

Mahnertite

(Na, Ca)Cu₃(AsO₄)₂Cl·5H₂O

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Crystal Data: Tetragonal. *Point Group:* 422. Crystals, square in outline, to 0.1 mm, flattened on [001], showing {001}, {100}; in subparallel groups giving spherical aggregates.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* Irregular. *Tenacity:* Fragile [sic]. Hardness = 2–3 D(meas.) = 3.33(2) D(calc.) = 3.36(1)

Optical Properties: Translucent. *Color:* Bright blue to emerald-green. *Streak:* Pale blue. *Luster:* Vitreous.

Optical Class: Uniaxial (-). *Pleochroism:* Strong; *O* = blue to intense blue-green; *E* = blue to green. $\omega = 1.686(2)$ $\epsilon = 1.635(2)$

Cell Data: *Space Group:* $P4_22_1$. $a = 10.085(2)$ $c = 23.836(8)$ $Z = 8$

X-ray Powder Pattern: Cap Garonne mine, France.

11.90 (100), 3.098 (80), 3.061 (70), 9.29 (60), 5.043 (60), 7.131 (50), 4.641 (40)

Chemistry:

	(1)
As ₂ O ₅	39.07
CuO	36.37
CaO	2.14
Na ₂ O	4.58
K ₂ O	0.40
Cl	4.67
H ₂ O	14.5
-O = Cl ₂	1.05
Total	100.68

(1) Cap Garonne mine, France; by electron microprobe; H₂O by loss on heating; corresponds to (Na_{0.90}Ca_{0.23}K_{0.05})_{Σ=1.18}Cu_{2.79}(AsO₄)_{2.07}Cl_{0.81}•4.91H₂O.

Occurrence: In the oxidized zone of an arsenic-rich copper deposit (Cap Garonne mine, France).

Association: Tennantite, covellite, geminite, pushcharovskite, quartz (Cap Garonne mine, France).

Distribution: From the Cap Garonne mine, near le Pradet, Var, and at the Salsigne mine, 15 km north of Carcassone, Aude, France. In the Falotta mine, Oberhalbstein, Graubünden, Switzerland.

Name: To honor Dr. Volker Mahnert (1943–), Director, Natural History Museum, Geneva, Switzerland.

Type Material: Natural History Museum, Geneva, Switzerland.

References: (1) Sarp, H. (1996) La mahnertite, (Na, Ca)Cu₃(AsO₄)₂.Cl.5H₂O, un nouveau minéral de la mine de Cap Garonne, Var, France. Archs Sci. Genève, 49(2), 119–126 (in French with English abs.). (2) (1997) Amer. Mineral., 82, 1262 (abs. ref. 1).