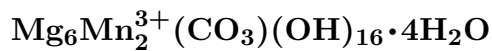


Desautelsite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3}2/m$ or $3m$. As hexagonal scales and plates, flattened on {0001}, with {0001} and {10 $\bar{1}$ 0}, to 0.2 mm; rarely as isolated crystals, more commonly in druses of microcrystals; as massive coatings. *Twinning:* By rotation about [0001], common.

Physical Properties: *Cleavage:* Perfect on {0001}. Hardness = ~ 2 D(meas.) = 2.13(2) D(calc.) = 2.10

Optical Properties: Semitransparent. *Color:* Bright orange. *Streak:* Pale orange. *Optical Class:* Uniaxial (-). *Pleochroism:* Strong; *O* = deep orange; *E* = pale orange. $\omega = 1.569(3)$ $\epsilon = 1.547(3)$

Cell Data: *Space Group:* $R\bar{3}m$ or $R3m$. $a = 3.114(1)$ $c = 23.39(2)$ $Z = 3/8$

X-ray Powder Pattern: Cedar Hill quarry, Pennsylvania, USA; indistinguishable from pyroaurite.

7.76 (100), 3.88 (60), 2.332 (60), 1.981 (60), 2.622 (50), 1.527 (30), 1.768 (20)

Chemistry:	(1)	(2)	(3)
Al ₂ O ₃		0.71	
Fe ₂ O ₃	trace	0.05	
Mn ₂ O ₃	23.04	23.60	23.92
MgO	35.88	36.39	36.65
CaO		0.21	
H ₂ O + CO ₂	[41.08]	38.15	39.43
Total	[100.00]	99.11	100.00

(1) Cedar Hill quarry, Pennsylvania, USA; by electron microprobe, CO₂ confirmed by effervescence in HCl; total Mn as Mn₂O₃, H₂O + CO₂ by difference. (2) Shiraki, Japan; by AA. (3) Mg₆Mn₂³⁺(CO₃)(OH)₁₆•4H₂O.

Mineral Group: Hydrotalcite group.

Occurrence: Abundantly, in fractures in serpentinite breccia, with other secondary magnesium minerals, the last mineral to form (California, USA); in ultramafics in faults in sediments (Shiraki, Japan).

Association: Brucite, artinite (California, USA); aragonite, hydrotalcite, rhodochrosite, manganese oxides (Shiraki, Japan).

Distribution: In the USA, from the Cedar Hill quarry, Lancaster Co., Pennsylvania, and at the Coalinga asbestos mine and the Herman Akers prospect, New Idria district, San Benito Co., California. In Japan, from Shiraki, Mie Prefecture, and Konomori, Kochi Prefecture.

Name: To honor Paul Ernest Desautels (1920–1991), Curator of Mineralogy, National Museum of Natural History (Smithsonian Institution), Washington, D.C., USA.

Type Material: Harvard University, Cambridge, Massachusetts; National Museum of Natural History, Washington, D.C., USA, 120219.

References: (1) Dunn, P.J., D.R. Peacor, and T.D. Palmer (1979) Desautelsite, a new mineral of the pyroaurite [hydrotalcite] group. *Amer. Mineral.*, 64, 127–130. (2) Inaba, S., T. Minakawa, and S. Noto (1983) Desautelsite from (the quarry at) Shiraki, Mie Prefecture, Japan. *Chigaku Kenkyu*, 34, 89–95 (in Japanese). (3) (1985) *Chem. Abs.*, 103, 164 (abs. ref. 2).