

Boromuscovite**KAl₂(Si₃B)O₁₀(OH, F)₂**

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Crystal Data: Monoclinic. *Point Group:* 2/m. Pseudo-hexagonal crystals, to 4 μm, aggregated in coatings on other minerals.

Physical Properties: *Cleavage:* Perfect on {001}; poor {010} parting. *Fracture:* Subconchoidal. Hardness = 2.5–3 in aggregate. D(meas.) = 2.81 (on a mixture). D(calc.) = 2.89 (2M₁); 2.90 (1M).

Optical Properties: Nearly opaque. *Color:* White to buff or pale cream. *Streak:* White. *Luster:* Dull, earthy to porcelaneous.

Optical Class: Biaxial (-). *Orientation:* X ∧ c = -1°; Y ∧ a = 2°; Z = b. *Dispersion:* r > v, weak. α = 1.557(2) β = 1.587(2) γ = 1.593(2) 2V(meas.) = 44(2)° 2V(calc.) = 47.5°

Cell Data: *Space Group:* [C2/c] (2M₁ polytype by analogy to muscovite). a = 5.075(1) b = 8.794(4) c = 19.815(25) β = 95.59(3)° Z = [2], or *Space Group:* [C2/c] (1M polytype by analogy to muscovite). a = 5.077(1) b = 8.775(3) c = 10.061(2) β = 101.31(2)° Z = [4]

X-ray Powder Pattern: Little Three mine, California, USA. 3.569 (100), 4.391 (80), 3.008 (80), 2.505 (80), 9.862 (60), 4.239 (40), 4.007 (40)

Chemistry:	(1)		(1)
SiO ₂	48.1	Na ₂ O	< 0.05
TiO ₂	< 0.01	K ₂ O	11.0
B ₂ O ₃	7.0	Rb ₂ O	0.52
Al ₂ O ₃	28.1	Cs ₂ O	0.05
Fe ₂ O ₃	0.1	F	0.76
MnO	0.08	H ₂ O ⁺	4.55
MgO	0.15	H ₂ O ⁻	0.22
CaO	0.1	P ₂ O ₅	< 0.05
Li ₂ O	0.05	-O = F ₂	0.32
		Total	100.46

(1) Little Three mine, California, USA; by a combination of electron microprobe, XRF, AA, and ICP-atomic emission spectroscopy; corresponding to (K_{0.89}Rb_{0.02}Ca_{0.01})_{Σ=0.92}(Al_{1.93}Li_{0.01}Mg_{0.01})_{Σ=1.95}(Si_{3.06}B_{0.77}Al_{0.17})_{Σ=4.00}O_{9.82}[(OH)_{2.02}F_{0.16}]_{Σ=2.18}.

Polymorphism & Series: 2M₁, 1M polytypes.

Mineral Group: Mica group.

Occurrence: A coating on other minerals on the floor of a pegmatite pocket, hydrothermally deposited after rupture of the pocket.

Association: Lepidolite, quartz, microcline, topaz.

Distribution: From the Little Three mine, Ramona district, San Diego Co., California, USA.

Name: Presumably for the BOROn content and relation to *muscovite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 166821.

References: (1) Foord, E.E., R.F. Martin, J.J. Fitzpatrick, J.E. Taggart, Jr., and J.G. Crock (1991) Boromuscovite, a new member of the mica group, from the Little Three mine pegmatite, Ramona district, San Diego County, California. *Amer. Mineral.*, 76, 1998–2002.

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