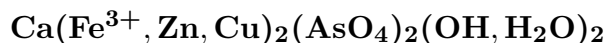


Ferrilotharmeyerite

©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Monoclinic. *Point Group:* $2/m$. As subhedral crystals, to 0.6 mm, tabular on $\{\bar{1}01\}$, slightly elongated along $[010]$, wedge- or lozenge-shaped, terminated by $\{\bar{1}11\}$, composed of multiple crystallites.

Physical Properties: *Cleavage:* Good on $\{001\}$. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = ~ 3 D(meas.) = 4.25(5) D(calc.) = 4.21–4.38

Optical Properties: Transparent to translucent. *Color:* Yellow, brownish yellow, yellowish brown. *Streak:* Very pale yellow. *Luster:* Adamantine to greasy. *Optical Class:* Biaxial (+). *Pleochroism:* Strong; X = olive-green or orange; Y = pale green or yellow; Z = colorless. *Orientation:* X = b; Y \wedge c = $\sim 22^\circ$. *Dispersion:* $r > v$, distinct, inclined. *Absorption:* X > Y \gg Z. $\alpha = 1.83(1)$ $\beta = [1.835]$ $\gamma = 1.87(1)$ 2V(meas.) = 40°

Cell Data: *Space Group:* $C2/m$. $a = 8.997\text{--}9.010$ $b = 6.236\text{--}6.246$ $c = 7.387\text{--}7.391$
 $\beta = 115.52\text{--}115.74^\circ$ Z = 2

X-ray Powder Pattern: Tsumeb, Namibia.

3.398 (100), 3.175 (100), 2.938 (100), 2.544 (100), 4.95 (70), 2.823 (70), 2.702 (70)

Chemistry:

	(1)	(2)
As ₂ O ₅	48.66	48.73
Al ₂ O ₃	0.13	< 0.1
Fe ₂ O ₃	13.96	15.68
CuO	5.75	< 0.1
ZnO	13.94	17.88
PbO	2.13	0.14
CaO	10.86	12.07
H ₂ O	5.85	[5.80]
Total	101.28	[100.30]

(1) Tsumeb, Namibia; by electron microprobe, H₂O by CHN analyzer; corresponds to $(\text{Ca}_{0.92}\text{Pb}_{0.05})_{\Sigma=0.97}(\text{Fe}_{0.87}\text{Zn}_{0.81}\text{Cu}_{0.34}\text{Al}_{0.01})_{\Sigma=2.03}(\text{AsO}_4)_2(\text{OH}, \text{H}_2\text{O})_2$. (2) Do.; by electron microprobe, average of 20 analyses, total Fe as Fe₂O₃, H₂O calculated from theory; corresponds to $\text{Ca}_{1.02}(\text{Fe}_{0.93}\text{Zn}_{1.04})_{\Sigma=1.97}(\text{AsO}_4)_{2.02}[(\text{H}_2\text{O})_{1.08}(\text{OH})_{0.90}]_{\Sigma=1.98}$.

Mineral Group: Tsumcorite group.

Occurrence: Very rare, on museum specimens from a dolostone-hosted hydrothermal polymetallic ore deposit.

Association: Conichalcite, scorodite, schneiderhöhnite, beudantite, tennantite, calcite.

Distribution: From Tsumeb, Namibia.

Name: As the *ferric* iron analog of *lotharmeyerite*.

Type Material: Canadian Geological Survey, Ottawa, Canada, NMC 64573; Museum Victoria, Melbourne, Australia, M38092.

References: (1) Ansell, H.G., A.C. Roberts, P.J. Dunn, W.D. Birch, and V.E. Ansell (1992) Ferrilotharmeyerite, a new Ca–Zn–Fe³⁺ hydroxyl arsenate from Tsumeb, Namibia. *Can. Mineral.*, 30, 225–227. (2) (1992) *Amer. Mineral.*, 77, 1305–1306 (abs. ref. 1). (3) Krause, W., K. Belendorff, H.-J. Bernhardt, C. McCammon, H. Effenberger, and W. Mikenda (1998) Crystal chemistry of the tsumcorite-group minerals. New data on ferrilotharmeyerite, tsumcorite, thometzekite, mounanaite, helmutwinklerite, and a redefinition of gartrellite. *Eur. J. Mineral.*, 10, 179–206.

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.