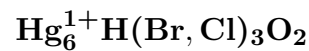


Kadyrelite



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Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$. In grains, to 0.5 mm.

Physical Properties: *Fracture:* Conchoidal to uneven. *Tenacity:* Brittle. Hardness = 2.5–3 VHN = 143–192, 175 average (25 g load). D(meas.) = n.d. D(calc.) = 8.79

Optical Properties: Transparent. *Color:* Bright to dull orange; bright yellow-orange in transmitted light; grayish white in reflected light, with intense orange internal reflections, tarnishing to bluish then brownish. *Streak:* Yellow-orange. *Luster:* Vitreous to adamantine. *Optical Class:* Isotropic. $n = > 2$

R: (436) 27.7, (460) 25.3, (500) 21.2, (546) 19.4, (589) 18.1, (620) 17.8, (656) 16.6

Cell Data: *Space Group:* $[Ia\bar{3}d]$ (by analogy to eglestonite). $a = 16.22$ $Z = [16]$

X-ray Powder Pattern: Kadyrel deposit, Russia.

3.32 (100), 1.912 (85), 2.57 (65), 4.06 (30), 2.63 (20), 2.344 (20), 1.731 (20)

Chemistry:

	(1)	(2)
Hg	84.36	85.39
O	[1.70]	1.70
Cl	2.93	3.77
Br	10.19	8.50
I	0.01	
H ₂ O		0.64
Total	[99.19]	100.00

(1) Kadyrel deposit, Russia; by electron microprobe, average of five analyses.

(2) $\text{Hg}_6\text{H}(\text{Br}, \text{Cl})_3\text{O}_2$ with Br:Cl = 1:1.

Polymorphism & Series: Forms a series with eglestonite.

Occurrence: In cavities in carbonate veins in a mercury deposit.

Association: Eglestonite, calomel, kuzminite, corderoite, lavrentievite.

Distribution: In the Kadyrel mercury deposit, Pii-Khem district, right bank of the Oorash-Khem River Valley, Tuva, Siberia, Russia [TL].

Name: For the Kadyrel deposit, Russia, where it occurs.

Type Material: Central Siberian Geological Museum, Siberian Division, Academy of Sciences, Novosibirsk, VI-29/1; Mining Institute, St. Petersburg, Russia, 1992/1–2.

References: (1) Vasil'ev, V.I. (1987) Kadyrelite $\text{Hg}_4(\text{Br}, \text{Cl})_2\text{O}$ – a new oxyhalide of mercury from the Kadyrel'sky ore occurrence. *Zap. Vses. Mineral. Obshch.*, 116, 733–737 (in Russian).

(2) (1989) *Amer. Mineral.*, 74, 503 (abs. ref. 1). (3) Mereiter, K., J. Zeeman, and A.W. Hewat (1992) Eglestonite, $[\text{Hg}_2]_3\text{Cl}_3\text{O}_2\text{H}$: confirmation of the chemical formula by neutron powder diffraction. *Amer. Mineral.*, 77, 839–842.