Pascoite

\[ \text{Ca}_3\text{V}^{5+}_{10}\text{O}_{28} \cdot 17\text{H}_2\text{O} \]

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

**Physical Properties**: 
*Cleavage*: \{010\}, distinct.  
*Fracture*: Conchoidal.  
*Hardness* = \( \approx 2.5 \)  
\( D(\text{meas.}) = 2.455 \)  
\( D(\text{calc.}) = 2.47 \) Soluble in H\(_2\)O.

**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(meas.) = 50°–56°  
*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.  
\( a = 19.5859(6) \)  
\( b = 10.1405(3) \)  
\( c = 10.9110(3) \)  
\( \beta = 120.815(1)° \)  
\( Z = 2 \)

**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)  
\[
\begin{align*}
\text{V}_2\text{O}_5 & \quad 64.6 \\
\text{MoO}_3 & \quad 0.3 \\
\text{CaO} & \quad 12.6 \\
\text{H}_2\text{O}^+ & \quad 7.8 \\
\text{H}_2\text{O}^- & \quad 13.8 \\
\text{H}_2\text{O} & \quad 22.13 \\
\text{Total} & \quad 100.0 \\
\end{align*}
\]

(2)  
\[
\begin{align*}
\text{V}_2\text{O}_5 & \quad 65.71 \\
\text{MoO}_3 & \quad 0.3 \\
\text{CaO} & \quad 12.16 \\
\text{H}_2\text{O}^+ & \quad 7.8 \\
\text{H}_2\text{O}^- & \quad 13.8 \\
\text{H}_2\text{O} & \quad 22.13 \\
\text{Total} & \quad 100.00 \\
\end{align*}
\]

(1) Minasragra, Peru; total includes 0.9 undetermined.  
(2) \( \text{Ca}_3\text{V}_{10}\text{O}_{28} \cdot 17\text{H}_2\text{O} \).

**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 Urca 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**:  