

Camerolaite

$\text{Cu}_4\text{Al}_2(\text{HSbO}_4, \text{SO}_4)(\text{CO}_3)(\text{OH})_{10} \cdot 2\text{H}_2\text{O}$

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Crystal Data: Monoclinic. *Point Group:* $2/m$ or 2 . Crystals are acicular, elongated along $[010]$, flattened on $\{100\}$, showing only $\{100\}$ and $\{001\}$; typically in tufts or radiating aggregates, to 2 mm.

Physical Properties: *Cleavage:* On $\{100\}$ and $\{001\}$, good. *Fracture:* Fibrous. *Tenacity:* Brittle. Hardness = n.d. $D(\text{meas.}) = 3.1(1)$ $D(\text{calc.}) = 2.96$

Optical Properties: Transparent. *Color:* Blue-green. *Streak:* Pale green. *Luster:* Silky. *Optical Class:* Biaxial (+). *Pleochroism:* X = colorless; Y = pale green; Z = blue-green. *Orientation:* $X \perp \{100\}$; $Z = b$. *Dispersion:* $r < v$, strong. $\alpha = 1.626(2)$ $\beta = 1.646(2)$ $\gamma = 1.682(2)$ $2V(\text{meas.}) = 77(3)^\circ$ $2V(\text{calc.}) = 75^\circ$

Cell Data: *Space Group:* $P2_1/m$ or $P2_1$. $a = 10.765(6)$ $b = 2.903(2)$ $c = 12.527(8)$ $\beta = 95.61(4)^\circ$ $Z = 1$

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

4.276 (100), 5.160 (90), 5.62 (50), 3.565 (40), 2.380 (35), 2.326 (35), 2.137 (30)

Chemistry:

	(1)
SO_3	4.75
CO_2	6.26
Sb_2O_3	13.55
Al_2O_3	14.54
CuO	40.56
H_2O	20.00
Total	99.66

(1) Cap Garonne mine, France; by electron microprobe, average of eight analyses, CO_2 and H_2O by CHN analyzer; corresponds to $\text{Cu}_{3.56}\text{Al}_{1.99}[(\text{HSbO}_4)_{0.59}(\text{SO}_4)_{0.41}]_{\Sigma=1.00}(\text{CO}_3)_{0.99}(\text{OH})_{9.91} \cdot 2.12\text{H}_2\text{O}$.

Occurrence: A rare secondary mineral in the oxidized zone of polymetallic mineral deposits.

Association: Parnauite, cyanotrichite, malachite, quartz (Cap Garonne mine, France); brochantite, chalcophyllite, mimetite, azurite (St.-Luc, Switzerland).

Distribution: In France, from the Cap Garonne mine, near le Pradet, Var, and at Ceilhes, Hérault. From near St.-Luc, Val d'Anniviers, Valais, Switzerland. In the Clara mine, near Oberwolfach, Black Forest, Germany. At Špania Dolina (Herrengrund) and Piesky, Slovakia.

Name: Honors Michel Camerola, mineral collector who collected the first specimen.

Type Material: Natural History Museum, Geneva, Switzerland, 435/84.

References: (1) Sarp, H. and P. Perroud (1991) Camerolaite, $\text{Cu}_4\text{Al}_2[\text{HSbO}_4, \text{SO}_4](\text{OH})_{10}(\text{CO}_3) \cdot 2\text{H}_2\text{O}$, a new mineral from Cap Garonne mine, Var, France. *Neues Jahrb. Mineral., Monatsh.*, 481–486. (2) (1992) *Amer. Mineral.*, 77, 1116 (abs. ref. 1). (3) Cuchet, S. (1995) Seconde occurrence de camérolaïte, $\text{Cu}_4\text{Al}_2[(\text{HSbO}_4, \text{SO}_4)](\text{OH})_{10}(\text{CO}_3) \cdot 2\text{H}_2\text{O}$, Val d'Anniviers, Valais, Suisse. *Schweiz. Mineral. Petrog. Mitt.*, 75, 283–284 (in French with English abs.).