

**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . Lamellar, to 0.5 mm. *Twinning:* On {010}; twin lamellae || [001] commonly observed in thin section.

**Physical Properties:** Hardness = n.d. VHN = 185 (50 g load). D(meas.) = n.d. D(calc.) = 7.19

**Optical Properties:** Opaque. *Color:* In polished section, galena-white. *Pleochroism:* Absent in air, absent to weak in oil. *Anisotropism:* Distinct to strong, in pale gray to steel-bluish-black. R<sub>1</sub>–R<sub>2</sub>: n.d.

**Cell Data:** *Space Group:*  $C2/m$  (subcell).  $a = 13.598$ – $13.603$   $b = 4.112$   
 $c = 25.249$ – $25.248$   $\beta = 95.55^\circ$ – $95.59^\circ$   $Z = 1$

**X-ray Powder Pattern:** Ivigtut, Greenland.  
3.40 (100), 1.754 (90), 2.06 (80), 2.91 (50), 3.62 (40), 3.05 (40), 2.10 (40)

Chemistry:	(1)	(2)	(3)
Ag	8.9	7.04	9.18
Cu	0.2		
Cd		0.51	
Pb	27.7	33.91	28.21
Bi	47.6	41.81	46.24
Sb		0.05	
S	16.5	16.25	16.37
Se		0.04	
Total	100.9	99.61	100.00

(1) Ivigtut, Greenland; by electron microprobe, corresponding to Ag<sub>4.81</sub>Cu<sub>0.18</sub>Pb<sub>7.79</sub>Bi<sub>13.26</sub>S<sub>29.96</sub>.  
(2) La Roche-Balue quarry, France; by electron microprobe, corresponding to Ag<sub>3.88</sub>Cd<sub>0.27</sub>Pb<sub>9.74</sub>(Bi<sub>11.90</sub>Sb<sub>0.02</sub>)<sub>Σ=11.92</sub>(S<sub>30.16</sub>Se<sub>0.03</sub>)<sub>Σ=30.19</sub>. (3) Ag<sub>5</sub>Pb<sub>8</sub>Bi<sub>13</sub>S<sub>30</sub>.

**Occurrence:** Associated with cosalite and as lamellae in galena in the gustavite-galena paragenesis (Ivigtut, Greenland).

**Association:** Cosalite, galena (Ivigtut, Greenland); gustavite, heyrovskyite, quartz (La Roche-Balue quarry, France).

**Distribution:** From the Ivigtut cryolite deposit, southwestern Greenland [TL]. In the USA, from near Gabbs, Gabbs district, Nye Co., Nevada; at South Mountain, Owyhee Co., Idaho; and in the Apache Hills, southeast of Hachita, Grant Co., New Mexico. From the Kochbulak gold deposit, Chatkal-Kuramin Mountains, eastern Uzbekistan. At the La Roche-Balue quarry, west of Nantes, Loire Atlantique, France.

**Name:** For the Vikings, early settlers of Greenland.

**Type Material:** University of Copenhagen, Copenhagen, Denmark, 1973.236; National Museum of Natural History, Washington, D.C., USA, 136172.

**References:** (1) Karup-Møller, S. (1977) Mineralogy of some Ag–(Cu)–Pb–Bi sulfide associations. Bull. Geol. Soc. Denmark, 26, 41–68. (2) Makovicky, E. and S. Karup-Møller (1977) Chemistry and crystallography of the lillianite homologous series. Neues Jahrb. Mineral., Abh., 131, 56–82. (3) (1979) Amer. Mineral., 64, 243 (abs. refs. 1 and 2). (4) Makovicky, E., W.G. Mumme, and I.C. Madsen (1992) The crystal structure of vikingite. Neues Jahrb. Mineral., Monatsh., 454–468.

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.