

Richelsdorffite**Ca₂Cu₅Sb⁵⁺(AsO₄)₄(OH)₆Cl·6H₂O**

©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Monoclinic, pseudotetragonal. *Point Group:* 2/*m*. Rare crystals, to 1 mm, flattened on {001}, with {001}, {010}, {101}, {210}; typically in spherical aggregates and botryoidal crystalline crusts. *Twinning:* On {001}, common.

Physical Properties: *Cleavage:* Perfect on {001}. *Hardness* = ~2 *D*(meas.) = 3.20(3) *D*(calc.) = 3.27–3.33

Optical Properties: Translucent. *Color:* Turquoise-blue, sky-blue, greenish blue. *Luster:* Vitreous.

Optical Class: Biaxial (–). *Pleochroism:* *X* = pale blue to colorless; *Y* = greenish blue, blue; *Z* = light greenish blue, blue. *Orientation:* *Z* = *b*; *Y* ≈ *a*; *X* inclined to *c*. *Dispersion:* *r* > *v*. *α* = 1.640–1.698 *β* = 1.692–1.765 *γ* = 1.694–1.799 2*V*(meas.) = 10°–15°; 69(2)° 2*V*(calc.) = 21.6°; 68.7°

Cell Data: *Space Group:* *C*2/*m*. *a* = 14.078–14.079 *b* = 14.203–14.207 *c* = 13.470–13.49 *β* = 101.05°–101.06° *Z* = 4

X-ray Powder Pattern: Richelsdorf Mountains, Germany.

3.045 (100), 4.913 (70), 4.392 (60), 1.753 (60), 2.669 (50), 0.795 (50), 6.80 (30)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
As ₂ O ₅	31.18	35.23	34.80	CaO	8.97	8.36	8.49
Sb ₂ O ₅	11.88	12.13	12.25	Cl	1.83	2.44	2.68
FeO	0.01			H ₂ O	[17.19]	[11.98]	12.27
CuO	28.71	30.41	30.11	–O = Cl ₂	[0.41]	0.55	0.60
ZnO	0.23			Total	[99.59]	[100.00]	100.00

(1) Richelsdorf Mountains, Germany; by electron microprobe, H₂O by difference. (2) Triembach-au-Val, France; by electron microprobe, H₂O by difference. (3) Ca₂Cu₅Sb(AsO₄)₄Cl(OH)₆·6H₂O.

Occurrence: In cavities in sandstone in the Kupferschiefer (Richelsdorf Mountains, Germany).

Association: Duftite, tyrolite, azurite, tetrahedrite–tennantite, calcite (Richelsdorf Mountains, Germany); tetrahedrite–tennantite, galena, brochantite, devilline, harmotome, calcite (Samson mine, Germany); erythrite, chalcophyllite, cornwallite, strashimirite, tetrahedrite–tennantite, barite (Triembach-au-Val, France).

Distribution: In Germany, from Iba, near Richelsdorf, Richelsdorf Mountains, and Reichenbach, near Bensheim, Hesse; at the Sauberg mine, Ehrenfriedersdorf, Saxony; in the Samson mine, St. Andreasberg, and on the dumps of the Glücksrad mine, Oberschulenberg, Harz Mountains; in the Alte Buntekuh mine, near Niederschelden, and at Ramsbeck, North Rhine-Westphalia; in the Clara mine, near Oberwolfach, Black Forest. From Triembach-au-Val, Haut-Rhin, France. Large crystals at the Burrus mine, Pyramid district, Washoe Co., Nevada, USA.

Name: For its first observed occurrence in the Richelsdorf Mountains, Germany.

Type Material: Göttingen University, Göttingen, Germany; National Museum of Natural History, Washington, D.C., USA, 150229.

References: (1) Süssé, P. and G. Schnorrer-Köhler (1983) Richelsdorffit, Ca₂Cu₅Sb [Cl/(OH)₆/(AsO₄)₄]·6H₂O, ein neues Mineral. Neues Jahrb. Mineral., Monatsh., 145–150 (in German with English abs.). (2) (1984) Amer. Mineral., 69, 211 (abs. ref. 1). (3) Süssé, P. and B. Tillman (1987) The crystal structure of the new mineral richelsdorffite, Ca₂Cu₅Sb(Cl/(OH)₆/(AsO₄)₄)·6H₂O. Zeits. Krist., 179, 323–334. (4) Sarp, H., B. Dominik, and P.-J. Chiappero (1994) Nouveau gisement (Triembach-Le Val, Vosges, France): nouvelles propriétés optiques et diagramme de poudre de la richelsdorffite, Ca₂Cu₅Sb [Cl(OH)₆(AsO₄)₄]·6H₂O (in French, with English abs.). Schweiz. Mineral. Petrog. Mitt., 74, 273–277.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of Mineral Data Publishing.