Cuprorivaite $CaCuSi_4O_{10}$

Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. Crystals tabular on {001}, to 0.1 mm.

Physical Properties: *Cleavage:* Perfect on {001}. *Tenacity:* Brittle. Hardness = ∼5 D(meas.) = 3.08(6) D(calc.) = 3.09

Optical Properties: Transparent to translucent. *Color:* Azure. *Luster:* Vitreous. *Optical Class:* Uniaxial (–). *Pleochroism:* O = blue; E = nearly colorless, pale rose. $\omega = 1.633(3)$ $\epsilon = 1.590(3)$

Cell Data: *Space Group:* $P4/ncc$. a = 7.30(1) $c = 15.12(2)$ Z = 4

X-ray Powder Pattern: Synthetic.
3.29 (100), 3.78 (90), 3.00 (90), 3.36 (80), 3.19 (50), 2.270 (50), 7.63 (40)

Chemistry:

	(1)	(2)
SiO_2	64.44	63.92
Al_2O_3	2.12	
Fe_2O_3	0.39	
CuO	12.09	21.16
CaO	12.19	14.92
Na_2O	2.52	
K_2O	1.06	
H_2O^+	2.59	
CO_2	1.18	
SO_3	1.08	
Total	99.66	100.00

(1) Vesuvius, Italy; sample contaminated with 13% quartz. (2) $CaCuSi_4O_{10}$.

Occurrence: Intimately mixed with quartz (Vesuvius, Italy); in a mudstone xenolith ejected from a scoria cone (Sattelberg volcanic cone, Germany).

Association: Quartz.

Distribution: In Italy, on Vesuvius, Campania. From Wheal Edward, Cornwall, England. At Summit Rock, near Diamond Lake, Douglas Co., Oregon, USA. From the Sattelberg volcanic cone, near Brenk, Eifel district, Germany. At Messina, Transvaal, South Africa.

Name: For a high copper content and presumed similarity to *rivaite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 135505.

References: (1) Minguzzi, C. (1938) Cuprorivaite: Un nuovo minerale. Period. Mineral., 9(3), 333–345 (in Italian). (2) (1939) Amer. Mineral., 24, 350 (abs. ref. 1). (3) Pabst, A. (1959) Structures of some tetragonal silicates. Acta Cryst., 12, 733–739. (4) Mazzi, F. and A. Pabst (1962) Reexamination of cuprorivaite. Amer. Mineral., 47, 409–411.