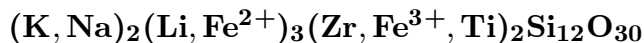


**Sogdianite**

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**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ . Tabular crystals, to 1 cm; in platy aggregates, to 15 cm.

**Physical Properties:** *Cleavage:* {0001}, perfect. Hardness = 5–7  $D(\text{meas.}) = 2.76\text{--}2.90$   
 $D(\text{calc.}) = [2.75]$  Fluoresces dark violet under LW UV and very dark red under SW UV.

**Optical Properties:** Transparent to translucent. *Color:* Violet. *Luster:* Vitreous.

*Optical Class:* Uniaxial (–) [*sic*].  $\omega = 1.606$   $\epsilon = 1.608$

**Cell Data:** *Space Group:*  $P6/mcc$ .  $a = 10.083(5)$   $c = 14.24(1)$   $Z = 2$

**X-ray Powder Pattern:** Dara-i-Pioz massif, Tajikistan; similar to sugilite.

3.20 (10), 2.90 (10), 4.09 (9), 1.838 (8), 1.326 (8), 1.517 (7), 4.51 (6)

**Chemistry:**

	(1)		(1)
SiO <sub>2</sub>	68.83	CaO	0.00
TiO <sub>2</sub>	2.88	BaO	0.32
ZrO <sub>2</sub>	9.78	Li <sub>2</sub> O	3.73
Al <sub>2</sub> O <sub>3</sub>	1.04	Na <sub>2</sub> O	2.81
Fe <sub>2</sub> O <sub>3</sub>	4.61	K <sub>2</sub> O	4.84
FeO	1.22	F	0.00
MnO	trace	H <sub>2</sub> O	0.00
MgO	trace	Total	100.06

(1) Dara-i-Pioz massif, Tajikistan; corresponding to  $(\text{K}_{1.05}\text{Na}_{0.95})_{\Sigma=2.00}(\text{Li}_{2.55}\text{Al}_{0.15})_{\Sigma=2.70}$   
 $(\text{Zr}_{0.8}\text{Fe}_{0.6}^{3+}\text{Ti}_{0.4}\text{Fe}_{0.2}^{2+})_{\Sigma=2.0}\text{Si}_{12}\text{O}_{30}$ .

**Mineral Group:** Milarite group.

**Occurrence:** In a pegmatite vein with a composition about that of an alkalic granite.

**Association:** Thorite, stillwellite, pyrochlore, tienshanite, thorite, cesium kupletskite, microcline, quartz, aegirine (Dara-i-Pioz massif, Tajikistan); aegirine, polyolithionite (Washington Pass, Washington, USA).

**Distribution:** From the Dara-i-Pioz massif, Alai Range, Tien Shan, Tajikistan. In the Wessels mine, near Kuruman, Cape Province, South Africa. At Washington Pass, Okanogan Co., Washington, USA.

**Name:** For *Sogdiana*, an ancient Central Asian state.

**Type Material:** Mineralogy Museum, St. Petersburg University, St. Petersburg, 16246; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72028, 74962, vis3595.

**References:** (1) Dusmatov, V.D., A.F. Efimov, Z.T. Kataeva, L.A. Khoroshilova, and K.P. Yanulov (1968) Sogdianite, a new mineral. *Doklady Acad. Nauk SSSR*, 182, 1176–1177 (in Russian). (2) (1969) *Amer. Mineral.*, 54, 1221–1222 (abs. ref. 1). (3) Bakakin, V.V., V.P. Balko, and L.P. Solov'eva (1974) Crystal structures of milarite, armenite, and sogdianite. *Kristallografiya* (Sov. Phys. Crystal.), 19, 741–745 (in Russian). (4) Dillmann, R. (1978) Sogdianit. *Z. Deutsch. Gemmol. Gesell.*, 27, 214 (in German). (5) (1979) *Mineral. Abs.*, 30, 250 (abs. ref. 4).