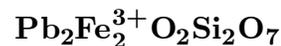


# Melanotekite



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**Crystal Data:** Orthorhombic. *Point Group:* 222. As small spherules; commonly massive.

**Physical Properties:** *Cleavage:* In two directions, one more prominent. *Hardness* = 6.5  
D(meas.) = 5.73–6.28 D(calc.) = [6.30]

**Optical Properties:** Nearly opaque; translucent in thin section. *Color:* Black to blackish gray or blackish green; dark green in thin section. *Streak:* Greenish gray. *Luster:* Metallic to greasy. *Optical Class:* Biaxial (+). *Pleochroism:* Bottle-green and red-brown. *Dispersion:*  $r > v$ , strong.  $\alpha = 2.12$   $\beta = 2.17$   $\gamma = 2.31$   $2V(\text{meas.}) = 67^\circ$

**Cell Data:** *Space Group:*  $C222_1$ .  $a = 6.93$   $b = 10.98$   $c = 10.06$   $Z = 4$

**X-ray Powder Pattern:** Långban, Sweden.  
2.90 (vs), 2.86 (vs), 2.735 (vs), 3.71 (s), 3.51 (s), 3.24 (s), 2.84 (s)

<b>Chemistry:</b>	(1)	(2)	(3)		(1)	(2)	(3)
SiO <sub>2</sub>	17.32	16.59	16.55	PbO	55.26	62.38	61.46
TiO <sub>2</sub>		0.90		MgO		0.10	
Al <sub>2</sub> O <sub>3</sub>		0.57		CaO		0.00	
Fe <sub>2</sub> O <sub>3</sub>	23.18	19.21	21.99	BaO		0.00	
Mn <sub>2</sub> O <sub>3</sub>	0.76			rem.	3.59		
MnO		0.39		Total	100.11	100.14	100.00

- (1) Långban, Sweden; remainder FeO, CuO, MgO, CaO, BaO, Na<sub>2</sub>O, K<sub>2</sub>O, Cl, and P<sub>2</sub>O<sub>5</sub>.  
(2) Jakobsberg, Sweden; by electron microprobe, corresponds to  $\text{Pb}_{2.03}(\text{Fe}_{1.75}^{3+}\text{Al}_{0.08}\text{Ti}_{0.08}\text{Mn}_{0.04}\text{Mg}_{0.02})_{\Sigma=1.97}\text{Si}_{2.00}\text{O}_9$ . (3)  $\text{Pb}_2\text{Fe}_2\text{O}_2\text{Si}_2\text{O}_7$ .

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

**Occurrence:** In a metamorphosed Fe–Mn deposit, from which over one ton was removed (Långban, Sweden); in oxidized Pb–Cu ores (Artillery Peaks, Arizona, USA).

**Association:** Lead, magnetite, garnet (Långban, Sweden); leadhillite, alamosite (Tsumeb, Namibia); diabolite (Tiger, Arizona, USA); luddenite, alamosite, shattuckite, mimetite, wulfenite, cerussite, wickenburgite (Artillery Peaks, Arizona, USA).

**Distribution:** At Långban, Jakobsberg, and Pajsberg, Värmland, Sweden. In the Merehead quarry, Wesley mine, and at Higher Pitts Farm, Priddy, Somerset, and at Westbury-on-Trym, Avon, England. From Tsumeb, Namibia. In the USA, from Hillsboro, Sierra Co., New Mexico; in Arizona, at the Mammoth-St. Anthony mine, Tiger, Pinal Co., and from a Pb–Cu prospect near Artillery Peaks, Mohave Co.

**Name:** From the Greek *black* and *to melt* or *glass*, for the black bead formed under the blowpipe.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 545.  
(2) Gabrielson, O. (1963) The crystal structures of kentrolite and melanotekite. *Arkiv Mineral. Geol.* 3, 141–151. (3) Glasser, F.P. (1967) New data on kentrolite and melanotekite: ternary phase relations in the system  $\text{PbO} - \text{Fe}_2\text{O}_3 - \text{SiO}_2$ . *Amer. Mineral.*, 52, 1085–1093. (4) Welin, E. (1968) X-ray powder data for minerals from Långban and the related mineral deposits of Central Sweden. *Arkiv Mineral. Geol.*, 4(30), 499–541. (5) Moore, P.B., P.K. Sen Gupta, J. Shen, and E.O. Schlemper (1991) The kentrolite-melanotekite series,  $4\text{Pb}_2(\text{Mn, Fe})_2^{3+}\text{O}_2[\text{Si}_2\text{O}_7]$ : chemical crystallographic relations, lone-pair splitting, and cation relation to  $8\text{URe}_2$ . *Amer. Mineral.*, 76, 1389–1399. (6) Holtstam, D. and J. Langhof (1994) Hancockite from Jakobsberg, Filipstad, Sweden: the second world occurrence. *Mineral. Mag.*, 58, 172–174.

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