Cranswickite $Mg(SO_4)\cdot 4H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. Powdery to massive.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. Hardness = n.d.
D(meas.) = 1.917 D(calc.) = 1.918 Readily soluble in water.

Optical Properties: Translucent. *Color*: White. *Streak*: n.d. *Luster*: n.d.
Optical Class: Biaxial. *n*(average) = 1.465

Cell Data: *Space Group*: *C*2/*c*. a = 11.9236(3) b = 5.1736(1) c = 12.1958(3) β = 117.548(2)° Z = 4

X-ray Powder Pattern: Calingasta, Argentina.
5.259 (100), 3.927 (46), 3.168 (45), 4.603 (29), 2.570 (23), 3.970 (22), 3.118 (22)

Chemistry:

	(1)
Co	0.01
Mg	20.28
Mn	0.06
Ni	0.08
S	41.59
Zn	0.17
H_2O	37.90
Total	100.09

(1) Calingasta, Argentina; ICP-MS analysis supplemented by Raman and FTIR spectrometry, H_2O by DTA.

Occurrence: In veins of up to 3 cm in thickness in a fine-grained metasedimetary rock (illite, quartz, and gypsum).

Association: Hexahydrite, starkeyite, kieserite.

Distribution: From an outcrop 1 km east-southeast of Calingasta, Argentina.

Name: Honors Lachlan M.D. *Cranswick* (1968-2010), an Australian crystallographer who helped to develop and maintain the Collaborative Computational Project No. 14 in Powder and Small Molecule Single Crystal Diffraction (CCP14).

Type Material: Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 86134).

References: (1) Peterson, R.C. (2011) Cranswickite $MgSO_4\cdot 4H_2O$, a new mineral from Calingasta, Argentina. Amer. Mineral., 96, 869-877.