Okieite $Mg_3[V_{10}O_{28}]\cdot 28H_2O$

Crystal Data: Triclinic. *Point Group*: $\bar{1}$. As equant to prismatic crystals, commonly appearing like curved columns, to ~3 mm, and often exhibiting rounded faces; as drusy crusts.

Physical Properties: *Cleavage*: None. *Tenacity*: Brittle. *Fracture*: Curved or conchoidal. Hardness = 1.5 D(meas.) = 2.20(2) D(calc.) = 2.191 Nonfluorescent. Rapidly soluble in H_2O. Dehydrates readily in air at low relative humidity.

Optical Properties: Transparent. *Color*: Bright red, red-orange, yellow-orange. *Streak*: Light orange-yellow. *Luster*: Vitreous. *Optical Class*: Biaxial (-). $\alpha = 1.720(3)$ $\beta = 1.745(3)$ $\gamma = 1.765(3)$ 2V(meas.) = 84(2)° 2V(calc.) = 82.5° *Dispersion*: Strong, $r < v$. *Orientation*: $X \wedge a = 37°$, $Y \wedge c = 28°$, $Z \wedge b = 31°$. Nonpleochroic.

Cell Data: *Space Group: P*$\bar{1}$. $a = 10.5566(2)$ $b = 10.7566(2)$ $c = 21.355(1)$ $\alpha = 90.015(6)°$ $\beta = 97.795(7)°$ $\gamma = 104.337(7)°$ Z = 2

X-Ray Diffraction Pattern: Burro mine, Slick Rock district, San Miguel Co., Colorado, USA. 9.71 (100), 8.32 (19), 11.04 (17), 6.42 (12), 2.621 (10), 3.150 (9), 3.024 (7)

Chemistry:

	(1)	(2)
MgO	7.52	7.88
V_2O_5	59.38	59.25
H_2O	[33.10]	32.87
Total	100.00	100.00

(1) Burro mine, Slick Rock district, San Miguel Co., Colorado, USA; average electron microprobe analysis, H_2O calculated from structure; normalized corresponds to $Mg_{2.86}[H_{0.28}V^{5+}{}_{10}O_{28}]\cdot 28H_2O$. (2) $Mg_3[V_{10}O_{28}]\cdot 28H_2O$.

Mineral group: Decavanadate family.

Occurrence: Secondary, underground on mine walls in roll-front V-U-deposits in sandstone by the oxidation of montroseite-corvusite assemblages in a moist environment.

Association: Dickthomssenite, montroseite, corvusite.

Distribution: From the Burro mine, Slick Rock district, San Miguel Co. and the Hummer mine, Paradox Valley, Montrose Co., Colorado, USA.

Name: Honors Craig (''*Okie*'') Howell (b. 1963) of Naturita, Colorado, USA, who was instrumental in the discovery of several new mineral species at the Burro, Blue Streak, and Pickett Corral mines, including this one.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (66784 and 66785 Burro mine, and 66786 Hummer mine).

References: (1) Kampf, A.R., P.M. Adams, B.P. Nash, J. Marty, and J.M. Hughes (2020) Okieite, $Mg_3[V_{10}O_{28}]\cdot 28H_2O$, a new decavanadate mineral from the Burro mine, Slick Rock mining district, San Miguel County, Colorado, USA. Can. Mineral., 58, 125-135.