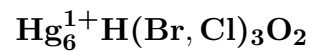


Kadyrelite



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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.