

**Camerolaite****Cu<sub>4</sub>Al<sub>2</sub>(HSbO<sub>4</sub>, SO<sub>4</sub>)(CO<sub>3</sub>)(OH)<sub>10</sub>•2H<sub>2</sub>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(meas.) = 3.1(1) D(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 ⊥ {100}; Z = b. *Dispersion:* r < v, strong. α = 1.626(2) β = 1.646(2) γ = 1.682(2) 2V(meas.) = 77(3)° 2V(calc.) = 75°

**Cell Data:** *Space Group:* P2<sub>1</sub>/m or P2<sub>1</sub>. a = 10.765(6) b = 2.903(2) c = 12.527(8) β = 95.61(4)° 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)

<b>Chemistry:</b>	(1)
	SO <sub>3</sub> 4.75
	CO <sub>2</sub> 6.26
	Sb <sub>2</sub> O <sub>3</sub> 13.55
	Al <sub>2</sub> O <sub>3</sub> 14.54
	CuO 40.56
	H <sub>2</sub> O 20.00
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	Total 99.66

(1) Cap Garonne mine, France; by electron microprobe, average of eight analyses, CO<sub>2</sub> and H<sub>2</sub>O by CHN analyzer; corresponds to Cu<sub>3.56</sub>Al<sub>1.99</sub>[(HSbO<sub>4</sub>)<sub>0.59</sub>(SO<sub>4</sub>)<sub>0.41</sub>]<sub>Σ=1.00</sub>(CO<sub>3</sub>)<sub>0.99</sub>(OH)<sub>9.91</sub>•2.12H<sub>2</sub>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 (Herregrund) 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, Cu<sub>4</sub>Al<sub>2</sub>[(HSbO<sub>4</sub>, SO<sub>4</sub>)](OH)<sub>10</sub>(CO<sub>3</sub>)•2H<sub>2</sub>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, Cu<sub>4</sub>Al<sub>2</sub>[(HSbO<sub>4</sub>, SO<sub>4</sub>)](OH)<sub>10</sub>(CO<sub>3</sub>)•2H<sub>2</sub>O, Val d'Anniviers, Valais, Suisse. Schweiz. Mineral. Petrog. Mitt., 75, 283–284 (in French with English abs.).