Eglestonite $Hg_6^{1+}HCl_3O_2$

Crystal Data: Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. As dodecahedra, octahedra, or cubes, complexly modified by {112}, {116}, {223}, {123}, many others; may be acicular to filiform by elongation on [001]. Commonly as granular aggregates or massive crusts and films.

Physical Properties: *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 2.5 D(meas.) = 8.309–8.45 D(calc.) = 8.652

Optical Properties: Translucent. *Color:* Yellow, yellow-orange, light brownish yellow to dark brown or black with exposure to light; yellowish brown to brown in transmitted light. *Streak:* Yellow or greenish yellow, rapidly becoming black. *Luster:* Brilliant adamantine to resinous.
Optical Class: Isotropic, occasionally weakly anisotropic. $n = 2.49(2)$

Cell Data: *Space Group: Ia3d.* $a = 16.036$ Z = 16

X-ray Powder Pattern: Terlingua, Texas, USA.
3.273 (100), 1.890 (57), 2.536 (47), 4.009 (36), 1.709 (14), 2.315 (11), 1.336 (9)

Chemistry:

	(1)	(2)	(3)
Hg	89.00	89.90	89.62
O	1.79		1.79
Cl	8.22	7.79	7.92
Br		0.13	
H_2O			0.67
Total	99.01		100.00

(1) Terlingua, Texas, USA; average of three analyses. (2) Arzak deposit, Russia; by electron microprobe, average of five analyses. (3) $Hg_6HCl_3O_2$.

Polymorphism & Series: Forms a series with kadyrelite.

Occurrence: An oxidation product of other mercury minerals in mercury deposits.

Association: Calomel, mercury, terlinguaite, montroydite, calcite (Terlingua, Texas, USA); cinnabar, mercury, calomel (San Mateo Co., California, USA); lavrentievite, calomel, mercury, kadyrelite (Kadyrel deposit, Russia).

Distribution: In the USA, at Terlingua, Brewster Co., Texas; around Crawford and Jackfork, Pike Co., Arkansas; in the McDermitt and Cordero mercury mines, Opalite district, and at the Cahill mine, Poverty Peak district, Humboldt Co., Nevada; from the Denio district, Harney Co., Oregon. In California, near the New Idria mine, San Benito Co.; in the Challenge deposit, near Emerald Lake, southwest of Redwood City, San Mateo Co.; in the Kings mine, Parkfield district, Kings Co.; and at the Socrates mine, Sonoma Co. At Huahuaxtla, Guerrero, and Guadalćazar, San Luis Potosi, Mexico. From South Africa, in the Monarch cinnabar mine, Transvaal. At Landsberg, near Obermoschel, Rhineland-Palatinate, Germany. In Russia, from Siberia, in the Arzak and Kadyrel deposits, Tuva, and the Kelyan Sb–Hg deposit, Buryatia; in the Aktash mercury deposit, Kosh-Agach district, Kurai Range, Altai Mountains. From Khaydarkan, Fergana Valley, Alai Range, Kyrgyzstan. In the Ruziobnok deposit, central Tajikistan. Several other localities are known.

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Type Material: National Museum of Natural History, Washington, D.C., USA, R1325.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 51–52. (2) Mereiter, K. and J. Zemann (1976) Neubearbeitung des Quecksilberminerals Eglestonit: Kristallstruktur, chemische Zusammensetzung und Synthese. Tschermaks Mineral. Petrog. Mitt., 23, 105–115. (3) Vasil'ev, V.I. and Y.G. Lavrent'ev (1986) New data on the composition of eglestonite. Doklady Acad. Nauk SSSR, 287, 960–963 (in Russian). (4) Mereiter, K., J. Zeeman, and A.W. Hewat (1992) Eglestonite, $[Hg_2]_3Cl_3O_2H$: confirmation of the chemical formula by neutron powder diffraction. Amer. Mineral., 77, 839–842.