

Maruyamaite**K(MgAl₂)(Al₅Mg)Si₆O₁₈(BO₃)₃(OH)₃O**

Crystal Data: Hexagonal. *Point Group:* 3*m*. In the cores of anhedral to euhedral grains to 2 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Splintery. *Tenacity:* Brittle. *Hardness* = ~ 7
D(meas.) = n.d. D(calc.) = 3.081

Optical Properties: Translucent to transparent. *Color:* Pale brown to brown. *Streak:* White to very pale-brown. *Luster:* Vitreous.

Optical Class: Uniaxial (-). $\omega = 1.664(2)$ $\varepsilon = 1.652(2)$ *Pleochroism:* *O* = Dark brown; *E* = pale brown.

Cell Data: Space Group: *R3m*. $a = 15.995(1)$ $c = 7.227(1)$ $Z = 3$

X-ray Powder Pattern: Kumdy-Kol area, Kokchetav Massif, northern Kazakhstan.
2.581 (100), 2.974 (85), 3.995 (69), 4.237 (59), 2.046 (54), 3.498 (42), 1.923 (36)

Chemistry:	(1)
SiO ₂	36.37
Al ₂ O ₃	31.50
TiO ₂	1.09
Cr ₂ O ₃	0.04
Fe ₂ O ₃	0.33
FeO	4.01
MgO	9.00
CaO	1.47
Na ₂ O	0.60
K ₂ O	2.54
F	0.30
B ₂ O ₃	[10.58]
-O = F ₂	0.13
<u>H₂O</u>	<u>[2.96]</u>
Total	100.67

(1) Kokchetav Massif, northern Kazakhstan; average of 11 electron microprobe analyses supplemented by Raman and Mössbauer spectrometry, B₂O₃ and H₂O calculated; corresponds to $X(K_{0.53}Na_{0.19}Ca_{0.26}\square_{0.02})_{\Sigma=1.00}Y(Mg_{1.19}Fe^{2+}_{0.55}Fe^{3+}_{0.05}Ti_{0.14}Al_{1.07})_{\Sigma=3.00}(Al_{5.00}Mg_{1.00})^T(Si_{5.97}Al_{0.03}O_{18})(BO_3)_3(OH)_3(O^{2-}_{0.60}F_{0.16}OH_{0.24})$.

Mineral Group: Tourmaline supergroup.

Occurrence: From ultrahigh-pressure, diamond-bearing gneiss.

Association: Diamond, quartz, K-feldspar.

Distribution: From the Kumdy-Kol area of the Kokchetav Massif, northern Kazakhstan.

Name: Honors Professor Shigenori Maruyama (b. 1949), Earth-Life Science Institute, Tokyo Institute of Technology, Japan, for his work on regional tectonics.

Type Material: National Museum of Nature and Science, Tsukuba, Japan (NSM-MF15696).

References: (1) Lussier, A., N.A. Ball, F.C. Hawthorne, D.J. Henry, R. Shimizu, Y. Ogasawara, and T. Ota (2016) Maruyamaite, K(MgAl₂)(Al₅Mg)Si₆O₁₈(BO₃)₃(OH)₃O, from the ultrahigh-pressure Kokchetav massif, northern Kazakhstan: Description and crystal structure. *Amer. Mineral.*, 101, 355-361.