
	<b>SARA SAE ENGINEERING SPECIFICATION</b>	
	<b>Section: SES 26 – 804</b>	
	<b>ISSUE “A”</b>	<b>REV “0”</b>
	<b>EFF. DATE: 31.05.2016</b>	<b>Page 1 of 3</b>

**MATERIAL SPECIFICATION, 6% COBALT – SINTERED TUNGSTEN CARBIDE WEAR  
RESISTANT ALLOY**

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
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## **MATERIAL SPECIFICATION, 6% COBALT – SINTERED TUNGSTEN CARBIDE WEAR RESISTANT ALLOY**

### **1.0 PURPOSE**

- 1.1 This specification lists the requirements for Tungsten Carbide combined with 6% Cobalt and subsequently sintered to form parts commonly referred to as “Carbide Trim”.
- 1.2 This specification is intended to aid procurement, inspection, and quality control in the identification and validation of the described material.

### **2.0 SCOPE**

- 2.1 This specification covers all standard trim forms and shapes incorporating relatively simple geometries requiring the excellent wear resistance but moderate toughness of 6% Co-WC.


### **3.0 REFERENCES**

- 3.1 ASTM B-276
- 3.2 ASTM B-294
- 3.3 ASTM B-311
- 3.4 ASTM B-390
- 3.5 ASTM B-406
- 3.6 ASTM E-23

### **4.0 COMPOSITION**

- 4.1 All material referenced by this specification shall meet the following chemical composition: (Trace quantities of Cr and Ni are allowed.)

Cobalt (Co)	5.5 – 6.5 %
Tantalum Carbide (TaC)	.5% max.
Titanium Carbide (TiC)	.3% max.
Tungsten Carbide (WC)	Balance

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## **5.0 MECHANICAL AND MICROSTRUCTURE PROPERTIES**

- 5.1 All material referenced by this specification shall meet the following:
- |                             |  |
|-----------------------------|--|
| Hardness                    | 92.0- 93.0 HRA (79-81 HRC)<br>per ASTM B-294                       |
| Transverse Rupture Strength | 325,000 psi (min.) per ASTM B-406                                  |
| Density                     | 14.85 – 15.05 g/cm <sup>3</sup> per ASTM B-311                     |
| Grain Size                  | Sub Micron per ASTM B-390  |
| Porosity                    | A02, B02, C00 (max.) per ASTM B-276<br>(Hipping shall be optional) |

## **6.0 DOCUMENTATION**

- 6.1 Certification of Sections 4.0 and 5.0 above is required and shall accompany any and all material ordered per this specification.