

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As crystals, equant or pyramidal {111}, prismatic [001] or [100], or tabular {100}, with {101}, {201}, many others, rarely skeletal, to 5 cm, commonly in drusy crusts, stalactitic or botryoidal, coarsely fibrous, granular to compact, massive.

**Physical Properties:** *Fracture:* Small conchoidal to uneven. *Tenacity:* Brittle. Hardness = 3–3.5 D(meas.) = ~6.2 D(calc.) = 6.202

**Optical Properties:** Transparent to nearly opaque. *Color:* Brownish red, red-orange, reddish brown to blackish brown, nearly black. *Streak:* Orange to brownish red. *Luster:* Greasy. *Optical Class:* Biaxial (–), rarely biaxial (+). *Pleochroism:* Weak to strong; X = Y = canary-yellow to greenish yellow; Z = brownish yellow. *Orientation:* X = c; Y = b; Z = a. *Dispersion:*  $r > v$ , strong; rarely  $r < v$ .  $\alpha = 2.185(10)$   $\beta = 2.265(10)$   $\gamma = 2.35(10)$   $2V(\text{meas.}) = \sim 90^\circ$

**Cell Data:** *Space Group:*  $Pnma$ .  $a = 7.593$   $b = 6.057$   $c = 9.416$   $Z = 4$

**X-ray Powder Pattern:** Venus mine, [El Guaico district, Córdoba Province,] Argentina; close to mottramite.

3.23 (vvs), 5.12 (vs), 2.90 (vs), 2.69 (vsb), 2.62 (vsb), 1.652 (vs), 4.25 (s)

Chemistry:	(1)	(2)	(1)	(2)
SiO <sub>2</sub>	0.02		ZnO	19.21
As <sub>2</sub> O <sub>5</sub>	0.00		PbO	55.47
V <sub>2</sub> O <sub>5</sub>	22.76	22.53	H <sub>2</sub> O <sup>+350°</sup>	2.17
FeO	trace		H <sub>2</sub> O <sup>–350°</sup>	0.02
MnO	trace		H <sub>2</sub> O	2.23
CuO	0.56	9.86	Total	100.21
				100.00

(1) Abenab, Namibia. (2) Pb(Zn, Cu)(VO<sub>4</sub>)(OH) with Zn:Cu = 1:1.

**Polymorphism & Series:** Forms a series with mottramite.

**Mineral Group:** Descloizite group.

**Occurrence:** A secondary mineral in the oxidized zone of vanadium-bearing base metal deposits; rarely an ore of vanadium.

**Association:** Mottramite, vanadinite, pyromorphite, mimetite, wulfenite, cerussite.

**Distribution:** Many localities. From “Sierra de Córdoba,” Córdoba Province, Argentina. At Los Lamentos and Santa Eulalia, Chihuahua, Mexico. In the USA, in the Mammoth-St. Anthony mine, Tiger, Pinal Co., and from Bisbee, Cochise Co., Arizona; in the Caballo Mountains district, Sierra Co., and several mines around Georgetown, Grant Co., New Mexico; from the Chalk Mountain mine, Churchill Co., Nevada. Large crystals from an economic deposit at Berg Aukas, near Grootfontein; at Abenab; from Tsumeb; and elsewhere in the Otavi district, Namibia. At Kabwe (Broken Hill), Zambia. From M’fouti and Ruwe, Congo Republic. In the Gowde mine, Great Salt Desert, Iran. At Obir, Carinthia, Austria. From Mežica (Mies), Slovenia. In the Prequica mine, Cobral d’Adrea, Portugal.

**Name:** To honor Alfred Lewis Oliver Legrand Des Cloizeaux (1817–1897), Professor of Mineralogy, University of Paris, Paris, France, who first described the mineral.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana’s system of mineralogy, (7th edition), v. II, 811–815. (2) Hawthorne, F.C. and R. Faggiani (1979) Refinement of the structure of descloizite. *Acta Cryst.*, 35, 717–720. (3) Kingsbury, A.W.G. and J. Hartley (1956) New occurrences of vanadium minerals (mottramite, descloizite, and vanadinite) in the Caldbeck area of Cumberland. *Mineral. Mag.*, 31, 289–295.

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