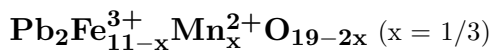


## Plumboferrite



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**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ . Thick tabular crystals, to 1 cm, with dominant  $\{10\bar{1}1\}$  and  $\{0001\}$ , may have very complex form development; commonly cleavable massive.

**Physical Properties:** *Cleavage:*  $\{0001\}$ , perfect. Hardness = 6.5 VHN = 824–946, 882 average (100 g load).  $D(\text{meas.}) = 6.07$   $D(\text{calc.}) = 6.09\text{--}6.12$

**Optical Properties:** Opaque. *Color:* Black; light gray in reflected light. *Streak:* Nearly black. *Luster:* Submetallic.

*Optical Class:* Uniaxial (–). *Birefractance:* Weak.

$R_1\text{--}R_2$ : (400) 27.3–29.4, (420) 26.9–28.7, (440) 26.5–28.0, (460) 26.1–27.5, (480) 25.8–26.9, (500) 25.5–26.4, (520) 25.2–25.9, (540) 24.9–25.5, (560) 24.6–25.0, (580) 24.1–24.6, (600) 23.6–24.0, (620) 23.1–23.5, (640) 22.6–23.0, (660) 22.2–22.6, (680) 21.8–22.1, (700) 21.4–21.7

**Cell Data:** *Space Group:*  $P6_3/mmc$ .  $a = 5.931(1)$   $c = 23.551(2)$   $Z = 2$

**X-ray Powder Pattern:** Jakobsberg, Sweden.

2.9438 (100), 3.922 (85), 11.78 (40), 2.8132 (30), 2.6473 (30), 5.888 (25), 1.6919 (16)

Chemistry:	(1)	(2)	(1)	(2)	
SiO <sub>2</sub>		0.10	PbO	33.03	34.18
TiO <sub>2</sub>	0.08	0.21	MgO	0.34	0.29
Al <sub>2</sub> O <sub>3</sub>		0.01	CaO	0.40	
Fe <sub>2</sub> O <sub>3</sub>	63.01	63.91	Na <sub>2</sub> O	0.17	
Sb <sub>2</sub> O <sub>3</sub>	0.25	0.00	K <sub>2</sub> O	0.13	
FeO	0.78		H <sub>2</sub> O		
MnO	1.41	1.24	insol.	0.15	
			Total	99.75	99.94

(1) Jakobsberg, Sweden. (2) Do.; by electron microprobe, average of several determinations, total Fe as Fe<sub>2</sub>O<sub>3</sub>, O from charge balance; corresponding to  $(\text{Pb}_{2.03}\text{Mn}_{0.23}\text{Mg}_{0.10}\text{Fe}_{10.59}\text{Ti}_{0.03}\text{Si}_{0.02})_{\Sigma=13.00}\text{O}_{18.35}$ .

**Occurrence:** In metamorphosed lead-bearing Fe–Mn orebodies.

**Association:** Hematite, jacobsonite, magnesioferrite, lindqvistite, hedyphane, svabite, barite, hematophanite, copper, cuprite, calcite, andradite, phlogopite (Jakobsberg, Sweden).

**Distribution:** From Jakobsberg, Värmland, and at the Sjö mine, near Grythyttan, Örebro, Sweden.

**Name:** From the Latin for lead, PLUMBum, and FERROus iron in its composition.

**Type Material:** Swedish Museum of Natural History, Stockholm, Sweden, 81:224.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 726–727. (2) Holtstam, D., R. Norrestam, and A. Sjödin (1995) Plumboferrite: new mineralogical data and atomic arrangement. *Amer. Mineral.*, 80, 1065–1072.