Imogolite $Al_2SiO_3(OH)_4$

©2001 Mineral Data Publishing, version 1.2

Crystal Data: n.d. *Point Group:* n.d. Conchoidal to earthy; as microscopic threadlike particles, and bundles of fine tubes, each about 20 Å in diameter.

Physical Properties: *Fracture:* Conchoidal, earthy. *Tenacity:* Brittle. Hardness = 2–3
D(meas.) = 2.70 D(calc.) = 2.70

Optical Properties: Transparent to translucent. *Color:* White, blue, green, brown, black.
Luster: Vitreous, resinous, waxy.
Optical Class: Isotropic. n = 1.47–1.51

Cell Data: *Space Group:* n.d. c = 8.4; 5.1 ⊥ c Z = n.d.

X-ray Powder Pattern: Uemura, Japan; by electron diffraction.
21.0 (100b), 4.12 (100), 1.40 (100), 11.7 (80b), 7.8 (80b), 3.75 (80b), 2.32 (80b)

Chemistry: An analysis of natural material does not appear to be available.

Occurrence: In soils derived from volcanic ash.

Association: Allophane, quartz, cristobalite, gibbsite, vermiculite, "limonite".

Distribution: Probably quite widespread in volcanic-ash-derived soils. In the Misutsuchi bed, Iijima, Nagano Prefecture; the Kanumatsuchi bed, Kanuma, Tochigi Prefecture; and from Uemura, Kumamoto Prefecture, Japan.

Name: For the name, *Imogo*, of the brownish yellow volcanic ash soil of Japan in which it occurs.

Type Material: n.d.

References: (1) Yoshinaga, N. and S. Aomine (1962) Allophane in some Ando soils. Soil Sci. and Plant Nutrition (Japan), 8, 6–13. (2) (1963) Amer. Mineral., 48, 434 (abs. ref. 1). (3) Russell, J.D, W.J. McHardy, and A.R. Fraser (1969) Imogolite: a unique aluminosilicate. Clay Minerals, 8, 87–99. (4) Cradwick, P.D.G., V.C. Farmer, J.D. Russell, C.R. Masson, K. Wada, and N. Yoshinaga (1972) Imogolite, a hydrated aluminum silicate of tubular structure. Nature, Phys. Sci., 240, 187–189. (5) Wada, S.I. and K. Wada (1977) Density and structure of allophane. Clay Minerals, 12, 289–298. (6) Goodman, B.A., J.D. Russell, B. Montez, E. Oldfield, and R.J. Kirkpatrick (1985) Structural studies of imogolite and allophanes by aluminum-27 and silicon-29 nuclear magnetic resonance spectroscopy. Phys. Chem. Minerals, 12, 342–346. (7) Bayliss, P. (1987) Mineral nomenclature: imogolite. Mineral. Mag., 51, 327. (8) (1988) Amer. Mineral., 73, 198 (abs. ref. 7).

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.