Barysilite $Pb_8Mn(Si_2O_7)_3$

Crystal Data: Hexagonal. *Point Group:* $3\overline{2}/m$. As platy, subparallel crystals in lamellar and ball-like aggregates, to 3 mm; granular, massive.

Physical Properties: *Cleavage:* {0001}, perfect. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3 D(meas.) = 6.55–6.71 D(calc.) = [6.54]

Optical Properties: Semitransparent. *Color:* Pink to colorless; tarnishes on exposure. *Luster:* Pearly on cleavage.
Optical Class: Uniaxial (–). $\omega = 2.033–2.07$ $\epsilon = 2.015–2.05$

Cell Data: *Space Group:* $R\overline{3}c$. $a = 9.821$ $c = 38.38$ $Z = 6$

X-ray Powder Pattern: Långban, Sweden.
2.957 (100), 2.765 (80), 2.675 (80), 3.88 (60), 3.16 (60), 4.57 (50), 3.22 (50)

Chemistry:

	(1)	(2)	(3)
SiO_2	16.84	17.1	16.26
Al_2O_3	0.59		
FeO	0.23		
MnO	3.33	3.7	3.20
ZnO	0.30		
PbO	77.35	78.4	80.54
MgO	0.78		
CaO	0.21	0.6	
H_2O^+	0.07		
Total	99.70	99.8	100.00

(1) Franklin, New Jersey, USA. (2) Do.; by electron microprobe. (3) $Pb_8Mn(Si_2O_7)_3$.

Occurrence: In iron ores (Harstigen mine, Sweden); as thin films and veinlets in a metamorphosed zinc orebody (Franklin, New Jersey, USA).

Association: Garnet, willemite, axinite, hardystonite (Franklin, New Jersey, USA).

Distribution: In the Harstigen mine, near Persberg, and Långban and Jakobsberg, Värmland, Sweden. From Franklin, Sussex Co., New Jersey, USA.

Name: From the Greek for *heavy* and for SILicon in its composition.

Type Material: Harvard University, Cambridge, Massachusetts, USA, 114630.

References: (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 421. (2) Shannon, E.V. and H. Berman (1926) Barysilite from Franklin Furnace, New Jersey. Amer. Mineral., 11, 130–132. (3) Glasser, F.P. (1964) New data on barysilite. Amer. Mineral., 49, 1485–1488. (4) Lajzérowicz, J. (1965) Étude par diffraction des rayons X et absorption infra-rouge de la barysilite, $MnPb_8 \cdot 3Si_2O_7$, et composés isomorphes. Acta Cryst., 20, 357–363 (in French with English abs.). (5) Billhardt, H.W. (1969) Synthesis of lead pyrosilicate and other barysilite-like compounds. Amer. Mineral., 54, 510–521. (6) Dunn, P.J. (1985) The lead silicates from Franklin, New Jersey: occurrence and composition. Mineral. Mag., 49, 721–727.