

Crystal Data: Monoclinic. *Point Group:* $2/m$. Very rarely in crystals, to 0.1 mm; commonly massive, as veinlets, in radiating bands having botryoidal surfaces, or bladed; almost always intimately intermixed with other vanadium oxide minerals, especially montroseite–paramontroseite. *Twinning:* Lamellar, on {100}, nearly universal.

Physical Properties: *Cleavage:* “Flaky”. *Fracture:* “Fibrous”. Hardness = n.d. $D(\text{meas.}) = 3.27\text{--}3.33$ $D(\text{calc.}) = 3.41$

Optical Properties: Opaque, transparent only in thin fragments. *Color:* Chocolate-brown when pure, commonly nearly black, typically with a dark bronzy tarnish; in transmitted light, reddish brown to reddish yellow; in reflected light, gray with color variation along the crystals. *Streak:* Greenish black. *Luster:* Submetallic; sometimes satinlike on cleavage surfaces. *Optical Class:* Biaxial; optical data not determinable, presumably due to lamellar submicroscopic twinning. *Orientation:* Extinction parallel. $n = \sim 1.90$ $2V(\text{meas.}) = \text{n.d.}$ *Anisotropism:* Strong.

Cell Data: *Space Group:* $C2/m$. $a = 19.64(6)$ $b = 2.99(1)$ $c = 4.83(2)$ $\beta = 103^\circ 55(5)'$ $Z = 1$

X-ray Powder Pattern: Monument No. 2 mine, Arizona, USA.
4.70 (100), 3.83 (50), 2.45 (50), 3.16 (42), 1.933 (25), 1.799 (21), 2.98 (15)

Chemistry:	(1)	(2)		(1)	(2)
V_2O_5	78.00		$\text{UO}_2 + \text{UO}_3$	3.88	
V_2O_4		87.35	FeO	3.83	
SiO_2	0.30		MgO	3.98	
Al_2O_3	1.33		Pb	0.07	
As_2O_3	0.30		H_2O^+	6.33	12.65
V_2O_3	1.89		H_2O^-	0.37	
			Total	100.28	100.00

(1) La Sal No. 2 mine, Colorado, USA; estimated about 50% montroseite–paramontroseite.

(2) $\text{H}_8\text{V}_6\text{O}_{16}$.

Occurrence: In relatively unoxidized uranium–vanadium ores; from the cores of black, concretionary masses high in uranium and vanadium, surrounded by tyuyamunite-bearing sandstone (La Sal No. 2 mine, Colorado, USA).

Association: Coffinite, uraninite, clausthalite, montroseite, paramontroseite, vanadium oxides.

Distribution: In the USA, in Colorado, from the La Sal No. 2 mine, Lumsden Canyon, Gateway district, and in the Matchless, Arrowhead, Corvusite, Black Mama, and Lumsden No. 2 mines, Mesa Co.; from the Golden Cycle, J.J., and Peanut mines, Montrose Co. From the Mi Vida mine, San Juan Co., Utah; at a prospect in Valencia Co., New Mexico; in the Monument No. 2 mine, Apache Co., Arizona; and from Carlile, Crook Co., Wyoming. At the Puttapa zinc mine, near Beltana, South Australia. In the Urcal deposit, La Rioja Province, Argentina.

Name: For the Dolores River, southwestern Colorado, USA.

Type Material: n.d.

References: (1) Stern, T.W., L.R. Stieff, H.T. Evans, Jr., and A.M. Sherwood (1957) Doloresite, a new vanadium oxide mineral from the Colorado Plateau. *Amer. Mineral.*, 42, 587–593. (2) Evans, H.T., Jr. and M.E. Mrose (1960) A crystal chemical study of the vanadium oxide minerals, haggite and doloresite. *Amer. Mineral.*, 45, 1144–1166. (3) Théobald, F. (1975) Synthèse de la doloresite. *Bull. Soc. fr. Minéral.*, 98, 193–194 (in French).

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