

# Rutheniridosmine

(Ir, Os, Ru)

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**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ . Euhedral laths and grains, and as inclusions in Pt–Fe alloys. *Twinning:* Very fine lamellar twinning, but nearly isotropic.

**Physical Properties:** Hardness = n.d. VHN = 960–1004 (100 g load). D(meas.) = n.d. D(calc.) = n.d.

**Optical Properties:** Opaque. *Color:* In polished section, white with a bluish gray tinge. ?? *Luster:* Metallic. *Pleochroism:* Weak to absent. ?? *Anisotropism:* Weak to moderate; may show wavy extinction, colors tinged with orange. ??

$R_1$ – $R_2$ : (400) 66.6, (420) 66.7, (440) 67.0, (460) 67.4, (480) 67.6, (500) 67.7, (520) 67.5, (540) 67.1, (560) 66.6, (580) 65.9, (600) 65.2, (620) 64.6, (640) 64.1, (660) 63.6, (680) 63.3, (700) 63.0

**Cell Data:** *Space Group:*  $P6_3/mmc$ .  $a = 2.726(2)$   $c = 4.326(3)$   $Z = [2]$

**X-ray Powder Pattern:** Papua New Guinea. ??  
2.071 (100), 2.363 (80), 1.364 (60), 1.153 (50), 0.8737 (50B), 1.139 (40), 1.594 (40)

Chemistry:	(1)	(2)
Os	37.5	
Ir	47.0	
Ru	12.4	
Pt	2.2	
Pd	0.5	
Rh	0.6	
Fe	0.2	
Cu	0.5	
Total	99.9	

(1) Rio Pilpe, Guapi Co., Colombia; by electron microprobe, corresponds to (2)

**Occurrence:** In placer sands, generally derived from ultramafic rocks.

**Association:** Other Os–Ir–Ru alloys, sperrylite, hollingworthite, iridarsenite, ruthenarsenite, michenerite, laurite, geversite, moncheite, chromite. ??

**Distribution:** In Canada, from several properties around Atlin, and from the Spruce Creek and Tulameen River areas, British Columbia. Around Zlatoust, Ural Mountains; in the Konder massif, Aldan Shield, Sakha; and from several other less well-defined localities, Russia. From Vourinos, Greece. In South Africa, on the Witwatersrand. From the Heazlewood and Adamsfield districts, Tasmania, Australia. At Ironstone Creek, Parapara, New Zealand. In the Massif du Sud, New Caledonia. From an unspecified locality in Papua New Guinea. ?? all suspect ??

**Name:** For RUTHENium, IRIDIum, and OSMium in the composition; the name applied to hexagonal alloys with Ir dominant.

**Type Material:** n.d.

**References:** (1) Harris, D.C. and L.J. Cabri (1973) The nomenclature of the natural alloys of osmium, iridium and ruthenium based on new compositional data of alloys from world-wide occurrences. *Can. Mineral.*, 12, 104–112. (2) (1975) *Amer. Mineral.*, 60, 946 (abs. ref. 1). (??) Harris, D.C. and L.J. Cabri (1991) Nomenclature of platinum-group element alloys: review and revision. *Can. Mineral.*, 29, 231–237. [all localities are suspect - analyses must be dropped??] TL Japan?? not even listed; (4) Cabri, L.J., Ed. (1981) *Platinum group elements: mineralogy, geology, recovery*. *Can. Inst. Min. & Met.*, 134–135. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) *Quantitative data file for ore minerals*, 3rd ed. Chapman & Hall, London, 489.

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