

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As bladed crystals to 0.1 mm, flattened on {010}, and in divergent sprays.

**Physical Properties:** *Cleavage:* Perfect on {010}. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = ~ 2 D(meas.) = 2.74(1) D(calc.) = 2.744 Soluble in dilute HCl.

**Optical Properties:** Transparent. *Color:* Orangish red. *Streak:* Light pinkish orange. *Luster:* Vitreous.

*Optical Class:* Biaxial (-).  $\alpha$  (calc.) = 1.760  $\beta$  = 1.780(5)  $\gamma$  = 1.795(5) 2V(meas.) = 81(2)°

*Orientation:* X = b, Z ^ a = 58° (in obtuse angle  $\beta$ ). *Dispersion:* Strong, r < v.

*Pleochroism:* Shades of brownish orange. *Absorption:* X < Y < Z.

**Cell Data:** *Space Group:* P2/n. a = 9.146(2) b = 10.424(3) c = 15.532(4)  $\beta$  = 102.653(7)° Z = 2

**X-ray Powder Pattern:** Packrat mine, near Gateway, Mesa County, Colorado, USA.

10.47 (100), 2.881 (25), 3.568 (24), 3.067 (17), 4.30(11), 3.132(11), 2.615(11)

Chemistry:	(1)	(2)
CaO	2.76	4.78
MnO	33.41	30.25
ZnO	2.26	
V <sub>2</sub> O <sub>5</sub>	47.91	46.53
As <sub>2</sub> O <sub>5</sub>	0.45	
H <sub>2</sub> O	[18.82]	18.44
Total	105.58	100.00

(1) Packrat mine, near Gateway, Mesa County, Colorado, USA; average of 11 electron microprobe analyses supplemented by Raman spectroscopy, H<sub>2</sub>O calculated from structure, high analytical total due to partial dehydration under vacuum; corresponds to Mn<sub>5.32</sub>Ca<sub>0.56</sub>Zn<sub>0.31</sub>V<sub>5.96</sub>As<sub>0.04</sub>O<sub>33</sub>H<sub>23.61</sub>.

(2) CaMn<sup>2+</sup><sub>5</sub>(V<sub>2</sub>O<sub>7</sub>)<sub>3</sub>·12H<sub>2</sub>O.

**Occurrence:** Formed on asphaltum blocks in a mine tunnel in sandstone by the oxidation in a moist environment of montroseite-corvusite assemblages in a roll-front U-V-deposit.

**Association:** Ansermetite, kegginite, martyite, morrisonite, rossite/metarossite, sherwoodite.

**Distribution:** From the Packrat mine, near Gateway, Mesa County, Colorado, USA.

**Name:** For the county in Colorado in which the Packrat mine is located.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (65595, 65596, 65597, 65598 and 65599).

**References:** (1) Kampf, A.R., B.P. Nash, J. Marty, and J.M. Hughes (2017) Mesaite, CaMn<sup>2+</sup><sub>5</sub>(V<sub>2</sub>O<sub>7</sub>)<sub>3</sub>·12H<sub>2</sub>O, a new vanadate mineral from the Packrat mine, near Gateway, Mesa County, Colorado, USA. *Mineral. Mag.*, 81(2), 319-327. (2) (2017) *Amer. Mineral.*, 102, 1964-1965 (abs. ref. 1).