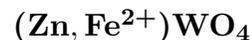


Sanmartinite



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Crystal Data: Monoclinic. *Point Group:* $2/m$. Rare as crystals, to 60 μm , tabular on {001}, with {001}, {010}, {110}, {112}, {102}; typically in reticulated aggregates and fine-grained massive.

Physical Properties: *Cleavage:* On {010}, perfect. Hardness = n.d. $D(\text{meas.}) = 6.70$
 $D(\text{calc.}) = 7.87$ (synthetic ZnWO_4).

Optical Properties: Translucent. *Color:* Reddish brown, with dark red internal reflections, dark brown to brownish black if massive. *Luster:* Resinous.

Optical Class: Biaxial. $\alpha = \text{n.d.}$ $\beta = \text{n.d.}$ $\gamma = \text{n.d.}$ $2V(\text{meas.}) = \text{n.d.}$

Cell Data: *Space Group:* $P2_1/c$. $a = 4.702$ $b = 5.726$ $c = 4.948$ $\beta = 90^\circ 28'$ $Z = 2$

X-ray Powder Pattern: Synthetic ZnWO_4 .

2.931 (100), 2.908 (90), 3.73 (40), 4.69 (35), 3.62 (35), 2.472 (35), 2.464 (35)

Chemistry:

	(1)	(2)	(3)
WO_3	72.62	73.41	74.02
FeO	7.24	4.67	
MnO	1.73	0.22	
ZnO	18.18	23.00	25.98
CaO	1.48		
insol.	0.24		
Total	[101.49]	101.30	100.00

(1) Los Cerrillos, Argentina; original total given as 101.25%; corresponds to $(\text{Zn}_{0.68}\text{Fe}_{0.31}\text{Ca}_{0.08}\text{Mn}_{0.07})_{\Sigma=1.14}(\text{W}_{0.95}\text{O}_4)$. (2) Do.; by electron microprobe, total Fe as FeO, total Mn as MnO; corresponds to $(\text{Zn}_{0.81}\text{Fe}_{0.18})_{\Sigma=0.99}\text{WO}_4$. (3) ZnWO_4 .

Occurrence: A rare alteration product of scheelite in a quartz vein between granite and granite pegmatite intruding Precambrian crystalline schists.

Association: Willemite, scheelite, tourmaline, quartz.

Distribution: From Los Cerrillos, seven km southwest of San Martín, San Luis Province, Argentina.

Name: For its occurrence near San Martín, Argentina.

Type Material: The Natural History Museum, London, England, 1978,353; Academy of Natural Sciences, Philadelphia, 25575; Harvard University, Cambridge, Massachusetts, 134566; National Museum of Natural History, Washington, D.C., USA, 105681, 137479.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1072–1073. (2) Dunn, P.J. (1978) Sanmartinite: new data. *Mineral. Mag.*, 42, 281. (3) Redfern, S.A.T., A.M.T. Bell, C.M.B. Henderson, and P.F. Schofield (1995) Rietveld study of the structural phase transition in the sanmartinite (ZnWO_4)–cuproscheelite (CuWO_4) solid solution. *Eur. J. Mineral.*, 7, 1019–1028. (4) (1963) NBS Mono. 25, 2, 40.