

**SARA SAE ENGINEERING SPECIFICATION****Section: SES 26 – 804****ISSUE "A"****REV "0"****EFF. DATE: 31.05.2016****Page 1 of 3****MATERIAL SPECIFICATION, 6% COBALT – SINTERED TUNGSTEN CARBIDE WEAR RESISTANT ALLOY**

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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) 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 (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.