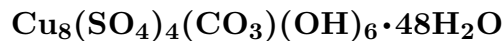


Nakauriite



©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Orthorhombic. *Point Group:* n.d. Crystals are fibers, to 3 mm, in sprays and aggregates.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = 2.39(2)$ $D(\text{calc.}) = 2.35$

Optical Properties: Semitransparent. *Color:* Sky-blue.

Optical Class: Biaxial (-). *Pleochroism:* $X = \text{colorless}$; $Y = \text{pale greenish blue}$;

$Z = \text{pale sky-blue to very pale blue}$. *Orientation:* Positive elongation, parallel extinction.

Dispersion: $r < v$. $\alpha = 1.585\text{--}1.597$ $\beta = 1.604\text{--}1.612$ $\gamma = 1.612\text{--}1.618$ $2V(\text{meas.}) = 60^\circ\text{--}70^\circ$
 $2V(\text{calc.}) = 65.3^\circ$

Cell Data: *Space Group:* n.d. $a = 14.585$ $b = 11.47$ $c = 16.22$ $Z = 2$

X-ray Powder Pattern: Nakauri, Japan.

7.31 (100), 3.652 (20), 2.367 (16), 1.9148 (16), 4.840 (14), 3.936 (14), 2.397 (14)

Chemistry:

	(1)
SO ₃	16.23
CO ₂	2.28
Fe ₂ O ₃	0.06
MnO	0.09
NiO	0.88
CuO	32.12
ZnO	0.03
H ₂ O ⁺	45.31
H ₂ O ⁻	3.01
Total	[100.01]

(1) Nakauri, Japan; by AA, CO₂ by volumetric analysis; after deduction of estimated 67% chrysotile, corresponds to $(\text{Cu}_{7.77}\text{Ni}_{0.23}\text{Mn}_{0.02})_{\Sigma=8.01}(\text{SO}_4)_{3.90}(\text{CO}_3)_{1.00}(\text{OH})_{6.23} \cdot 48.4\text{H}_2\text{O}$.

(2) Material from Gabbs, Nevada and the Cedar Hill quarry, Pennsylvania, USA, and the Hagdale quarry, Scotland, contains only traces to no detectable SO₄.

Occurrence: As fracture fillings in serpentinite (Nakauri, Japan); on chromatite from serpentinite (Hagdale quarry, Scotland).

Association: Chrysotile, magnetite, artinite, pyroaurite, brochantite, malachite (Nakauri, Japan); callaghanite, hydromagnesite (Gabbs, Nevada, USA); antigorite, magnesite, talc, quartz (Cedar Hill quarry, Pennsylvania, USA); chrysotile, theophrastite, pentlandite, heazlewoodite (Hagdale quarry, Scotland).

Distribution: From an abandoned mine at Nakauri, about 6 km southeast of Shinshiro, Aichi Prefecture, Japan. In the USA, good crystals at the Gabbs mine, Gabbs district, Nye Co., Nevada; from the Cedar Hill quarry, Lancaster Co., Pennsylvania. In the Hagdale quarry, Unst, Shetland Islands, Scotland.

Name: For the original material found at Nakauri, Japan.

Type Material: National Science Museum, Tokyo, Japan, M-24586; National Museum of Natural History, Washington, D.C., USA, 136584.

References: (1) Suzuki, J., M. Ito, and T. Sugiura (1976) A new copper sulfate-carbonate hydroxide hydrate mineral, $(\text{Mn}, \text{Ni}, \text{Cu})_8(\text{SO}_4)_4(\text{CO}_3)(\text{OH})_6 \cdot 48\text{H}_2\text{O}$, from Nakauri, Aichi Prefecture, Japan. *J. Japan. Assoc. Mineral. Petrol. Econ. Geol.*, 71(7), 183–192 (in English). (2) (1977) *Amer. Mineral.*, 62, 594 (abs. ref. 1). (3) Braithwaite, R.S.W. and P. Pritchard (1983) Nakauriite from Unst, Shetland. *Mineral. Mag.*, 47, 84–85. (4) Foord, E.E., R.B. Finkelman, A.H. Feinberg, I. O'Neill, A.V. Heyl, D.K. Smith, and B. Brookmyer (1985) Nakauriite from Cedar Hill quarry, Lancaster County: a new mineral for Pennsylvania. *Friends of Mineralogy, Pennsylvania Chapter, Newsletter* 13(4), 4–12.

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.