

Corderoite

Hg₃S₂(Cl, Br)₂

©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Cubic. *Point Group:* $2/m\bar{3}$. Rare as cubic crystals, to 2 mm; as rims and replacements of cinnabar.

Physical Properties: Hardness = ~ 3 VHN = 28–61 (25 g load) (synthetic).
D(meas.) = 6.74 (synthetic). D(calc.) = 6.845

Optical Properties: Transparent. *Color:* Pale orange-pink to salmon-pink; on exposure to light, rapidly darkening to pale gray, then black.

Optical Class: Isotropic. $n = > 2.5$

R: 16.7 (470), 15.5 (546), 15.1 (589), 15.1 (650)

Cell Data: *Space Group:* $I2_13$. $a = 8.940(5)$ $Z = 4$

X-ray Powder Pattern: Synthetic Hg₃S₂Cl₂.

3.62 (100), 2.57 (70), 1.749 (60), 2.81 (50), 2.38 (40), 2.10 (40), 6.23 (30)

Chemistry:

	(1)	(2)	(3)
Hg	82.6	81.4	81.68
S	8.65	8.54	8.70
Cl	9.49	9.11	9.62
Br		1.28	
Total	100.74	100.33	100.00

(1) Arzak deposit, Russia; by electron microprobe, average of four grains; corresponds to Hg_{3.00}S_{1.96}Cl_{1.95}. (2) Kadyrel deposit, Russia; by electron microprobe, corresponds to Hg_{3.00}S_{1.96}(Cl_{1.90}Br_{0.12})_{Σ=2.02}. (3) Hg₃S₂Cl₂.

Polymorphism & Series: Dimorphous with lavrentievite.

Occurrence: In lake-bed sediments and underlying silicified rhyolite tuffs, possibly of low-temperature secondary origin (McDermitt mine, Nevada, USA); in an oxidized hydrothermal deposit (Arzak deposit, Russia).

Association: Cinnabar, kleinite, kenhsuite, radtkelite, montmorillonite, quartz, cristobalite, orthoclase, plagioclase (McDermitt mine, Nevada, USA); cinnabar, calomel, eglestonite, arzakite, lavrentievite, kuznetsovite, mercury, quartz, kaolinite (Arzak deposit, Russia).

Distribution: In the USA, in Nevada, from the McDermitt mercury mine, Opalite district, Humboldt Co. [TL]; at the Paradise Peak mine, Fairplay district, Nye Co.; and in the Gold Quarry mine, near Carlin, Maggie Creek district, Eureka Co. From the Arzak and Kadyrel mercury deposits, Tuva, Siberia, Russia. In the Khaydarkan mercury deposit, Fergana Valley, Alai Range, Kyrgyzstan. At Landsberg, near Obermoschel, and from Königsberg, near Wolfstein, Rhineland-Palatinate, Germany.

Name: For its occurrence in the McDermitt (formerly Cordero) mine, USA.

Type Material: Stanford University, Palo Alto, California; National Museum of Natural History, Washington, D.C., USA, 133354.

References: (1) Foord, E.E., P. Berendsen, and L.O. Storey (1974) Corderoite, first natural occurrence of α -Hg₃S₂Cl₂, from the Cordero mercury deposit, Humboldt County, Nevada. *Amer. Mineral.*, 59, 652–655. (2) Vasil'ev, V.I. and O.K. Grechishchev (1979) First discovery of corderoite (α -Hg₃S₂Cl₂) in mercury ores of the USSR. *Doklady Acad. Nauk SSSR*, 246, 951–953 (in Russian). (3) Vasil'ev, V.I. and Y.G. Lavrent'ev (1979) New finds and data on the composition of corderoite (α -Hg₃S₂Cl₂). *Soviet Geol. Geophys.*, 27(12), 112–115. (4) Aurivillius, K.L. (1967) An X-ray single crystal study of α -Hg₃S₂Cl₂. *Arkiv för Kemi*, 26, 497–505. (5) Carlson, E.H. (1967) The growth of HgS and Hg₃S₂Cl₂ single crystals by a vapor phase method. *J. Crystal Growth*, 1, 271–277. (6) Frueh, A.J. and N. Gray (1968) Confirmation and refinement of the structure of Hg₃S₂Cl₂. *Acta Cryst.*, 24, 156–157.

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.