



>>Entry Name: Copper(II) silicate (CuSiO₃)

CAS Registry Number: 16509-17-4
CuSiO₃

Molecular Formula: CuO₃Si
Molecular Weight: 139.63
Accurate Mass: 138.90127
Percentage Composition: Cu 45.51%; O 34.38%; Si 20.11%

>>Variant: Mineral-form
Synonym(s): Diopase

CAS Registry Number: 15606-25-4
Molecular Formula: CuO₃Si
Molecular Weight: 139.63
Accurate Mass: 138.90127
Percentage Composition: Cu 45.51%; O 34.38%; Si 20.11%
General Statement: Unbranched, monocyclosilicate, corresp. to Cu(H₂SiO₄) or Cu₆(SiO₃)₆·6H₂O
Source/Synthesis: Occurs in the oxidn. zone of Cu deposits
Use/Importance: Cu ore
Physical Description: Rhombohedral, emerald-green cryst.

>>Variant: Mineral-form
Synonym(s): Chrysocolla

CAS Registry Number: 14567-86-3
Molecular Formula: CuO₃Si
Molecular Weight: 139.63
Accurate Mass: 138.90127
Percentage Composition: Cu 45.51%; O 34.38%; Si 20.11%
General Statement: Distorted chain struct. corresp. to Cu(SiO₃)₂·H₂O or (Si₄O₁₀)Cu₈(OH)₁₂
Source/Synthesis: Widespread as a common mineral in the oxidn. zone of Cu deposits
Use/Importance: Minor ore of Cu; ornamental stone
Physical Description: Blue, blue-green or green, amorph.

>>Variant: Mineral-form
Synonym(s): Plancheite

Molecular Formula: CuO₃Si
Molecular Weight: 139.63
Accurate Mass: 138.90127
Percentage Composition: Cu 45.51%; O 34.38%; Si 20.11%
General Statement: Corresp. to CuSiO₃·xH₂O or Cu₈(Si₄O₁₁)₂(OH)₄·xH₂O; comprises brucite-like (CuO₂)_n layers with amphibole-type chains joined to their surfaces
Source/Synthesis: Occurs as a secondary mineral in the oxidn. zone of Cu deposits
Physical Description: Pale to dark blue cryst.

References:

- Van Oosterwyck-Gastoche, M.C., *C. R. Hebd. Seances Acad. Sci. Ser. D*, 1970, **271**, 1837-1840, (*chrysocolla, cryst struct*)
Gabuda, S.P. *et al.*, *Zh. Strukt. Khim.*, 1976, **17**, 827, (*diopase, pmr*)
Evans, T.H. *et al.*, *Am. Mineral.*, 1977, **62**, 491-502, (*plancheite, cryst struct*)
Ribbe, P.H. *et al.*, *Am. Mineral.*, 1977, **62**, 807, (*diopase, cryst struct*)
Belov, N.V. *et al.*, *Sov. Phys. Dokl. (Engl. Transl.)*, 1978, **23**, 215, (*cryst struct*)
Povarennykh, A.S., *Mineral. Zh.*, 1979, **1**, 3, (*diopase, ir*)
Breuer, K.H. *et al.*, *Z. Kristallogr.*, 1989, **187**, 15-23, (*diopase, cryst struct*)