Tarapacáite K_2CrO_4

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Rarely as thick tabular {001} crystals; typically disseminated granular. *Twinning:* As pseudohexagonal trillings on {011}.

Physical Properties: *Cleavage:* On {010} and {100}, distinct. Hardness = n.d. D(meas.) = 2.74 (synthetic). D(calc.) = 2.735 Soluble in H_2O.

Optical Properties: Transparent. *Color:* Bright canary-yellow.
Optical Class: Biaxial (–). *Orientation:* $X = c$; $Y = a$; $Z = b$. *Dispersion:* $r > v$, weak.
$\alpha = 1.687$ $\beta = 1.722$ $\gamma = 1.731$ 2V(meas.) = 52°

Cell Data: *Space Group:* *Pnam* (synthetic). $a = 7.662(1)$ $b = 10.391(1)$ $c = 5.919(1)$
Z = 4

X-ray Powder Pattern: Synthetic.
3.078 (100), 2.988 (75), 2.960 (40), 2.479 (25), 2.286 (25), 2.599 (22), 2.570 (21)

Chemistry: (1) Analyses of natural material are lacking; identification depends on coincidence of optical and X-ray data with synthetic material.

Occurrence: A minor accessory mineral in nitrate deposits.

Association: Lopezite, dietzeite.

Distribution: In Chile, in nitrate caliche deposits throughout the Atacama Desert, as at the Oficina Maria Elena, near Tocopilla, Antofagasta, and Zapiga, Tarapacá.

Name: For its first noted occurrence in the Tocopilla Pampa, 170 km north of Antofagasta, Tarapacá, Chile.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 644-645. (2) Pistorius, C.W.F.T. (1962) Phase relations of some potassium compounds to very high pressures. Z. Physik. Chem., 35, 109–121. (3) McGinnety, J.A. (1972) Redetermination of the structures of potassium sulphate and potassium chromate: the effect of electrostatic crystal forces upon observed bond lengths. Acta Cryst., 28, 2845–2858. (4) Toriumi, K. and Y. Saito (1978) Electron-density distribution in crystals of α−K_2CrO_4. Acta Cryst., 34, 3149–3156.