



>>Entry Name: Barium silicate (BaSiO₃)

Synonym(s): Barium metasilicate

CAS Registry Number: 13255-26-0

BaSiO₃

Molecular Formula: BaO₃Si

Molecular Weight: 213.411

Accurate Mass: 213.866904

Percentage Composition: Ba 64.35%; O 22.49%; Si 13.16%

General Statement: Three polymorphic forms are known. Normally obt. as a single chain silicate (2SiO₄ units per chain). BaO₈ polyhedra form. corrugated layers in the thermodynamically stable phase above 1350°. Below this temp., struct. (not the thermodynamic product.) contains cyclic anions instead of the silicate chain

Source/Synthesis: Prepd. from BaCl₂ and Na₂SiO₃

Physical Description: Cryst.

Melting Point: Mp 1604°

Solubility: Insol. H₂O

Other Data: BaSiO₃ below 1350°

References:

Schwarz, R. *et al.*, *Ber.*, 1927, **60**, 2263, (*synth*)

Hoehne, E. *et al.*, *Acta Cryst.*, 1961, **14**, 1298, (*cryst struct, hydrate*)

Lazarev, A.N. *et al.*, *Dokl. Akad. Nauk SSSR, Ser. Khim.*, 1961, **140**, 811; *CA*, **56**, 8107e, (*struct*)

Kruger, G. *et al.*, *Z. Anorg. Allg. Chem.*, 1965, **340**, 277, (*synth*)

Grebenshchikov, R.G. *et al.*, *Izv. Akad. Nauk SSSR, Neorg. Mater.*, 1967, **3**, 1620; *CA*, **69**, 90769j, (*polymorphs*)

Grosse, H.P. *et al.*, *Cryst. Struct. Commun.*, 1974, **3**, 603, (*cryst struct*)

Yamaguchi, O. *et al.*, *Bull. Chem. Soc. Jpn.*, 1981, **54**, 445, (*synth*)

Krol, D.M. *et al.*, *J. Phys., Colloq. C*, 1982, **9**, 347, (*Raman*)

Timken, H.K.C. *et al.*, *J. Phys. Chem.*, 1987, **91**, 1054, (*O-17 nmr*)