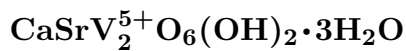


## Delrioite



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**Crystal Data:** Monoclinic. *Point Group:*  $m$  or  $2/m$ . As radial aggregates of tiny acicular crystals, intimately intergrown in parallel orientation with metadelrioite. *Twining:* On  $\{100\}$ , not uncommon.

**Physical Properties:** Hardness =  $\sim 2$   $D(\text{meas.}) = 3.1(1)$   $D(\text{calc.}) = 3.16$  Readily soluble in  $\text{H}_2\text{O}$ ; reversibly dehydrated.

**Optical Properties:** Translucent. *Color:* Pale yellow-green to darker green on exposed surfaces, probably the result of photoreduction of some of the vanadium. *Luster:* Vitreous to pearly.

*Optical Class:* Biaxial (-); properties composite with metadelrioite. *Pleochroism:*  $X =$  colorless;  $Y =$  pale yellow;  $Z =$  deeper yellow. *Orientation:*  $Z =$  elongation; extinction parallel.  $\alpha = 1.783(3)$   $\beta = 1.834(3)$   $\gamma = 1.866(3)$   $2V(\text{meas.}) =$  Medium to large.

**Cell Data:** *Space Group:*  $Ia$  or  $I2/a$ .  $a = 17.170(3)$   $b = 7.081(1)$   $c = 14.644(4)$   
 $\beta = 102^\circ 29(1)'$   $Z = 8$

**X-ray Powder Pattern:** Jo Dandy mine, Colorado, USA.

6.52 (vs), 3.54 (s), 4.39 (ms), 3.26 (ms), 2.794 (ms), 2.174 (m), 4.19 (w)

### Chemistry:

	(1)	(2)
$\text{V}_2\text{O}_5$	46.6	43.97
CaO	13.5	13.56
SrO	24.8	25.05
$\text{H}_2\text{O}^+$	5.7	17.42
$\text{H}_2\text{O}^-$	9.4	
Total	[100.0]	100.00

(1) Jo Dandy mine, Colorado, USA; an estimated 5:1 mixture with metadelrioite,  $\text{CaSrV}_2\text{O}_6(\text{OH})_2$ , recalculated to 100% after deduction of quartz 1.30%.

(2)  $\text{CaSrV}_2\text{O}_6(\text{OH})_2 \cdot 3\text{H}_2\text{O}$ .

**Occurrence:** An efflorescence on sandstone of the Salt Wash member of the Jurassic Morrison Formation associated with a U-V deposit.

**Association:** Metadelrioite, rossite, metarossite, quartz.

**Distribution:** From a dump at the Hummer portal of the Jo Dandy mine, Bull Canyon district, Paradox Valley, Montrose Co., Colorado, USA.

**Name:** For Mexican mineralogist Andrés Manuel del Río (1764–1849), who first discovered vanadium in North America.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 128296.

**References:** (1) Thompson, M.E. and A.M. Sherwood (1959) Delrioite, a new calcium strontium vanadate from Colorado. *Amer. Mineral.*, 44, 261–264. (2) Smith, M.L. (1970) Delrioite and metadelrioite from Montrose County, Colorado. *Amer. Mineral.*, 55, 185–200.