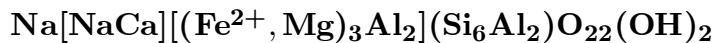


# Taramite



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**Crystal Data:** Monoclinic. *Point Group:* 2/m. As prismatic crystals, to 10 cm; as grains and rims on other amphiboles.

**Physical Properties:** *Cleavage:* [Perfect on {110}, intersecting at ~56° and ~124°; partings on {100}, {001}.] *Tenacity:* [Brittle.] *Hardness* = [5–6] *D*(meas.) = 3.231–3.476 *D*(calc.) = 3.384

**Optical Properties:** Semitransparent. *Color:* Black, black with tinges of blue or green, deep blue-green; pale yellow or blue-green in thin section. *Luster:* [Vitreous.]

*Optical Class:* Biaxial (-). *Pleochroism:* Strong; *X* = pale to light yellow, pale brown; *Y* = deep blue-green, greenish blue; *Z* = deep blue, green, black, deep gray-green. *Orientation:* *X* ≈ *a*; *Y* ≈ *c*; *Z* = *b*. *Absorption:* *Z* > *Y* ≫ *X*.  $\alpha = 1.705(3)$   $\beta = 1.713(4)$   $\gamma = 1.715(3)$  *2V*(meas.) = ~53.7°

**Cell Data:** *Space Group:* C2/m. *a* = 9.923(1) *b* = 18.134(2) *c* = 5.352(1)  $\beta = 104.84(1)^\circ$  *Z* = 2

**X-ray Powder Pattern:** Mbozi complex, Tanzania.

3.15 (100), 8.53 (70), 2.732 (50), 2.605 (30), 2.347 (30), 1.447 (30), 3.29 (25)

<b>Chemistry:</b>	(1)	(2)	(3)		(1)	(2)	(3)
SiO <sub>2</sub>	37.51	38.56	39.05	Na <sub>2</sub> O	3.79	4.71	4.56
TiO <sub>2</sub>	0.73	0.96	1.56	K <sub>2</sub> O	2.10	2.73	1.88
Al <sub>2</sub> O <sub>3</sub>	8.50	10.31	9.98	F	0.14	0.30	
Fe <sub>2</sub> O <sub>3</sub>	11.41	13.12	10.98	Cl		0.15	
FeO	23.21	18.72	18.36	H <sub>2</sub> O <sup>+</sup>	2.32	1.66	1.81
MnO	1.70	1.91	1.38	H <sub>2</sub> O <sup>-</sup>	0.33	0.00	
MgO	0.56	1.24	3.76	-O = (F, Cl) <sub>2</sub>	0.06	0.16	
CaO	7.91	5.78	6.94				
				Total	100.15	99.99	100.26

(1) Vali-Tarama Valley, Ukraine. (2) Mbozi complex, Tanzania; corresponds to  $(\text{Na}_{1.47}\text{K}_{0.56})_{\Sigma=2.03}\text{Ca}_{1.00}(\text{Fe}_{2.52}^{2+}\text{Fe}_{1.59}^{3+}\text{Mg}_{0.30}\text{Mn}_{0.26}\text{Al}_{0.15}\text{Ti}_{0.11})_{\Sigma=4.93}(\text{Si}_{6.20}\text{Al}_{1.80})_{\Sigma=8.00}\text{O}_{22.03}[(\text{OH})_{1.78}\text{F}_{0.15}\text{Cl}_{0.04}]_{\Sigma=1.97}$ . (3) Bancroft, Canada; corresponds to  $(\text{Na}_{1.40}\text{Ca}_{1.18}\text{K}_{0.38})_{\Sigma=2.96}(\text{Fe}_{2.43}^{2+}\text{Fe}_{1.31}^{3+}\text{Mg}_{0.89}\text{Ti}_{0.19}\text{Mn}_{0.18}\text{Al}_{0.04})_{\Sigma=5.04}(\text{Si}_{6.18}\text{Al}_{1.82})_{\Sigma=8.00}\text{O}_{22}(\text{OH})_2$ .

**Polymorphism & Series:** Forms a series with magnesiotalaramite.

**Mineral Group:** Amphibole (sodic-calcic) group:  $\text{Mg}/(\text{Mg} + \text{Fe}^{2+}) < 0.5$ ;  $(\text{Na} + \text{K})_{\text{A}} \geq 0.5$ ;  $0.67 \text{ Na}_{\text{B}} \text{ 1.33; } (\text{Ca} + \text{Na})_{\text{B}} \geq 1.34$ ;  $\text{Si} < 6.5$ .

**Occurrence:** In sodium-metasomatized alkalic gneisses and nepheline syenite dikes; in eclogite metamorphosed to the amphibolite facies.

**Association:** Nepheline, aegirine, oligoclase, microcline, nyböite.

**Distribution:** From the Vali-Tarama Valley, near Mariupol (Zhdanov), Ukraine. From near Miass, Ilmen Mountains, Southern Ural Mountains, Russia. In China, near Lanshantou, Jianchang, Jiangsu Province. At the Mbozi syenite gabbro complex, 80 km southwest of Mbeya, Tanzania. From the Darkainle complex, Borama district, northwest Hargeisa, Somali Republic. In Canada, in the York River area, Bancroft, Ontario.

**Name:** For the type locality, the Vali-Tarama Valley, Ukraine.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, R3259, 95477.

**References:** (1) Morozewicz, J. (1925) Über einige Eisenalkali-amphibole. *Tschermaks Mineral. Petrog. Mitt.*, 38, 210–222 (in German). (2) (1926) *Amer. Mineral.*, 11, 219 (abs. ref. 1). (3) Brock, P.W.G., D.C. Gellatly, and O. von Knorring (1964) Mboziite, a new sodic amphibole end-member. *Mineral. Mag.*, 33, 1057–1065. (4) Hawthorne, F.C. and H.D. Grundy (1978) The crystal chemistry of the amphiboles. VII. The crystal structure and site chemistry of potassian ferri-taramite. *Can. Mineral.*, 16, 53–62.

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