



## INCREASE OPERATIONAL EFFICIENCY, REDUCE COST, AND AVOID IN-SERVICE FAILURES

**As the use of additive manufacturing becomes prevalent across industries, powder manufacturers are challenged to identify and understand the properties of their products. Buyers want certainty about the consistent and predictable quality of their material. Element's powder characterization services are the first step to make certain your materials are fit-for-purpose, no matter their application.**

### ABOUT POWDER CHARACTERIZATION

Particles with a smooth surface and consistent shape and size are the preferred characteristics for metal powders in the AM industry. Maintaining consistent chemical and physical properties of powders is often difficult to achieve:

- transportation and storage conditions can have different impacts on the properties even between batches of one supplier.
- different production techniques can result in varying powder qualities.
- different manufacturing processes require different powder characteristics for the deposition and melting of the particles.
- the recyclability of powders can be affected by exposure to high temperatures during the melting process.
- metal powders can change their properties over time during storage (e.g. oxygen uptake)

### FULL-SCOPE POWDER CHARACTERIZATION

Our materials experts are at the forefront of additive manufacturing testing, providing comprehensive services from powder characterization services. We work to ensure your materials meet relevant standards as well as any custom standards or test requests provided by your organization.

Several Element laboratories in Europe and the US offer a range of powder qualification services. The Element Antwerp laboratory is a center of excellence for AM services and accredited for full-scope powder characterization according to ISO/ASTM 52907.

### OUR CHARACTERIZATION SERVICES

Powder characterization validates that properties of the material are pure, uniform between batches, and ready to be 3D printed. Our scope includes:

SERVICE	STANDARDS
Representative sampling	ISO 3954, ASTM B215
Particle size distribution	ISO 13320, ASTM B822
Sieve analysis	ASTM B214
Chemical composition	EN 14242; ASTM E350, E351, E352, E353, E354, E478, E1019, E1409, E1447, E1473, E1479, E1941, E2371, E2575, E2594, E2792, E3061
Apparent density	ISO 3923, ASTM B212, ASTM B417
Compacted 'tap' density	ISO 3953, ASTM B527
Flowability, Hall funnel	ISO 4490, ASTM B213, ASTM B964
Morphology	ISO 3252, ASTM B243

### ONE-TIME AND RECURRING TESTING

Any powder should be accurately characterized to ensure its fitness for the desired outcome.

- On receipt of the goods to validate the correct product was delivered
- At regular intervals to ensure its fitness for use.

Element offers both one-time powder characterization and recurring testing. Contact us for further information or to request a quote.

Your inquiries:

[contact.us@element.com](mailto:contact.us@element.com)

[www.element.com/contact-us](http://www.element.com/contact-us)

Americas: +1 888 786 7555

United Kingdom: +44 808 234 1667

Germany: +49 800 000 5137

Middle East: +971 800 353 636