

**Crystal Data:** Triclinic. *Point Group:* 1. As granular aggregates, to 1 cm, without well-formed crystals.

**Physical Properties:** *Cleavage:* Perfect in one direction. *Fracture:* Uneven and conchoidal. Hardness = < 3 VHN = 172 D(meas.) = 7.380(5) D(calc.) = 7.234

**Optical Properties:** Translucent. *Color:* Lead-gray; whitish in reflected light, with strong dark red internal reflections; in transmitted light, cherry-red. *Streak:* Nearly black, with a dark reddish tint. *Luster:* Adamantine. *Pleochroism:* White to grayish white, pale lilac to a distinctly greenish tint. *Anisotropism:* Distinct; dark olive to dark violet.

R<sub>1</sub>–R<sub>2</sub>: (400) 39.9–45.0, (420) 40.0–44.5, (440) 40.1–43.4, (460) 40.3–42.6, (480) 40.7–40.9, (500) 40.8–39.9, (520) 40.6–38.7, (540) 39.2–37.1, (560) 37.7–35.8, (580) 36.5–34.8, (600) 35.5–34.0, (620) 34.7–33.4, (640) 33.8–32.8, (660) 33.2–32.4, (680) 32.6–32.0, (700) 32.0–31.6

**Cell Data:** *Space Group:* P1. *a* = 4.39 *b* = 11.57 *c* = 15.67  $\alpha$  = 88.17°  $\beta$  = 90.01°  $\gamma$  = 89.98° *Z* = 1

**X-ray Powder Pattern:** Gomi deposit, Georgia.

3.49 (100), 2.92 (100), 2.89 (100), 2.080 (100), 3.29 (70), 2.031 (35), 3.19 (30)

**Chemistry:**

	(1)	(2)	(3)
Hg	66.50	66.1	66.4
Cu		0.15	
Fe		0.11	
Sb	13.75	12.9	14.0
As	8.60	8.54	8.4
S	10.95	10.3	10.9
Total	99.80	98.1	99.7

(1) Gomi deposit, Georgia; by electron microprobe, average of two analyses; corresponding to Hg<sub>2.91</sub>(As<sub>1.01</sub>Sb<sub>0.99</sub>)<sub>Σ=2.00</sub>S<sub>3.00</sub>. (2) Tyute deposit, Russia; by electron microprobe, corresponding to Hg<sub>3.00</sub>Cu<sub>0.02</sub>Fe<sub>0.02</sub>(As<sub>1.04</sub>Sb<sub>0.96</sub>)<sub>Σ=2.00</sub>S<sub>2.92</sub>. (3) Chauvai deposit, Russia; by electron microprobe, corresponding to Hg<sub>2.92</sub>(Sb<sub>1.01</sub>As<sub>0.99</sub>)<sub>Σ=2.00</sub>S<sub>2.99</sub>.

**Occurrence:** In gold-bearing hydrothermal As–Sb–Hg deposits.

**Association:** Cinnabar, metacinnabar, realgar, mercurian tennantite, mercury, cubanite, pyrrotite, chalcopyrite, marcasite, fluorite, quartz.

**Distribution:** From the Gomi deposit, Caucasus Mountains, Georgia [TL]. At the Tyute mercury deposit, Altai Mountains, Russia. In the Chauvai Sb–Hg deposit, Fergana Valley, Alai Range, southern Kyrgyzstan. From the Hemlo gold deposit, Thunder Bay district, Ontario, Canada. At the Getchell mine, Potosi district, Humboldt Co., Nevada, USA.

**Name:** In honor of Academician Aleksander Antonovich Tvalchrelidze (1881–1957), founder of the Georgian Mineralogical-Petrographic School, Tbilisi University, Tbilisi, Georgia.

**Type Material:** A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 77110; National Museum of Natural History, Washington, D.C., USA, 143827.

**References:** (1) Gruzdev, V.S., N.M. Mchedlishvili, G.A. Terekhova, Z.Y. Tsertsvadze, N.M. Chernitsova, and N.G. Shumkova (1975) Tvalchrelidzeite, Hg<sub>12</sub>(Sb, As)<sub>8</sub>S<sub>15</sub>, a new mineral. 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.

from the Gomi arsenic–antimony–mercury deposit, Caucasus. Doklady Acad. Nauk SSSR, 225, 911–913 (in Russian). (2) (1977) Amer. Mineral., 62, 174 (abs. ref. 1). (3) Vasil'ev, V.I. (1979) The second discovery of tvalchrelidzeite  $\text{Hg}_{12}(\text{Sb, As})_8\text{S}_{15}$  in ores of mercury deposits. Geol. Geofiz., 9, 159–162 (in Russian with English abs.). (4) (1980) Chem. Abs., 92, 25693 (abs. ref. 3). (5) Krapiva, L.Y., V.I. Stepanov, G.N. Nechelyustov, and V.Y. Volgin (1986) New data on tvalchrelidzeite  $\text{Hg}_{12}(\text{As, Sb})_8\text{S}_{12}$ . Doklady Acad. Nauk SSSR, 290, 1208–1212 (in Russian). (6) Pobedimskaya, Y.A., N.V. Belov, L.N. Kaplunnik, and I.V. Petrova (1980) The crystal chemistry of the series of Pb and Hg sulfosalts, in: Sulfosalts, platinum minerals, and ore microscopy. Nauka Press, Moscow, 49–58 (in Russian with English abs.).