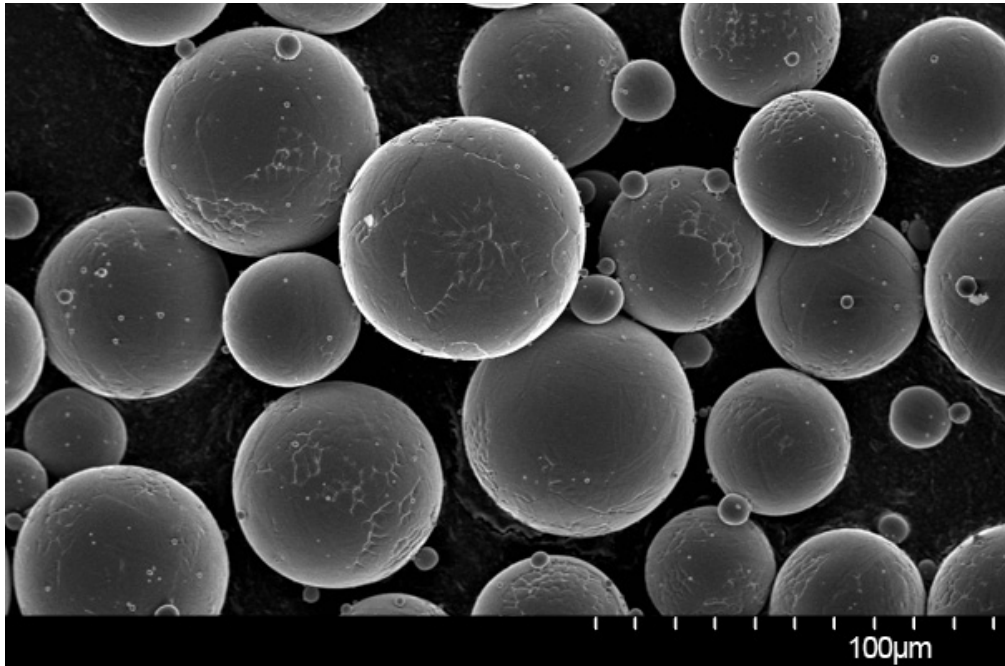


Ti-6Al-4V (45-106 μm)

SEM



Particle Size Distribution

| Microns | Size Distribution by Sieve Analysis (ASTM B214-07) |
|---------|--|
| 106-250 | 2.9% |
| 75-106 | 40.7% |
| 0-45 | 3.2% |

Flowability

| Test | Time | Testing method |
|------------------|--------|----------------|
| Hall Flowmeter | – 23 s | ASTM B213-11 |
| Carney Flowmeter | –4.2 s | ASTM B964-09 |

Chemical Composition

| Element | AP&C typical Gr.5 (% wt.) | AP&C typical Gr.23 (% wt.) | Testing method |
|----------|---------------------------|----------------------------|----------------|
| Carbon | 0.02 | 0.02 | ASTM E1941 |
| Oxygen | 0.12-0.15 | 0.07-0.10 | ASTM E1409 |
| Nitrogen | 0.02 | 0.02 | ASTM E1409 |
| Hydrogen | 0.005 | 0.005 | ASTM E1447 |
| Iron | 0.05-0.25 | 0.05-0.20 | ASTM E2371 |

| | | | |
|------------------|-----------|-----------|------------|
| Aluminum | 5.50-6.75 | 5.50-6.50 | ASTM E2371 |
| Vanadium | 3.50-4.50 | 3.50-4.50 | ASTM E2371 |
| Copper | < 0.10 | < 0.10 | ASTM E2371 |
| Tin | < 0.10 | < 0.10 | ASTM E2371 |
| Yttrium | < 0.005 | < 0.005 | ASTM E2371 |
| Other max. each | 0.1 | 0.1 | ASTM E2371 |
| Other max. total | 0.4 | 0.4 | ASTM E2371 |
| Titanium | Balance | Balance | ASTM E2371 |

AP&C powders chemistry may comply with standards: ASTM B348, ASTM F136, ASTM F1580, ASTM B863, AMS 4956, AMS 4998 and AMS 4928.

Densities

| Test | Density | Testing method |
|------------------|------------------------|----------------|
| Apparent density | 2.56 g/cm ³ | ASTM B212-12 |
| Tap density | 2.88 g/cm ³ | ASTM B527-06 |