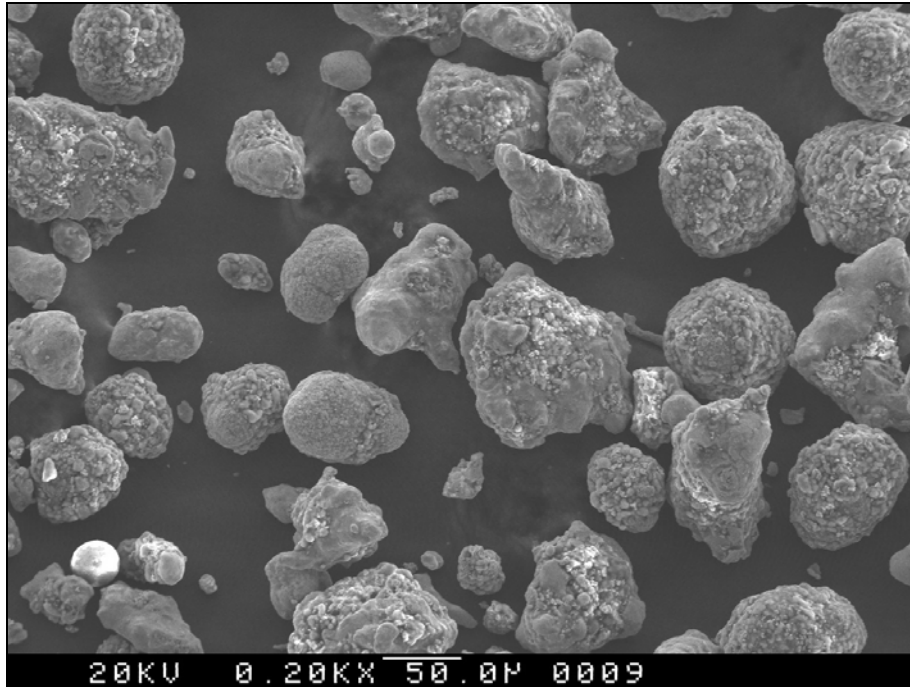


# HA 7266

Ni 8Cr 7Al 5Fe 5Mo

Product Code: 257266  
**Technical Data Sheet**

Revision: # 000  
 Dated: 05/28/10



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

## 1. PHYSICAL PROPERTIES

HA 7266 is a self-bonding, Nickel-Chromium, Molybdenum, Aluminum composite powder produced by an agglomeration process. It was especially developed to produce machinable “Stainless” type coatings with low-shrinkage and high strength. The coatings are recommended for applications requiring resistance to abrasive wear, fretting, cavitation, particle erosion, and for the salvage and buildup of machinable corrosion resistant steels.

<b>Molecular Formula</b>	<b>Ni 8Cr 7Al 5Fe 5Mo</b>
<b>Melting Point [°C]</b>	<b>Approx. 660</b>
<b>Hall Flow [s/50g]</b> ASTM B213	<b>16 ± 2</b>
<b>Apparent Density [g/cm<sup>3</sup>]</b> ASTM B212	<b>3.5 ± 0.5</b>

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## 2. CHEMICAL PROPERTIES

### 2.1. Typical Chemical Analysis

<u>Element</u>	<u>Weight Percent</u>
Nickel [Ni]	Balance
Chromium [Cr]	7.5 – 9.5
Aluminum [Al]	3.5 – 8.0
Iron [Fe]	4.0 – 6.0
Molybdenum [Mo]	4.0 – 6.0

## 3. POWDER MORPHOLOGY AND PARTICLE SIZE DISTRIBUTION

### 3.1. Powder Morphology

- 3.1.1. Powder has a irregular round shape as produced by an agglomeration 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

# HA 7266

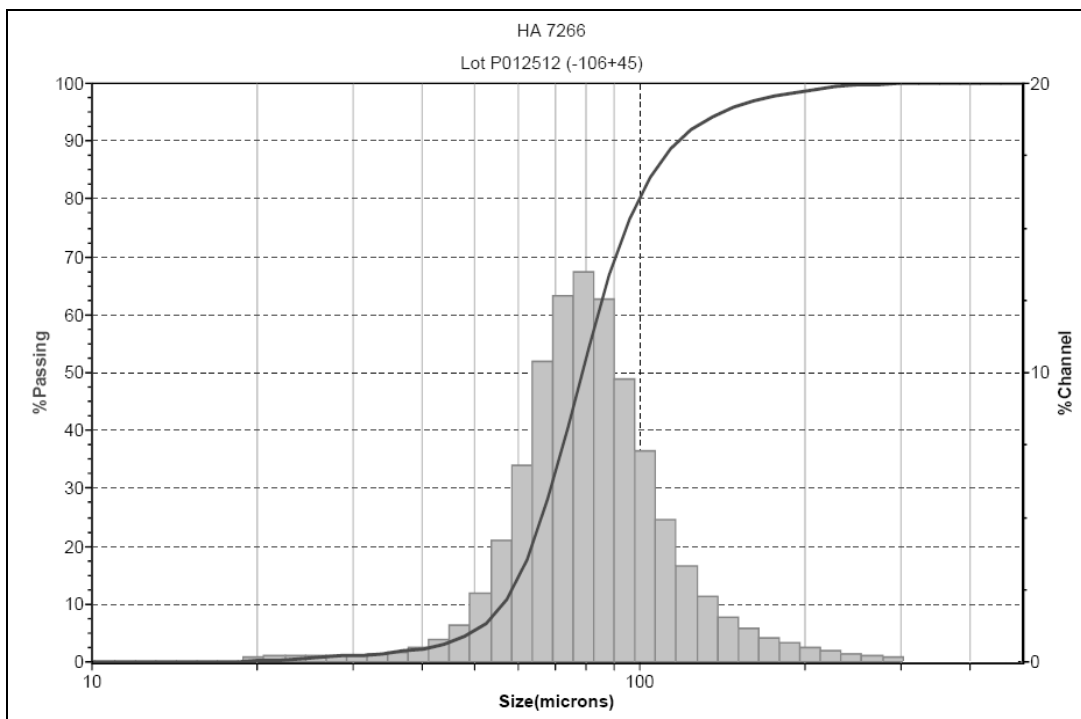
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**Table 1: Typical and Required Microtrac Particle Size Distribution**

<u>Percentile</u>	<u>Typical Particle Size</u>		<u>Mean</u>	<u>Required Particle Size</u>
[%]	[ $\mu\text{m}$ ]			
0.01	18.62		D <sub>10</sub>	40 - 65 $\mu\text{m}$
5.00	49.48			
10.00	56.18			
16.00	61.07		D <sub>50</sub>	70 - 90 $\mu\text{m}$
50.00	78.58			
84.00	105.0			
90.00	117.7		D <sub>90</sub>	100 - 130 $\mu\text{m}$
95.00	140.7			
99.99	293.9			



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

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## 4. BENEFITS AND FEATURES

HA 7266 offers two major advantages: “One-step” spraying and High-Integrity coatings.

“One-Step” coatings present the following benefits:

- No separate bond coat necessary
- Less undercutting required; the allowance for bond coat thickness is eliminated.
- Less technique dependence; such reducing the number of steps required to produce the coating which reduces the chance of errors.
- More convenience; since “one-step” coatings eliminate having to change materials and spraying parameters.

HA 7266 powder is relatively easy to spray. It can be sprayed with minimum dependence on technique or need for temperature control. This allows for continuous spraying, and reduces chances of laminations occurring due to interruptions.

Thick coatings can be applied without cracking and reliable coatings with high–integrity can be produced.

### 4.1. Typical Coating Properties

- 4.1.1. High Bond Strength – Typical coating tensile bond strengths are 5,000 psi (35 MPa).
- 4.1.2. Low Shrinkage – Thick coatings can be applied without cracking, due to low shrink and low coefficient of expansion, which makes HA 7266 ideally suitable for machine element applications.
- 4.1.3. High Interparticle Cohesion – Coatings exhibit excellent internal strength which provides high tensile strength over 18,000 psi (124 MPa), and good edge retention after grinding.
- 4.1.4. Moderate Hardness – Typical plasma sprayed coating macro hardness is 85 HR<sub>b</sub> (250 HV<sub>300</sub>)
- 4.1.5. Good Wear Resistance – Resistance to abrasive wear is equal to wire arc spray coatings of HA 538 (high carbon steel #80) and better than plasma sprayed coatings of HA 7266 (Ni-5Al-5Mo)
- 4.1.6. Good Corrosion Resistance – Coatings exhibit excellent oxidation resistance in temperatures up to 1,600°F (870°C)
- 4.1.7. Good Finishing Capability – Coatings can be machined to a very fine finish of 10 - 15µinch (Ra 0.3 - 0.4 µm)
- 4.1.8. Good Bond Coat Material – In addition to its capabilities as a single coat material, HA 7266 is suitable for use as a bond coat material.