

**Ca(Mn²⁺, Fe²⁺)₂Be₃(PO₄)₃(OH)₃·2H₂O to
Roscherite Ca(Mn²⁺, Fe²⁺)₃Be₂(PO₄)₃(OH)₃·2H₂O**

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Crystal Data: Monoclinic or triclinic. *Point Group:* 2/m or $\bar{1}$. Crystals, to 2 cm, are short prismatic [001] or flattened on {100} or {010}, with {010}, {110}, {111}, with several other forms; in spherical to botryoidal aggregates and crusts, internally fibrous; powdery massive.

Physical Properties: *Cleavage:* On {001}, good; on {010}, distinct. *Hardness* = 4.5
D(meas.) = 2.90–2.97 D(calc.) = 2.77–2.94

Optical Properties: Semitransparent. *Color:* Greenish gray, olive-green, sage-green, dark brown, reddish brown, orange; yellowish green to brown in transmitted light, may show abnormal interference colors.

Optical Class: Biaxial (-). *Pleochroism:* X = yellow to olive-green; Y = yellow-brown, greenish brown; Z = chestnut-brown. *Orientation:* X = b; Y \wedge c = -15° to 24°. *Dispersion:* r > v, very strong, crossed. α = 1.624–1.628 β = 1.639–1.644 γ = 1.643–1.650 2V(meas.) = Large.

Cell Data: *Space Group:* C2/c with a = 15.88–15.95 b = 11.90–11.95 c = 6.62–6.66
 β = 94°42'–94°50' Z = 4, or *Space Group:* C $\bar{1}$ with a = 15.921(5) b = 11.965(4)
c = 6.741(1) α = 91°04(5)' β = 94°21(5)' γ = 89°59.5(5.0)' Z = 4

X-ray Powder Pattern: Greifensteine, Germany; close to zanazziite.
5.95 (10), 9.51 (9), 3.17 (8), 2.788 (6), 4.84 (4), 2.644 (4), 3.08 (2b)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
P ₂ O ₅	38.01	37.60	34.12	BeO	[13.74]	12.58	10.05
Fe ₂ O ₃		13.36		CaO	11.48	7.60	10.76
FeO	10.13	6.26	30.40	H ₂ O	12.17	11.56	11.80
MnO	14.47	10.04	0.50	insol.		0.80	0.70
				Total	[100.00]	99.80	98.33

(1) Greifensteine, Germany; BeO originally determined as Al₂O₃. (2) Sapucaia mine, Brazil.
(3) Gunnislake Clitters mine, England; BeO may include some Al₂O₃; corresponds to Ca_{1.20}(Fe_{2.64}Mn_{0.04}) $_{\Sigma=2.68}$ Be_{2.51}(PO₄)₃(OH)₃·2.58H₂O.

Occurrence: In cavities in granite or complex zoned granite pegmatites.

Association: Morinite, iacroixite, eosphorite, apatite, tourmaline (Greifensteine, Germany); frondelite, faheyite, beryl, muscovite, quartz (Sapucaia mine, Brazil).

Distribution: On the Greifensteine, near Ehrenfriedersdorf, Saxony, Germany. In the Gunnislake Clitters mine, Calstock, Cornwall, England. In Brazil, from the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares, and in the Énio pegmatite mine, northeast of Galiléia, Minas Gerais. In the USA, at the Davis mine, North Groton, Grafton Co., New Hampshire; from the Dunton quarry, Newry and the Black Mountain quarry, Rumford, Oxford Co., and elsewhere in Maine; at the Tip Top mine, 8.5 km southwest of Custer, Custer Co., South Dakota; from the Foote mine, Kings Mountain, Cleveland Co., North Carolina.

Name: Honoring Walter Roscher, mineral collector, Ehrenfriedersdorf, Germany.

Type Material: Charles University, Prague, Czech Republic, 6472; The Natural History Museum, London, England, 1914,1381; National Museum of Natural History, Washington, D.C., USA, R6219.

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