Lopezite $K_2Cr_2O_7$

Crystal Data: Triclinic (synthetic). *Point Group:* $\overline{1}$. As ball-like aggregates, to 1 mm.

Physical Properties: Hardness = 2.5 D(meas.) = 2.69 D(calc.) = 2.704 Soluble in H_2O.

Optical Properties: Transparent. *Color:* Red-orange.
Optical Class: Biaxial (+). *Pleochroism:* X = reddish yellow; X = yellow; Z = greenish yellow.
Dispersion: $r > v$, medium. $\alpha = 1.714$ $\beta = 1.732$ $\gamma = 1.805$ 2V(meas.) = 50°

Cell Data: *Space Group:* $P\overline{1}$ (synthetic). $a = 13.367(11)$ $b = 7.376(5)$ $c = 7.445(6)$
$\alpha = 90.75(5)°$ $\beta = 96.21(7)°$ $\gamma = 97.96(5)°$ Z = 4

X-ray Powder Pattern: Synthetic. (ICDD 27-380).
3.298 (100), 3.472(90), 3.658 (85), 4.87 (45), 3.063 (30), 3.027 (30), 2.877 (30)

Chemistry: (1) Identification depends on microchemical tests for K and CrO_4, correspondence of optical properties, and X-ray powder pattern with the synthetic compound.

Occurrence: A rare secondary mineral in vugs in massive nitrate rock.

Association: Tarapacáite, dietzeite, ulexite (Oficina Maria Elena, Chile).

Distribution: In Chile, in Tarapacá, from Oficina Rosario, Huara, Pampa del Iquique; Oficina Maria Elena, near Tocopilla, Pampa del Tocopilla; and at Zapiga.

Name: Honoring Dr. Emiliano Lòpez Saa (1871–1959), Iquique, Chile, Chilean mining engineer and mineral collector long associated with the Chilean nitrate industry.

Type Material: National Museum of Natural History, Washington, D.C., USA, C5487.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 645–646. (2) Kuzmin, E.A., N.V. Belov, and V.V. Ilyukhin (1967) Crystal structure of the potassium dichromate K_2CrO_7 (lopezite). Doklady Acad. Nauk SSSR, 173, 1068–1071 (in Russian). (3) Brandon, J.K. and I.D. Brown (1968) An accurate determination of the crystal structure of triclinic potassium dichromate, $K_2Cr_2O_7$. Can. J. Chem., 46(6), 933–941. (4) Brunton, G. (1983) Refinement of the structure of $K_2Cr_2O_7$. Mat. Res. Bull. 8(3), 271–274. (5) Bandy, M.C. (1937) Lopezite, a new mineral. Amer. Mineral., 22, 929–930.