

HA 7116

Ni 14Cr 4.5Fe 4.5Si 3B 3Cu 3Mo

Product Code: 257167
Technical Data Sheet

Revision: # 001
 Dated: 05/05/10

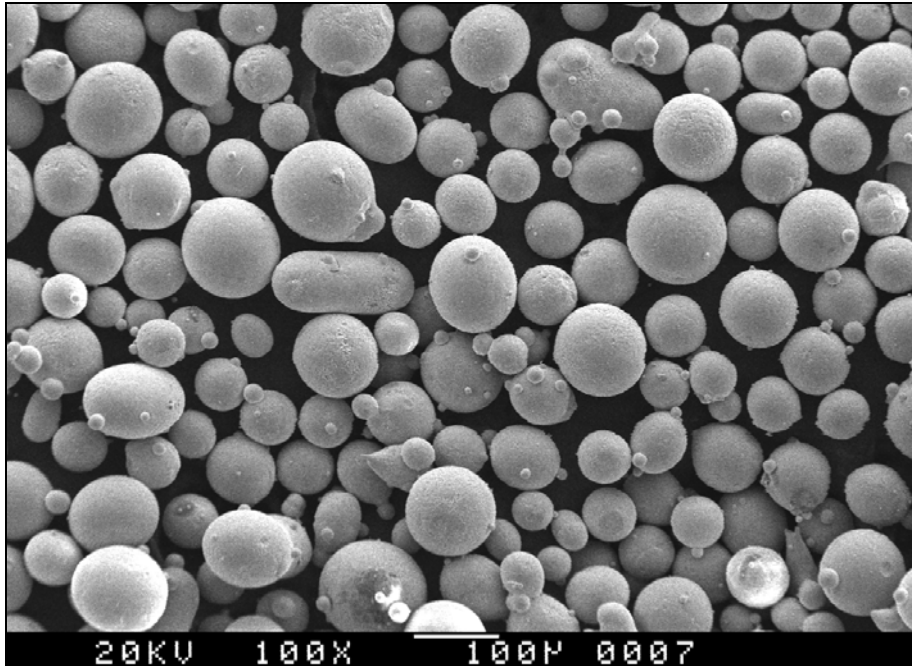


Figure 1: Typical Powder Morphology (SEM 100X)

1. PHYSICAL PROPERTIES

HA 7116 is a self-fluxing, Nickel Chrome Copper Molybdenum hard facing alloy powder produced by an atomization process. It produces very dense and corrosion resistant coatings, which resist wear by abrasive grains, hard surfaces, particle erosion and cavitation, in both low and high temperatures. As a self fluxing alloy it is designed to be "fused" or re-melted in a normal atmosphere after being sprayed. They then coalesce into a dense, essentially pore-free coating with a hardness of ~ 60 HRC.

Molecular Formula	Ni 14Cr 4.5Fe 4.5Si 3B 3Cu 3Mo
Melting Point [°C]	980 - 1040
Hall Flow [s/50g] ASTM B213	16 ± 2
Apparent Density [g/cm³] ASTM B212	4.0 ± 0.5

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2. CHEMICAL PROPERTIES

2.1. Typical Chemical Analysis

<u>Element</u>	<u>Weight Percent</u>
Nickel [Ni]	60 - 72
Chromium [Cr]	14 - 19
Carbon [C]	0.5 – 1.0
Silicon [Si]	3.0 – 5.0
Boron [B]	3.0 – 4.5
Iron [Fe]	3.0 – 5.0
Copper [Cu]	2.0 – 4.0
Molybdenum [Mo]	2.0 – 4.0
All Others	< 1.00

3. POWDER MORPHOLOGY AND PARTICLE SIZE DISTRIBUTION

3.1. Powder Morphology

- 3.1.1. Powder has a round shape as produced by atomization process.
- 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 -140 mesh +325 mesh
- 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

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Table 1: Typical and Required Microtrac Particle Size Distribution

<u>Percentile</u>	<u>Typical Particle Size</u>		<u>Mean</u>	<u>Required Particle Size</u>
[%]	[μm]			
0.01	31.35		D ₁₀	40 - 65 μm
5.00	53.51			
10.00	59.46			
16.00	64.07		D ₅₀	70 - 95 μm
50.00	82.73			
84.00	113.0			
90.00	127.7		D ₉₀	105 - 140 μm
95.00	153.6			
99.99	294.4			

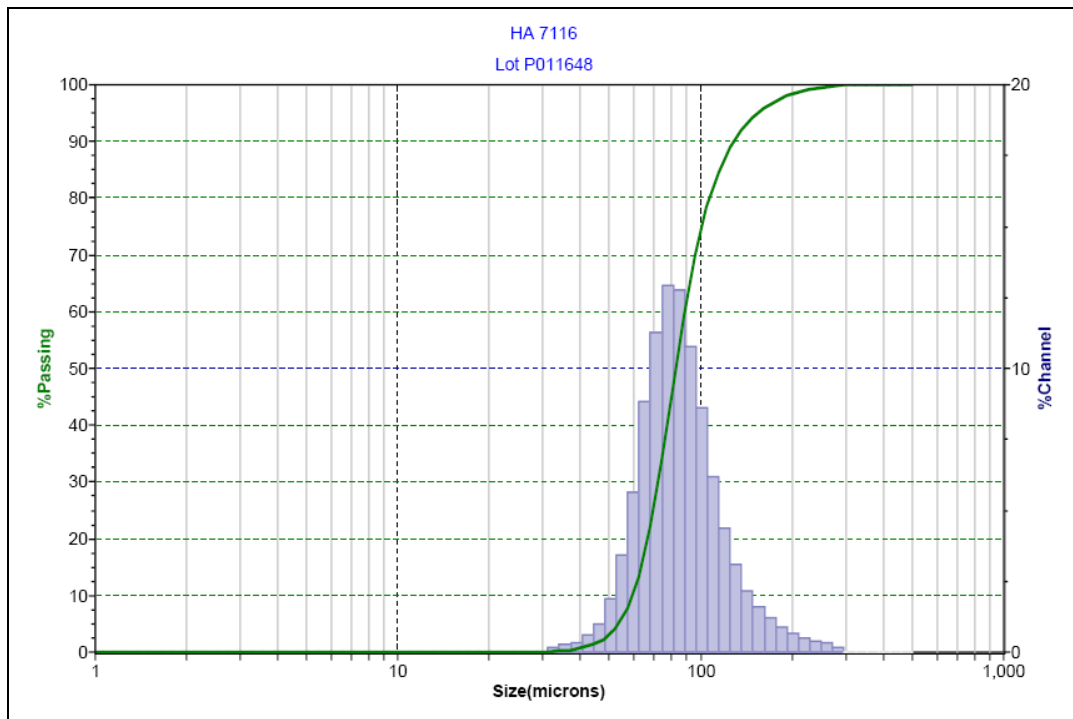


Figure 2: Typical Microtrac Particle Size Distribution