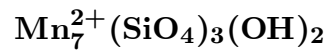


# Leucophoenicite



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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . Crystals rare, typically slender, prismatic, elongated and striated  $\parallel$  [010], to 8 mm; in isolated grains or granular massive. *Twinning:* On {001}, common, contact or interpenetrant twins, lamellar.

**Physical Properties:** *Cleavage:* {001}, imperfect. *Tenacity:* Brittle. Hardness = 5.5–6  
D(meas.) = 3.848 D(calc.) = [4.01]

**Optical Properties:** Transparent to translucent. *Color:* Brown to light purple-red, raspberry-red, deep pink to light pink; rose-red to colorless in thin section. *Luster:* Vitreous. *Optical Class:* Biaxial (-). *Pleochroism:* Faint; rose-red  $\parallel$  {001}; colorless  $\perp$  {001}. *Orientation:*  $X \perp$  {001} cleavage. *Dispersion:*  $r > v$ , slight.  $\alpha = 1.751(3)$   $\beta = 1.771(3)$   $\gamma = 1.782(3)$   
 $2V(\text{meas.}) = 74(5)^\circ$

**Cell Data:** *Space Group:*  $P2_1/a$ .  $a = 10.842(19)$   $b = 4.826(6)$   $c = 11.324(9)$   
 $\beta = 103.93(9)^\circ$   $Z = [2]$

**X-ray Powder Pattern:** Franklin, New Jersey, USA.  
1.8063 (10), 2.877 (9), 2.684 (8), 4.36 (5), 3.612 (5), 2.365 (5), 2.620 (4)

<b>Chemistry:</b>	(1)	(2)	(3)		(1)	(2)	(3)
SiO <sub>2</sub>	26.36	26.7	26.7	CaO	5.67	2.4	2.8
FeO	trace	0.3	0.3	Na <sub>2</sub> O	0.39		
MnO	60.63	62.8	64.7	K <sub>2</sub> O	0.24		
ZnO	3.87	0.0	0.0	H <sub>2</sub> O	2.64	[2.3]	[2.8]
MgO	0.21	5.5	2.7	Total	100.01	[100.0]	[100.0]

(1) Franklin, New Jersey, USA; composite of two analyses, corresponding to  $(\text{Mn}_{5.89}\text{Ca}_{0.70}\text{Zn}_{0.32}\text{Na}_{0.04}\text{Mg}_{0.03}\text{K}_{0.01})_{\Sigma=6.99}(\text{Si}_{1.01}\text{O}_4)_3(\text{OH})_2$ . (2) Kombat mine, Namibia; by electron microprobe, H<sub>2</sub>O by difference; corresponding to  $(\text{Mn}_{5.98}\text{Mg}_{0.92}\text{Ca}_{0.29}\text{Fe}_{0.02})_{\Sigma=7.21}(\text{SiO}_4)_3(\text{OH})_{1.72}$ . (3) Valsesia-Valtournanche area, Italy; by electron microprobe, H<sub>2</sub>O by difference; corresponding to  $(\text{Mn}_{6.16}\text{Mg}_{0.45}\text{Ca}_{0.34}\text{Fe}_{0.03})_{\Sigma=6.98}(\text{SiO}_4)_3(\text{OH})_{2.10}$ .

**Mineral Group:** Leucophoenicite group.

**Occurrence:** A late-stage hydrothermal or contact zone mineral in veins and skarns in a metamorphosed stratiform Zn-Mn orebody (Franklin, New Jersey, USA).

**Association:** Willemite, franklinite, calcite, vesuvianite, garnet, sussexite, rhodochrosite, pyrochroite, tephroite, sonolite, jerrygibbsite, glaucochroite, manganosite, copper, zincite (Franklin, New Jersey, USA); barysilite, spessartine, vesuvianite, barite, copper, hausmannite (Kombat mine, Namibia).

**Distribution:** At Franklin, Sussex Co., New Jersey, USA. From Pajsberg, Värmland, Sweden. In the Valsesia-Valtournanche area, Val d'Aosta, Italy. In the Kombat mine, 49 km south of Tsumeb, Namibia. From Hotazel, near Kuruman, Cape Province, South Africa.

**Name:** From the Greek for *pale* and *purplish red* in reference to its conspicuous color.

**Type Material:** Yale University, New Haven, Connecticut, 2.4830; Harvard University, Cambridge, Massachusetts, USA, 114565.

**References:** (1) Dana, E.S. and W.E. Ford (1909) Dana's system of mineralogy, (6th edition), app. II, 63. (2) Palache, C. (1935) The minerals of Franklin and Sterling Hill, Sussex County, New Jersey. U.S. Geol. Sur. Prof. Paper 180, 103–105. (3) Moore, P.B. (1970) Edge-sharing silicate tetrahedra in the crystal structure of leucophoenicite. Amer. Mineral., 55, 1146–1166. (4) Dunn, P.J., C.A. Francis, and J. Innes (1988) A mcgovernite-like mineral and leucophoenicite from the Kombat mine, Namibia. Amer. Mineral., 73, 1182–1185.

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