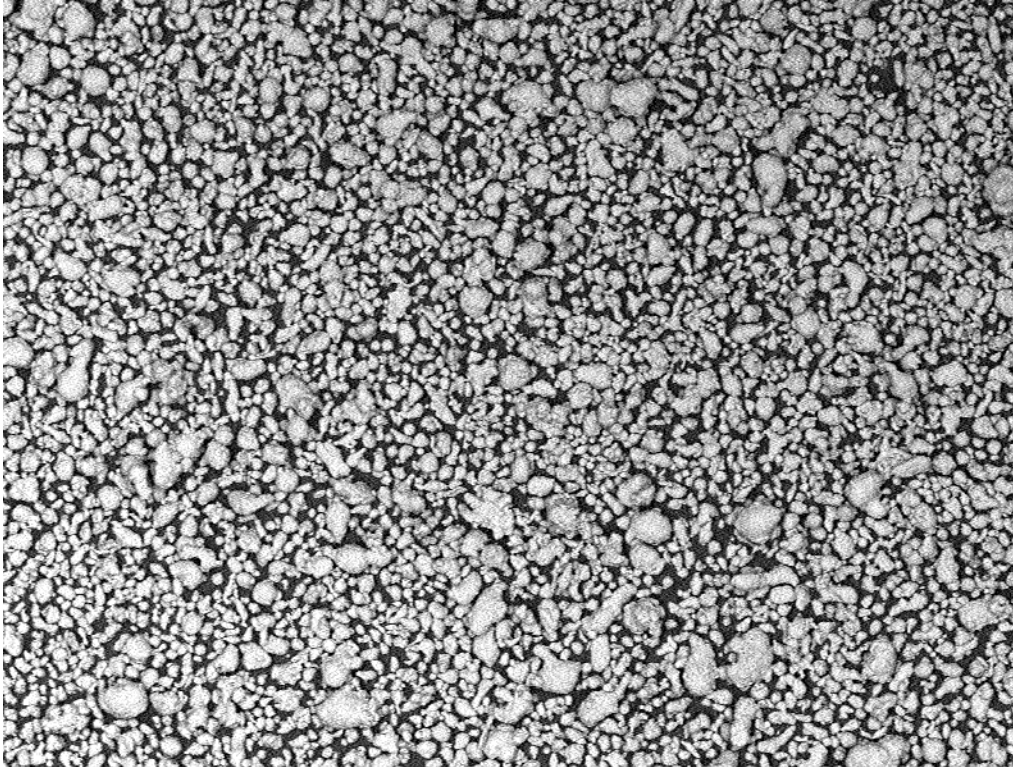


# HA 1031

## Aluminum Cold Spray

Product Code: 101031  
Technical Data Sheet

Revision: # 001  
Dated: 10/18/12



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

### 1. PHYSICAL PROPERTIES

HA 1031 is a high purity Aluminum powder designed specifically for the cold spray process. It produces very dense coatings with excellent deposition efficiency.

HA 1031 is widely used for the restoration of Aluminum, Magnesium and Titanium parts.

Product Description	Aluminum Cold Spray
Melting Point [°F]	1,221
Apparent Density (typical) [g/cm <sup>3</sup> ] ASTM B212	0.8 - 1.4
Hall Flow (typical) [sec/50g] ASTM B213	-

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## 2. CHEMICAL PROPERTIES

### 2.1. Typical Chemical Analysis

Element	Al	Fe	Si	Zn	Mn	Ti
<b>Max Weight %</b>	Bal.	0.20	0.10	0.03	0.03	0.02
<b>Min Weight %</b>	Bal.	0.00	0.00	0.00	0.00	0.00

## 3. POWDER MORPHOLOGY AND PARTICLE SIZE DISTRIBUTION

### 3.1. Powder Morphology

- 3.1.1. Powder has morphology is water atomized and crushed and sintered
- 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 US Mesh according to ASTM B214-07 is -230 mesh +5 um. Table 1 shows the typical weight percent distribution in accordance to ASTM B214-07.
- 3.2.2. Figure 2 shows the typical particle size distribution measured with Microtrac according to ASTM B822-10

**Table 1: Typical and Required Weight Percent Particle Distribution**

Mesh Size	Particle Size	Maximum Percentage	Minimum Percentage
230	63	-	95
325	44	-	85
400	37	85	75
-	22	50	20
-	15	25	5
-	5	1	-