

Keiviite-(Y)**(Y, Yb)₂Si₂O₇**

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Crystal Data: Monoclinic. *Point Group:* 2/*m*. As prismatic crystals, up to 1 mm.

Physical Properties: *Fracture:* Uneven. Hardness = 4–5 D(meas.) = 4.45 D(calc.) = 4.48 Yellow-green cathodoluminescence.

Optical Properties: Semitransparent. *Color:* Colorless to white. *Streak:* White. *Luster:* Vitreous.

Optical Class: Biaxial (–). *Orientation:* $Z = b$; $X \wedge c = 4^\circ$; $Y \wedge a = 7^\circ$. *Dispersion:* $r < v$. $\alpha = 1.713(1)$ $\beta = 1.748(1)$ $\gamma = 1.758(1)$ $2V(\text{meas.}) = 56(2)^\circ$ $2V(\text{calc.}) = 55^\circ$

Cell Data: *Space Group:* $[C2/m]$ [by analogy to keiviite-(Yb)]. $a = 6.845(5)$ $b = 8.960(5)$ $c = 4.734(3)$ $\beta = 101.65(5)^\circ$ $Z = 2$

X-ray Powder Pattern: Mt. Ploskaya, Russia; nearly identical to keiviite-(Yb). 3.23 (10), 4.65 (9), 3.04 (8), 2.280 (7), 5.40 (5), 2.729 (5), 2.692 (5)

Chemistry:

	(1)	(2)
SiO ₂	30.85	30.49
Y ₂ O ₃	40.86	45.86
Gd ₂ O ₃	0.08	0.62
Tb ₂ O ₃	0.10	0.00
Dy ₂ O ₃	1.53	2.92
Ho ₂ O ₃	0.85	1.27
Er ₂ O ₃	6.50	4.40
Tm ₂ O ₃	1.99	1.11
Yb ₂ O ₃	15.36	11.81
Lu ₂ O ₃	2.61	1.05
CaO	0.00	0.30
Total	100.73	99.83

(1–2) Mt. Ploskaya, Russia; by electron microprobe; when averaged with another intermediate analysis, corresponds to (Y_{1.55}Yb_{0.20}Er_{0.10}Dy_{0.08}Ca_{0.04}Tm_{0.02}Lu_{0.02}Ho_{0.02}Gd_{0.01})_{Σ=2.04}Si_{1.98}O₇.

Polymorphism & Series: Forms a series with keiviite-(Yb).

Occurrence: In fissures in quartz and fluorite in “amazonite” pegmatites.

Association: Keiviite-(Yb), thalenite, xenotime, bastnäsite, kuliokite-(Y), quartz, fluorite.

Distribution: From Mt. Ploskaya, Keivy massif, Kola Peninsula, Russia.

Name: For the relation to *keiviite*-(Yb) and the *yttrium* content.

Type Material: Geology Museum, Kola Branch, Academy of Sciences, Apatity, 5958/6; Mining Institute, St. Petersburg, 1343-1/1; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia,

References: (1) Voloshin, A.V., Y.A. Pakhomovskii, and F.N. Tyusheva (1985) Keiviite-(Y) – a new yttrian diorthosilicate, and thalenite from amazonite pegmatites of the Kola Peninsula. Diortho- and triorthosilicates of yttrium. Mineral. Zhurnal, 7(6), 79–94 (in Russian with English abs.). (2) (1988) Amer. Mineral., 73, 191–192 (abs. ref. 1).