

Reddingite



©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals, usually pseudo-octahedral, to 3 mm, with prominent {111}, {212}, {221}, {010}, {223}, {122}, other minor forms; commonly granular, massive.

Physical Properties: *Cleavage:* On {010}, poor. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3–3.5 D(meas.) = 3.10–3.24 D(calc.) = 3.26

Optical Properties: Transparent to translucent. *Color:* Pale rose-pink to pale brownish yellow, colorless; red to red-orange on oxidization. *Streak:* White. *Luster:* Vitreous to subresinous.

Optical Class: Biaxial (+). *Pleochroism:* X = colorless; Y = pinkish brown; Z = pale yellow. *Orientation:* X = a; Y = b; Z = c. *Dispersion:* $r > v$, distinct. $\alpha = 1.643\text{--}1.655$ $\beta = 1.648\text{--}1.662$ $\gamma = 1.674\text{--}1.683$ $2V(\text{meas.}) = 41^\circ\text{--}65^\circ$

Cell Data: *Space Group:* *Pbna*. $a = 9.49$ $b = 10.08$ $c = 8.70$ $Z = 4$

X-ray Powder Pattern: Hagendorf, Germany; close to phosphoferrite. 3.20 (10), 2.737 (8), 4.28 (7), 2.657 (7), 2.422 (7), 2.234 (7), 1.625 (7)

Chemistry:

	(1)	(2)
P ₂ O ₅	34.52	34.72
FeO	5.43	
MnO	46.29	52.06
CaO	0.78	
Na ₂ O	0.31	
H ₂ O	13.08	13.22
Total	100.41	100.00

(1) Branchville, Connecticut, USA; average of two analyses, after deduction of SiO₂ as quartz, corresponds to (Mn_{2.68}Fe_{0.31}Ca_{0.06}Na_{0.02})_{Σ=3.07}(PO₄)_{2.00}•3.00H₂O. (2) Mn₃(PO₄)₂•3H₂O.

Polymorphism & Series: Forms a series with phosphoferrite.

Occurrence: A rare secondary hydrothermal alteration product in zoned complex granite pegmatites.

Association: Dickinsonite, triploidite, triplite, lithiophilite, fairfieldite, eosphorite, huréaulite, rhodochrosite.

Distribution: In the USA, from Branchville, Fairfield Co., Connecticut; in Maine, at the Bennett quarry, Buckfield, and the Emmons quarry, Greenwood, Oxford Co., and the Berry quarry, Poland, Androscoggin Co. At Hagendorf, Bavaria, Germany. Large crystals from near Galiléia, Minas Gerais, Brazil.

Name: For Redding Township, Connecticut, USA, within which the first specimens were collected, near Branchville.

Type Material: Yale University, New Haven, Connecticut, USA, 3.5850, 3.5851.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 727–729. (2) Tennyson, C. (1954) Phosphoferrit und Reddingit von Hagendorf. Neues Jahrb. Mineral., Abh., 87, 185–217 (in German). (3) Kleber, W. and J.D.H. Donnay (1961) The heteromorphism of phosphoferrite–reddingtonite. Zeits. Krist., 115, 161–168. (4) King, V.T. and E.E. Foord (1994) Mineralogy of Maine, 303–304.