Eosphorite $Mn^{2+}Al(PO_4)(OH)_2 \cdot H_2O$

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Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* $2/m$; pseudo $2/m$ $2/m$ $2/m$. Typically as crystals, short to long prismatic on [001], to 20 cm; in planar radial or spherical radiating groups, with wedge-shaped terminations; globular, rarely massive. *Twinning:* May show twinning on {100} and {001}, observed optically, to give pseudo-orthorhombic symmetry; perhaps due to oxidation.

Physical Properties: *Cleavage:* {100}, poor. *Fracture:* Subconchoidal to uneven. Hardness = 5 D(meas.) = 3.06–3.08 D(calc.) = 3.04

Optical Properties: Transparent to translucent. *Color:* Pink to rose-red, commonly brown to black when oxidized. *Streak:* White. *Luster:* Vitreous to resinous. *Optical Class:* Biaxial (–). *Pleochroism:* X = yellow; Y = pink; Z = pale pink to colorless. *Orientation:* $X = b$; $Y = a$; $Z = c$; $Y \wedge c = 4°$–$8°$ in optically twinned individuals. *Dispersion:* $r < v$, strong, for near end-member composition. $\alpha = 1.628$–1.644 $\beta = 1.648$–1.673 $\gamma = 1.657$–1.679 2V(meas.) = $45°$–$50°$ in optically twinned crystals.

Cell Data: *Space Group:* $P2_1/m$. $a = 10.455(1)$ $b = 13.501(2)$ $c = 6.928(1)$ $\beta = 90.0°$ Z = 8

X-ray Powder Pattern: Newry, Maine, USA. (ICDD 17-131).
2.826 (100), 2.422 (60b), 5.23 (50), 4.39 (50), 3.55 (50), 3.41 (50), 1.535 (50b)

Chemistry:

	(1)	(2)
P_2O_5	29.89	31.00
Al_2O_3	22.37	22.27
FeO	1.38	
MnO	29.94	30.99
H_2O	15.34	15.74
insol.	0.90	
Total	99.82	100.00

(1) Buckfield, Oxford Co., Maine, USA. (2) $MnAl(PO_4)(OH)_2 \cdot H_2O$.

Polymorphism & Series: Forms a series with childrenite.

Occurrence: Typically a secondary mineral in some phosphate-bearing granite pegmatites.

Association: Rhodochrosite, lithiophilite, triploidite, dickinsonite (Branchville, Connecticut, USA); albite, cookeite, apatite, beryllonite, hydroxyl-herderite, tourmaline (Newry, Maine, USA).

Distribution: In the USA, from Branchville, Fairfield Co., Connecticut; at a number of places around Newry, in the Red Hill and Black Mountain quarries, Rumford, Oxford Co., and elsewhere in Maine; in the Hugo mine, 1.5 km south of Keystone, Pennington Co., South Dakota; from the Foote mine, near Kings Mountain, Cleveland Co., North Carolina; in the White Picacho district, Maricopa and Yavapai Cos., Arizona. At Hagendorf, Bavaria, and on the Greifensteine, near Ehrenfriedersdorf, Saxony, Germany. In the Viitaniemi pegmatite, Eräjärvi, Finland. In Brazil, large crystals from the Lavra da Ilha pegmatite, in the Jequitinhonha River, three km north of Taquaral; in the Sapucaia pegmatite mine, about 50 km east-southeast of Governador Valadares; at the João Modesto dos Santos mine, and from a number of other mines around Linópolis and Mendes Pimental, Minas Gerais, Brazil. From Wycheproof, Victoria, Australia.

Name: From the Greek for *dawn-bearing*, in allusion to the pink color.

Type Material: Yale University, New Haven, Connecticut, USA, 3.3231, 3.5847.

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