## Cuproiridsite $CuIr_2S_4$



**Crystal Data:** Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. As inclusions, to 300 $\mu$m, in isoferroplatinum and platinum.

**Physical Properties:** *Tenacity:* Very brittle. Hardness = n.d. VHN = 578 (30 g load). D(meas.) = n.d. D(calc.) = 7.24

**Optical Properties:** Opaque. *Color:* Iron-black; gray in reflected light. *Luster:* Metallic. R: (400) — , (420) — , (440) — , (460) 35.0, (480) 34.4, (500) 34.0, (520) 34.0, (540) 33.6, (560) 33.4, (580) 33.1, (600) 32.8, (620) 32.6, (640) 32.4, (660) 32.2, (680) 32.1, (700) 32.0

**Cell Data:** *Space Group: Fd3m.* a = 9.92 Z = 8

**X-ray Powder Pattern:** Kamchatka, Russia.
3.00 (100), 1.760 (100), 2.489 (90) 1.912 (70), 1.011 (70), 1.290 (60), 1.107 (60)

**Chemistry:**

| | (1) | (2) |
|---|---|---|
| Cu | 7.41 | 11.03 |
| Fe | 3.17 | |
| Ni | 0.27 | |
| Ir | 48.9 | 66.71 |
| Pt | 10.5 | |
| Rh | 6.05 | |
| S | 24.6 | 22.26 |
| Total | 100.9 | 100.00 |

(1) Kamchatka, Russia; by electron microprobe, corresponding to $(Cu_{0.61}Fe_{0.30}Ni_{0.02})_{\Sigma=0.93}(Ir_{1.33}Pt_{0.28}Rh_{0.31})_{\Sigma=1.92}S_{4.00}$. (2) $CuIr_2S_4$.

**Polymorphism & Series:** Forms two series, with cuprorhodsite and with malanite.

**Mineral Group:** Linnaeite group.

**Occurrence:** In alluvial deposits.

**Association:** Isoferroplatinum, cuprorhodsite, malanite, osmium, iridosmine, platinum, laurite, erlichmanite, cherepanovite, kashinite, rhodian pentlandite, irarsite, cooperite, sperrylite, chalcopyrite, bornite.

**Distribution:** In Russia, from the Kondor [TL] and Chad massifs, Khabarovsk Territory; at Inagli, Aldan Shield; on Mt. Filipp, Kamchatka; and in the Ray-Iz ophiolite complex, Polar Ural Mountains. From Chromwerk, Kraubath massif, Styria, Austria. At Finero, [prov??in D8??], Italy. From Goodnews Bay, Alaska, USA.

**Name:** For copper, CUPRum, IRIDium, and Sulfur in the chemical composition.

**Type Material:** Mining Institute, St. Petersburg, Russia, 1686/1.

**References:** (1) Rudashevskii, N.S., Y.P. Men'shikov, A.G. Mochalov, N.V. Trubkin, N.I. Shumskaya, and V.V. Zhdanov (1985) Cuprorhodsite $CuRh_2S_4$ and cuproiridisite $CuIr_2S_4$ – new natural thiospinels of platinum elements. Zap. Vses. Mineral. Obshch., 114, 187–195 (in Russian). (2) (1986) Amer. Mineral., 71, 1277 (abs. ref. 1).