

# Tungsten Carbide Powder

## Technical Information Bulletin

Powders That Shape Your World



Global Tungsten & Powders Corp. is a leading global supplier of tungsten carbide for the production of hard material parts. Our tungsten carbide powders are available in a range of grain sizes for a variety of applications. Micro grain powders are widely specified for circuit board drills, nozzles and round tools. Fine powders are used in the manufacture of metal cutting tools and inserts. Medium and coarse powders are required for mining tools; energy, drilling tools, wear and die parts and road construction bits. The physical and chemical properties of GTP tungsten carbide powders are carefully controlled to ensure consistency in lot-to-lot performance. Our manufacturing capabilities in North America and Europe deliver world-class quality and service.

	Powder Characteristics						Use test data @ 6% Co <sup>2</sup>				
	FSSS Unmilled ( $\mu\text{m}$ )		Cr	Fe	Ni	O <sub>2</sub>	Density <sup>3</sup>	Coer- civity <sup>4</sup>	Mag Sat <sup>5</sup>	Shrink- age <sup>6</sup>	Hard- ness <sup>7</sup>
	MIN	MAX	MAX <sup>1</sup>	MAX <sup>1</sup>	MAX <sup>1</sup>	MAX <sup>1</sup>					
SC04U	-	0.7	100	150	150	3500	14.61	383	142	20.4	93.6
SC07U	0.7	1.0	100	150	150	2500	14.49	240	154	19.6	92.0
SC17S	1.1	1.4	50	500	100	1800	14.95	215	157	19.0	92.2
SC20S	1.4	1.7	50	500	100	900	14.95	190	157	19.0	91.9
SC25S	1.7	2.1	50	500	100	900	14.95	185	157	18.7	91.8
SC30S	2.1	2.5	50	500	100	900	14.95	200	157	17.0	92.0
SC35S	2.5	2.9	50	500	100	900	14.95	175	157	17.0	91.7
SC37S	2.9	3.6	50	500	100	900	14.95	170	157	16.8	91.7
SC40S	3.6	4.3	50	500	100	900	14.95	150	157	16.6	91.3
SC45S	4.3	5.0	50	500	100	900	14.95	145	157	16.5	91.3
SC55S	5.0	6.0	50	500	100	600	14.95	125	157	16.3	90.9
SC60S	6.0	8.0	50	500	100	600	14.95	118	150	16.1	90.4
SC63S	8.0	10.9	50	400	100	500	14.95	105	157	16.2	89.8
SC65S	11.0	15.0	50	400	100	500	14.95	95	150	16.2	89.4
SC68S	15.0	19.9	50	400	100	500	14.95	85	157	16.2	88.9
SC70S	20.0	40.0	75	1,000	100	500	14.95	70	157	16.2	88.3
SC75S	20.0	40.0	75	1,000	100	500	14.95	68	150	15.4	87.8

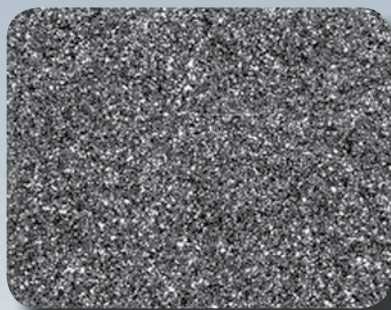
Notes:

- Carbon total for all types is 6.08% minimum, 6.18% maximum
- Free carbon total is 0.08% for Types SC04U, SC07U, and SC17S. All other types 0.05%
- Capability to co-carburize certain WC types (SC04, SC07, SC17, SC20) with various dopants (Vanadium/Tantalum/Chromium) to customer specified levels.

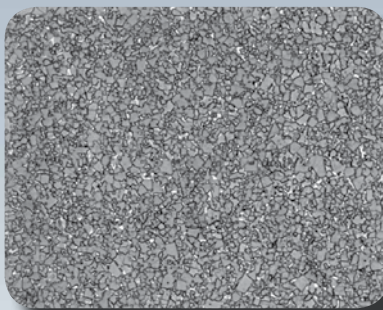
Footnotes:

- <sup>1</sup> All contaminants shown at the ppm level  
<sup>2</sup> Use test data for SC04 is at 8% Co / 0.5% Cr<sub>3</sub>C<sub>2</sub> / 0.3% VC & SC07 is at 10% Co / 0.25% Cr<sub>3</sub>C<sub>2</sub>, all others are at 6% Co as noted above  
<sup>2</sup> Density is g/cm<sup>3</sup>  
<sup>3</sup> Coercivity is noted in oersted (Oe) units  
<sup>4</sup> Magnetic Saturation is noted as gauss units (G)  
<sup>5</sup> Shrinkage is noted in percent (%)  
<sup>6</sup> Hardness is noted as Rockwell A (HRA)

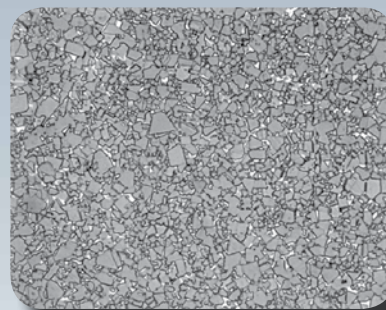
Type SC04



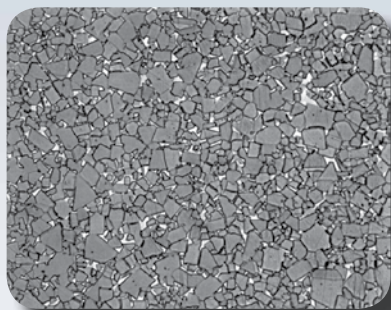
Type SC20



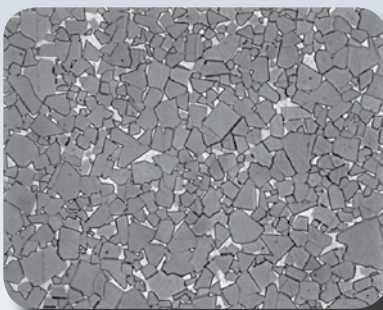
Type SC45



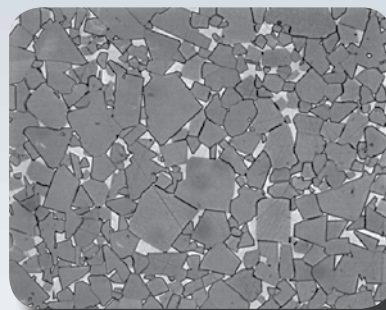
Type SC60



Type SC65



Type SC70



Magnified 1,500 times

### Customization

GTP has the capability to tailor our powder based on specific customer requirements.

### Certification

Lot data for the above physical and chemical specifications is reported in a laboratory test that is provided for each shipment. Chemical analysis is performed on every 10th lot. Information is available for customer evaluation.

### Packaging

Fifty kilogram (50kg) per yellow pail with polyethylene liner. (Five gallon pails for types GT04 through GT20, 3.5 gallon pails for types GT25 through GT75.)



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### History of Global Tungsten & Powders:

For over 40 years, GTP in Towanda has been producing tungsten, molybdenum, cobalt, and tantalum powder products. GTP produces a wide range of materials, which are used in the manufacture of numerous products. These products include metal working tools for cutting, rolling, and stamping; high temperature jet engine components and protective coatings; circuit manufacturing chemicals for microelectronics; catalysts for petrochemical processing. In 2000 HMZ in the Czech Republic became a part of the Global Tungsten & Powders group providing a European hub for the production of high quality tungsten and tungsten carbide powders.