Chromatite $CaCrO_4$

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Rarely as tetragonal dipyramidal crystals, short to prismatic; typically as grains, to 0.1 mm; as earthy flecks, crusts, nodules, veins, and films.

Physical Properties: *Cleavage:* One prismatic, poor. *Fracture:* Conchoidal. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.142 (synthetic). Soluble in H_2O.

Optical Properties: Transparent. *Color:* Bright citron-yellow; yellow in transmitted light. *Luster:* Vitreous.
Optical Class: Uniaxial (+). *Dispersion:* Strong. $\omega = 1.81$–1.85 $\epsilon = 1.84$–1.88

Cell Data: *Space Group:* $I4_1/amd$ (synthetic). $a = 7.26(1)$ $c = 6.26(1)$ Z = 4

X-ray Powder Pattern: Synthetic.
3.62 (100), 2.679 (55), 1.8510 (45), 2.880 (16), 2.375 (16), 1.8100 (16), 1.4999 (14)

Chemistry:

	(1)	(2)
CrO_3	62.0	64.07
MgO	0.3	
CaO	32.0	35.93
Na_2O	3.6	
K_2O	0.7	
Total	98.6	100.00

(1) Hatrurim Formation, Israel; by AA, K, Na by flame photometry. (2) $CaCrO_4$.

Occurrence: Formed in an arid climate along fractures in limestones and marls by ascending ground water, the chromium derived from underlying bituminous phosphatic marls.

Association: Gypsum, calcite, aragonite, vaterite, portlandite.

Distribution: From Ma'aleh Adumim, along the Jerusalem-Jericho highway, and in the Hatrurim Formation, Israel.

Name: As a *chromate*.

Type Material: Geological Survey of Israel, Jerusalem, Israel, SG232, SG236, SG261, SG571.

References: (1) Eckhardt, F.-J. and W. Heimbach (1963) Ein natürliches Vorkommen von $CaCrO_4$ (Chromatit). Naturwiss., 50, 612 (in German). (2) (1964) Amer. Mineral., 49, 439 (abs. ref. 1). (3) Heimbach, W. (1965) Zum Vorkommen von Chromatit, $CaCrO_4$, in Jordanien. Geologisches Jahrbuch, 83, 717–724 (in German). (4) Gross, S. (1977) Mineralogy of the Hatrurim Formation, Israel. Geol. Sur. Israel Bull. 70, 26–27. (5) Clouse, J.H. (1932) Investigations on the X-ray crystal structures of $CaCrO_4$, $CaCrO_4 \cdot H_2O$, and $CaCrO_4 \cdot 2H_2O$. Zeits. Krist., 83, 161–171. (6) (1957) NBS Circ. 539, 7, 13.