. Hamilton (1971) A neutron diffraction study of the ferric tourmaline, buergerite. *Amer. Mineral.*, 56, 101–113. (3) Dunn, P.J. (1976) Buergerite, uniformity of composition. *Amer. Mineral.*, 61, 1029–1030. (4) Deer, W.A., R.A. Howie, and J. Zussman (1986) *Rock-forming minerals*, (2nd edition), v. 1B, disilicates and ring silicates, 559–602.

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