Tantalcarbide $(Ta, Nb)C$

Crystal Data: Orthorhombic; metamict. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals indistinct, tabular, to 5 cm, with {100} and {110} striated.

Physical Properties: *Fracture:* Subconchoidal. *Tenacity:* Brittle. Hardness = 5.5–6 D(meas.) = 5.77–5.87 D(calc.) = n.d. Radioactive.

Optical Properties: Opaque, transparent in thin fragments. *Color:* Brownish black to chestnut-brown; amber-yellow in thin fragments. *Luster:* Resinous.
Optical Class: Isotropic. n = n.d.
R: n.d.

Cell Data: *Space Group: Pbcn.* $a = 14.574(3)$ $b = 5.555(1)$ $c = 5.184(3)$ Z = 4

X-ray Powder Pattern: Craveggia, Italy; after heating at 1000 °C in air.
3.12 (10), 2.87 (7), 2.67 (3), 2.52 (3), 2.28 (1), 2.15 (1)

Chemistry:

	(1)	(2)		(1)	(2)
UO_3	3.35	4.16	Ce_2O_3	7.22	9.54
Nb_2O_5	3.83	15.27	Fe_2O_3	1.18	1.53
Ta_2O_5	47.31	22.95	Bi_2O_3		0.04
SiO_2	0.90	0.13	MnO	0.35	0.28
TiO_2	14.17	21.05	PbO	trace	1.71
SnO_2	0.14	0.44	CaO	2.22	0.97
ThO_2	trace	2.86	Na_2O	trace	
Al_2O_3		0.31	LOI	2.40	2.24
$(Y, Er)_2O_3$	17.48	16.36	Total	100.55	99.84

(1) Cooglegong, Australia. (2) Woodstock, Australia.

Occurrence: A detrital mineral in tin placers (Western Australia); in a granite pegmatite (Craveggia, Italy).

Association: Strüverite, columbite, ilmenite, tourmaline, spessartine, beryl, allanite, monazite, xenotime (Craveggia, Italy).

Distribution: From Eleys, 16 km south of Cooglegong, and at Woodstock, Pilbara district, Western Australia. From Piano del Lavonchio, near Craveggia, Val Vigezzo, Piedmont, Italy. At Ituri, Haut-Congo Province, Congo (Haut-Zaire Province, Zaire).

Name: For its relation to *euxenite*, with TANTalum greater than niobium.

Type Material: Western Australian Museum, Perth, Australia, S392A; Natural History Museum, Paris, France, 128.223; The Natural History Museum, London, England, 1928,340–341.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 787–792 [euxenite–polycrase, part], 808 [delorenzite]. (2) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. U.S. Geol. Sur. Bull. 1064, 341–343 [delorenzite = tanteuxenite-(Y)]. (3) De Pol, C. and L. Vescovi Minutti (1967) Ricerche roentgenografiche sulla tanteuxenite de Craveggia (delorenzite di Zambonini). Rend. Soc. Ital. Mineral. Petrol., 23, 31–45 (in Italian).