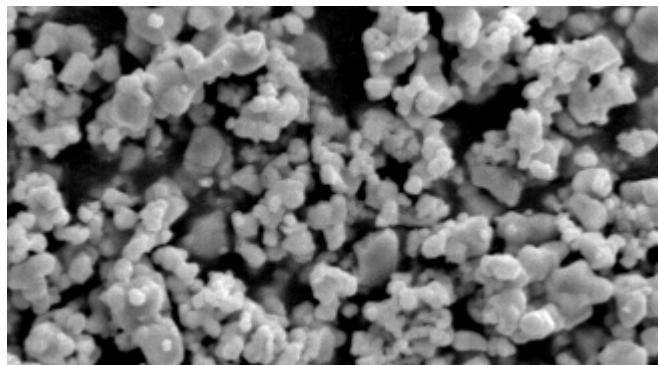


Technical Information Bulletin

TaC & TaNbC Products

Stoichiometric Tantalum Carbide (TaC) and Tantalum Niobium Carbide (TaNbC) can be used as an additive to WC-Co ready-to-press grade powders in order to enhance the physical properties of the sintered structure. TaC and TaNbC are frequently used in steel cutting grade powder attritions to maintain structure edge strength at high temperatures. In addition, TaC can be used as a grain growth inhibitor preventing the formation of large grains and increasing the hardness of the sintered part. OSRAM SYLVANIA co-carburizes Tantalum Pentoxide and Niobium Pentoxide to manufacture TaNbC powders with a wide range of metal ratios. TaNbC ratios not listed but manufactured are 50/50, 70/30 and 80/20.



Tantalum Carbide

PHYSICAL ANALYSES	TEST	MAXIMUM / RANGE*	TYPICAL
	FSSS	0.8 to 2.0 μ	0.8 to 1.5 μ
CHEMICAL ANALYSES	ELEMENT	MAXIMUM / RANGE*	TYPICAL
	Total Carbon	6.15 to 6.30%	6.20 to 6.30%
	Niobium	2500 ppm	300 ppm
	Oxygen	2000 ppm	950 ppm
	Nitrogen	1000 ppm	250 ppm
	Iron	1000 ppm	200 ppm
	Titanium	50 ppm	<5 ppm
	Tungsten	5000 ppm	2000 ppm
	Free Carbon	0.15%	<0.10%

Tantalum Niobium Carbide 90/10

PHYSICAL ANALYSES	TEST	MAXIMUM / RANGE*	TYPICAL
	FSSS	0.8 to 3.0 μ	0.86 to 1.8 μ
CHEMICAL ANALYSES	ELEMENT	MAXIMUM / RANGE*	TYPICAL
	Total Carbon	6.25 – 7.25%	6.70%
	Tantalum	82.90 - 85.90%	84.20%
	Niobium	7.40 – 10.40%	9.10%
	Oxygen	3000 ppm	1000 ppm
	Nitrogen	2000 ppm	150 ppm
	Iron	2000 ppm	200 ppm
	Titanium	50 ppm	<5 ppm
	Tungsten	5000 ppm	1000 ppm
	Free Carbon	0.25%	<0.10%



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Tantalum Niobium Carbide 75/25

PHYSICAL ANALYSES	TEST	MAXIMUM / RANGE*	TYPICAL
	FSSS	0.8 to 2.0 μ	0.8 to 1.9 μ
CHEMICAL ANALYSES	ELEMENT	MAXIMUM / RANGE*	TYPICAL
	Total Carbon	7.00 – 8.00%	7.50%
	Tantalum	70.25 – 73.25%	71.10%
	Niobium	19.30 – 22.30%	21.30%
	Oxygen	2000 ppm	1250 ppm
	Nitrogen	1000 ppm	700 ppm
	Iron	1000 ppm	150 ppm
	Titanium	500 ppm	<5 ppm
	Tungsten	1500 ppm	450 ppm
	Free Carbon	0.10%	<0.10%

Tantalum Niobium Carbide 60/40

PHYSICAL ANALYSES	TEST	MAXIMUM / RANGE*	TYPICAL
	FSSS	0.8 to 3.0 μ	0.8 to 2.3 μ
CHEMICAL ANALYSES	ELEMENT	MAXIMUM / RANGE*	TYPICAL
	Total Carbon	7.80 – 8.80%	8.30%
	Tantalum	54.80 – 57.80%	56.50%
	Niobium	33.90 – 36.90%	35.00%
	Oxygen	3000 ppm	1250 ppm
	Nitrogen	2000 ppm	700 ppm
	Iron	1000 ppm	150 ppm
	Titanium	500 ppm	<5 ppm
	Tungsten	2000 ppm	250 ppm
	Free Carbon	0.25%	0.12%

* Maximum limits listed are for standard material specifications. OSRAM SYLVANIA specializes in manufacturing material to customer specifications and different maximum limits may be requested.

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