Trigonite $Pb_3Mn^{2+}(As^{3+}O_3)_2(As^{3+}O_2OH)$

Crystal Data: Monoclinic. *Point Group: m.* As crystals with a trigonal outline from development of many domatic forms, flattened on {010}, to 5 mm; in subparallel growths.

Physical Properties: *Cleavage:* {010}, perfect; {101}, good. *Fracture:* Uneven. Hardness = 2–3 D(meas.) = 6.1–7.1 D(calc.) = 6.35

Optical Properties: Translucent. *Color:* Sulfur-yellow to yellowish brown, dark brown; pale yellow to brownish yellow in transmitted light. *Luster:* Vitreous to adamantine. *Optical Class:* Biaxial (–). *Orientation:* $Y = b$. *Dispersion:* $r < v$, observable. $\alpha = 2.07$ $\beta = 2.10$ $\gamma = 2.12$ 2V(meas.) = Very large.

Cell Data: *Space Group: Pn.* $a = 7.258(3)$ $b = 6.822(4)$ $c = 11.088(6)$ $\beta = 94.45(4)°$ Z = 2

X-ray Powder Pattern: Långban, Sweden.
2.99 (10), 3.08 (9), 3.24 (7), 4.90 (6), 4.50 (4), 3.65 (4), 2.76 (4)

Chemistry:

	(1)	(2)
As_2O_3	28.83	28.36
FeO	0.15	
MnO	6.79	6.78
PbO	63.40	64.00
MgO	0.11	
CaO	0.23	
Cl	trace	
H_2O	0.81	0.86
insol.	0.13	
Total	100.45	100.00

(1) Långban, Sweden; averages of several analyses. (2) $Pb_3Mn(AsO_3)_2(AsO_2OH)$.

Occurrence: In a metamorphosed Fe–Mn orebody.

Association: Lead, dixenite, hausmannite, finnemanite, rouseite, dolomite, barite.

Distribution: At Långban, Värmland, Sweden.

Name: From the Greek for *triangle*, alluding to the characteristic crystal outline.

Type Material: Swedish Museum of Natural History, Stockholm, Sweden.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 1032–1033. (2) Pertlik, F. (1978) The crystal structure of trigonite, $Pb_3Mn(AsO_3)_2(AsO_2OH)$. Tschermaks Mineral. Petrog. Mitt., 25, 95–105. (3) Pertlik, F. (1987) [Crystal structure refinement of trigonite, $Pb_3Mn(AsO_3)_2(AsO_2OH)$, with a remark on errors in inorganic crystal structure databases.] Österreichische Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Klasse, Anzeiger, 124, 81–84 (in German). (4) (1989) Mineral. Abs., 40, 178 (abs. ref. 3). (5) Welin, E. (1968) X-ray powder data for minerals from Långban and the related mineral deposits of Central Sweden. Arkiv Mineral. Geol., 4(30), 499–541.