



>>Entry Name: Copper(II) silicate (CuSiO<sub>3</sub>)

CAS Registry Number: 16509-17-4  
CuSiO<sub>3</sub>

Molecular Formula: CuO<sub>3</sub>Si  
Molecular Weight: 139.63  
Accurate Mass: 138.90127  
Percentage Composition: Cu 45.51%; O 34.38%; Si 20.11%

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

CAS Registry Number: 15606-25-4  
Molecular Formula: CuO<sub>3</sub>Si  
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(H<sub>2</sub>SiO<sub>4</sub>) or Cu<sub>6</sub>(SiO<sub>3</sub>)<sub>6</sub>·6H<sub>2</sub>O  
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: CuO<sub>3</sub>Si  
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(SiO<sub>3</sub>)<sub>2</sub>·H<sub>2</sub>O or (Si<sub>4</sub>O<sub>10</sub>)Cu<sub>8</sub>(OH)<sub>12</sub>  
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): Planchelite

Molecular Formula: CuO<sub>3</sub>Si  
Molecular Weight: 139.63  
Accurate Mass: 138.90127  
Percentage Composition: Cu 45.51%; O 34.38%; Si 20.11%  
General Statement: Corresp. to CuSiO<sub>3</sub>·xH<sub>2</sub>O or Cu<sub>8</sub>(Si<sub>4</sub>O<sub>11</sub>)<sub>2</sub>(OH)<sub>4</sub>·xH<sub>2</sub>O; comprises brucite-like (CuO<sub>2</sub>)<sub>n</sub> 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, (*planchelite, 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*)