



>>Entry Name: Silicon(IV) carbide (SiC)

Synonym(s): Carborundum

CAS Registry Number: 409-21-2

Extra CAS Registry Numbers(s): 12504-67-5

SiC

Molecular Formula: CSi

Molecular Weight: 40.097

Accurate Mass: 39.976927

Percentage Composition: C 29.96%; Si 70.04%

Source/Synthesis: Can be synth. by pyrol. of SiMe₄ or Me₆Si₂ using a pulsed CO₂ laser; high process temp. allows use of carbon sources which are less reactive, cheap and easy to handle

Use/Importance: Commercially available abrasive powder. Refractory. When doped, α-SiC is a valuable extrinsic semiconductor. β-SiC-metal nitride ceramics of defined compositions synth. by pyrol. of poly[(silylene)diacetylene]-metal oxide composites under N₂. Forms mixed ceramics with TiC, ZrC, B₄C, Mo₂C, V₄C₃, HfC, NbC

Physical Description: Black, hexagonal or cubic cryst; colourless when pure

Boiling Point: Subl. 2700° dec.

Solubility: Insol. H₂O, acids; sol. fused KOH

Other Data: Hardness: 9.5 Mohs

Aldrich: 37809-7

Fluka: 85355

References:

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Inoue, Z. *et al.*, *J. Mater. Sci.*, 1982, **17**, 3197, (*synth, cryst struct*)

Finlay, G.R. *et al.*, *Chem. Comm.*, 1985, 159, (*Si-29 nmr*)

Greenwood, N.N. *et al.*, *Chemistry of the Elements*, Pergamon, Oxford, 1986, 386, (*rev*)

Corriu, R. *et al.*, *Angew. Chem., Int. Ed.*, 1992, **31**, 1195, (*ceramics, use, manuf, powder struct, tga, ir, dta*)

Scholz, M. *et al.*, *Adv. Mater.*, 1993, **5**, 38, (*synth, ir, struct, surface absorption studies*)

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