

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals minute, lathlike with oblique terminations, in granular crusts.

Physical Properties: *Cleavage:* {010}, distinct. *Fracture:* Conchoidal. Hardness = ~2.5
D(meas.) = 2.455 D(calc.) = 2.47 Soluble in H₂O.

Optical Properties: Translucent. *Color:* Dark red-orange to yellow-orange, dirty yellow on partial dehydration. *Streak:* Cadmium-yellow. *Luster:* Vitreous to subadamantine.

Optical Class: Biaxial (-). $\alpha = 1.775(5)$ $\beta = 1.815(5)$ $\gamma = 1.825(5)$ $2V(\text{meas.}) = 50^\circ\text{-}56^\circ$

Pleochroism: X = light cadmium yellow; Y = cadmium yellow; Z = orange.

Orientation: OAP \perp {010}. *Dispersion:* Crossed, strong. *Absorption:* Z > Y > X.

Cell Data: *Space Group:* C2/m. $a = 19.5859(6)$ $b = 10.1405(3)$ $c = 10.9110(3)$ $\beta = 120.815(1)^\circ$ Z=2

X-ray Powder Pattern: Minasragra, Peru.

5.5 (10), 4.67 (10), 5.1 (8), 7.3 (7), 3.01 (7), 8.8 (6), 4.45 (6)

Chemistry:	(1)	(2)
V ₂ O ₅	64.6	65.71
MoO ₃	0.3	
CaO	12.6	12.16
H ₂ O ⁺	7.8	
H ₂ O ⁻	13.8	
<u>H₂O</u>		<u>22.13</u>
Total	100.0	100.00

(1) Minasragra, Peru; total includes 0.9 undetermined. (2) Ca₃V₁₀O₂₈·17H₂O.

Occurrence: Leached from near-surface V-oxides by ground water; as efflorescences in mines.

Association: Carnotite.

Distribution: At Minasragra, 46 km from Cerro de Pasco, Peru. From the Urcal deposit, La Rioja Province, Argentina. In the USA, in Colorado, from the Hawkeye, Burro, and Deremo-Snyder mines, near Slick Rock, San Miguel Co.; in the Bitter Creek, Mill No. 1, and Peanut mines, Uravan district, Montrose Co.; at the Corvusite and La Sal No. 2 mines, Gateway district, Mesa Co.; and from the Rifle mine, Garfield Co. At the Black Ape mine, Thompsons district, Grand Co., the Crescent No. 3 claim, Crescent Creek, Garfield Co., and the Mi Vida mine, Big Indian district, San Juan Co., Utah. In Arizona, at the Monument No. 2 mine, Monument Valley; in the Mesa No. 1, No. 5, and No. 6 mines, Lukachukai Mountains, and the Zona No. 1 claim, Carrizo Mountains, Apache Co. From the Ambrosia Lakes district, McKinley Co., New Mexico.

Name: For the original locality, near Cerro de *Pasco*, Peru.

Type Material: Harvard University, Cambridge, Massachusetts, 101701, 91449; National Museum of Natural History, Washington, D.C., USA, 87662, 93297.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1055-1056. (2) Weeks, A.D. and M.E. Thompson (1954) Identification and occurrence of uranium and vanadium minerals from the Colorado Plateaus. U.S. Geol. Sur. Bull. 1009-B, 54-55. (3) Hughes, J.M., M. Schindler, and C. Francis (2005) The C2/m disordered structure of pascoite, Ca₃[V₁₀O₂₈]·17H₂O: bonding between structural units and interstitial complexes in compounds containing the [V₁₀O₂₈]⁶⁻ decavanadate polyanion. Can. Mineral., 43, 1379-1386. (4) (2006) Amer. Mineral., 91(4), 715 (abs. ref. 3). (5) Swallow, A.G., F.R. Ahmed, and W.H. Barnes (1966) The crystal structure of pascoite, Ca₃V₁₀O₂₈·17H₂O. Acta Cryst., 21, 397-405. (6) Traill, R.J. and A.P. Sabina (1960) Catalogue of X-ray diffraction patterns and specimen mounts on file at the Geological Survey of Canada. Geol. Sur. of Canada, Paper 60-4, 76-77.