

Berryite**Pb₃(Cu, Ag)₅Bi₇S₁₆**

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Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* 2/m or 2. Lathlike aggregates of several not quite parallel individuals, to a maximum length of 1 mm; granular, massive. *Twinning:* Repeated.

Physical Properties: *Cleavage:* Poor. Hardness = n.d. VHN = 131–152 (100 g load), 171 (100 g load). D(meas.) = 6.7, corrected for admixed quartz. D(calc.) = [6.83]

Optical Properties: Opaque. *Color:* White to pale gray in polished section. *Pleochroism:* Weak to distinct. *Anisotropism:* Distinct to strong, from pale gray to red-brown and green. R₁–R₂: n.d.

Cell Data: *Space Group:* P 2₁/m or P2₁. a = 12.72 b = 4.02 c = 58.07 β = 102.5° Z = [4]

X-ray Powder Pattern: Nordmark, Sweden. 3.47 (10), 2.89 (8), 2.80 (7), 2.18 (4), 3.70 (2), 2.86 (2), 3.23 (1)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
Pb	21.6	20.8	20.9	Bi	49.2	47.5	49.5
Ag	4.9	6.8	7.4	S	[17.2]	[17.2]	17.0
Cu	7.1	7.8	5.3	Total	[100.0]	[100.1]	100.1

(1) Ivigtut, Greenland; by electron microprobe, sulfur by difference, recalculated to be near 100%; corresponds to Pb_{3.15}(Cu_{3.40}Ag_{1.35})_{Σ=4.75}Bi_{7.10}S_{16.20}. (2) Do.; corresponds to Pb_{2.95}(Cu_{3.60}Ag_{1.80})_{Σ=5.40}Bi_{6.65}S_{15.65}. (3) Owen Lake, Canada; by electron microprobe, average of several grains; corresponds to Pb_{3.09}(Cu_{2.55}Ag_{2.10})_{Σ=4.55}Bi_{7.25}S_{16.25}.

Occurrence: In quartz veins with other sulfides and sulfosalts, and in siderite-rich cryolite (Ivigtut, Greenland).

Association: Emplectite, aikinite, cuprobismutite, cupropavonite (Colorado, USA); galena, chalcopyrite, sphalerite, quartz (Nordmark, Sweden); galena, cosalite, ourayite, matildite, aikinite (Ivigtut, Greenland); aikinite, matildite, benjaminite, quartz, barite (Tary Ekan deposit, Kazakhstan).

Distribution: In the USA, in Colorado, from the Missouri mine, Park Co. [TL], the Mike mine, Silverton district, San Juan Co., and Cinnamon Gulch, Northeast Montezuma district, Clear Creek Co.; at the Outlaw mine, Round Mountain, Manhattan, Nye Co., Nevada. From near Owen Lake, south of Houston, British Columbia, Canada. In the Ivigtut cryolite deposit, southwestern Greenland. At Nordmark, Värmland, Sweden. From the Catarama mine, Baia Borsa district, Baia Mare (Nagybánya), Romania. In the Svishti Plaz gold deposit, central Balkan Mountains, Bulgaria. From two km west of Lairg, Scotland. In the Adrasman, Kaptar-Hana, and Tary Ekan deposits, eastern Karamazar, Tajikistan. From the Kochbulak gold deposit, Chatkal-Kuramin Mountains, eastern Uzbekistan. At the Funiushan copper skarn deposit, near Nanjing, Jiangsu Province, China. Several additional localities are known.

Name: In honor of Professor Leonard Gascoigne Berry (1914–1982), Canadian mineralogist, Queen's University, Kingston, Ontario, Canada, who obtained the first X-ray powder pattern of the mineral.

Type Material: University of Copenhagen, Copenhagen, Denmark; National Museum of Natural History, Washington, D.C., USA, 92902.

References: (1) Nuffield, E.W. and D.C. Harris (1966) Studies of mineral sulpho-salts: XX—berryite, a new species. *Can. Mineral.*, 8, 407–413. (2) Karup-Møller, S. (1966) Berryite from Greenland. *Can. Mineral.*, 8, 414–423. (3) (1967) *Amer. Mineral.*, 52, 928 (abs. refs. 1 and 2). (4) Harris, D.C. and D.R. Owen (1973) Berryite, a Canadian occurrence. *Can. Mineral.*, 11, 1016–1018. (5) Vendrell-Saz, M., S. Karup-Møller, and A. Lopez-Soler (1978) Optical and microhardness study of some Ag–Cu–Pb–Bi sulphides. *Neues Jahrb. Mineral., Abh.*, 132, 101–112. 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.