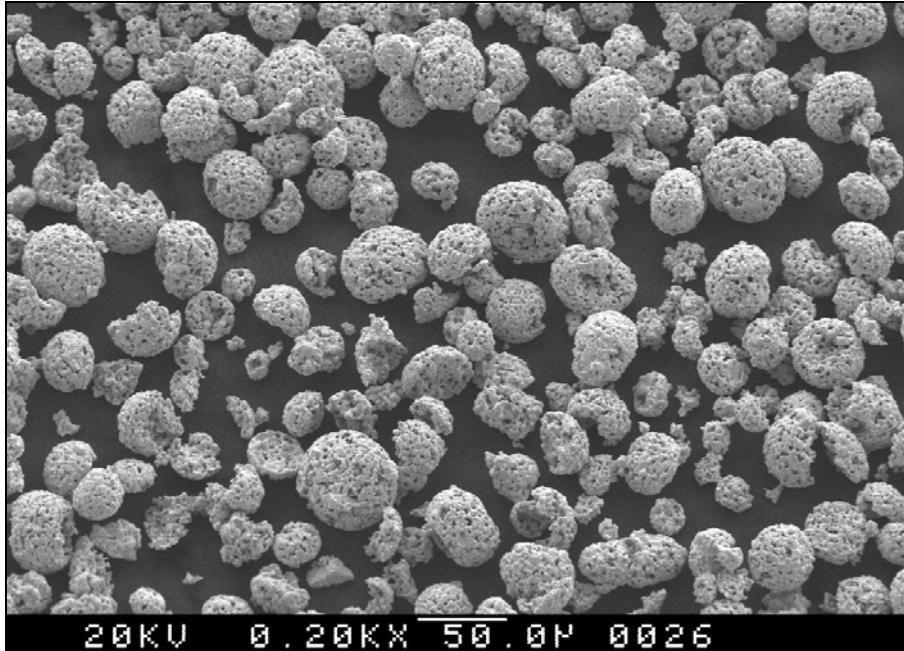


# HA 8320

WC 11Co

Product Code: 328320  
Technical Data Sheet

Revision: # 000  
Dated: 03/27/09



**Figure 1:** Typical Powder Morphology (SEM 200X)

## 1. PHYSICAL PROPERTIES

HA 8320 is fine grade agglomerated, sintered, powder with 89%WC and 11%Co. It produces dense, erosion resistant coatings with excellent wear properties at low temperatures.

<b>Molecular Formula</b>	<b>WC 11Co</b>
<b>Melting Point [°C]</b>	<b>1260</b>
<b>Hall Flow [s/50g] ASTM B213</b>	<b>18 ± 3</b>
<b>Apparent Density [g/cm<sup>3</sup>] ASTM B212</b>	<b>4.0 ± 0.4</b>

## 2. CHEMICAL PROPERTIES

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## 2.1. Typical Chemical Analysis

<u>Element</u>	<u>Weight Percent</u>
Tungsten	Balance
Carbon (total)	3.90 – 4.50
Cobalt	10.50 – 12.00
Iron	< 0.10
All Others	0.5

## 3. POWDER MORPHOLOGY AND PARTICLE SIZE DISTRIBUTION

### 3.1. Powder Morphology

- 3.1.1. Powder has irregular blocky shape as produced by agglomeration, sinter, and crushing processes.
- 3.1.2. Typical Powder Morphology using SEM is shown in Figure 1.

### 3.2. Particle Size Distribution

- 3.2.1. The typical powder size range measured with Tyler according to ASTM B214 is -325 mesh +5  $\mu\text{m}$
- 3.2.2. Table 1 shows the required and typical particle size distribution measured with Microtrac according to ASTM B822
- 3.2.3. Figure 2 shows the typical Microtrac particle size distribution graph

**Table 1: Typical and Required Microtrac Particle Size Distribution**

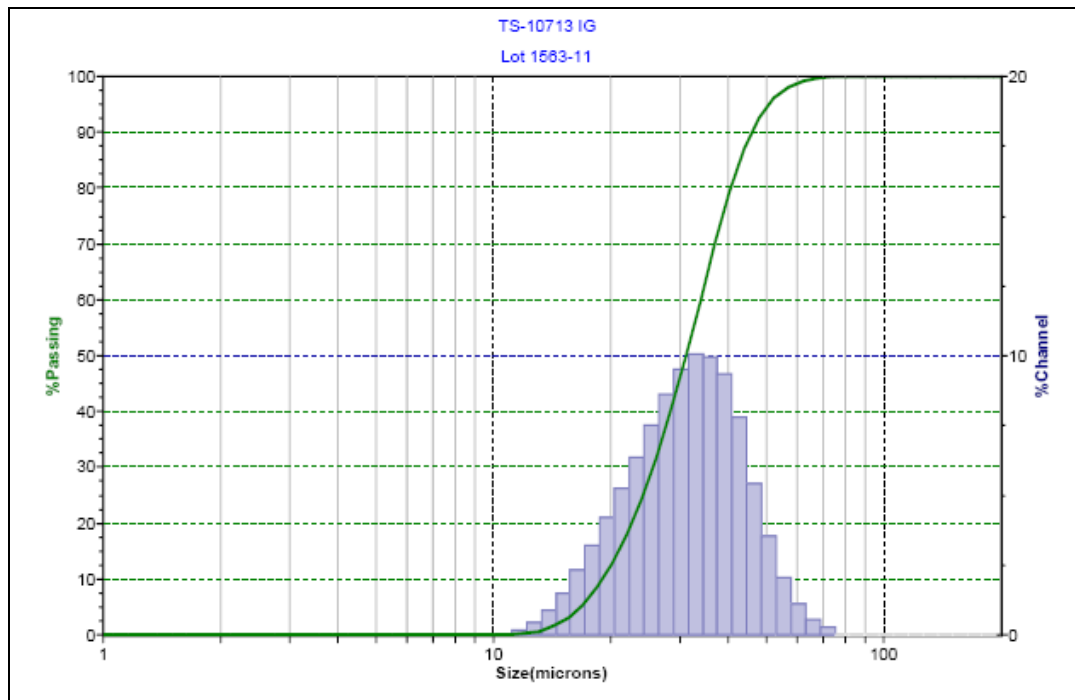
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<u>Percentile</u>	<u>Typical Particle Size</u>		<u>Mean</u>	<u>Required Particle Size</u>
[%]	[ $\mu\text{m}$ ]			
0.01	11.07		D <sub>10</sub>	10 - 25 $\mu\text{m}$
5.00	16.75			
10.00	19.08			
16.00	21.32		D <sub>50</sub>	30 - 40 $\mu\text{m}$
50.00	31.11			
84.00	42.41			
90.00	45.90		D <sub>90</sub>	45 - 60 $\mu\text{m}$
95.00	50.89			
99.99	73.65			



**Figure 2: Typical Microtrac Particle Size Distribution**