LayrrNickel 718 - Inconel 718

Type analysis

Single figures are nominal except where noted.

Nickel	50.00-55.00 %
Niobium + Tantalum	4.75-5.50%
Cobalt	1.00 %
Silicon	0.35 %
Nitrogen	0.03 %
Sulfur	0.015 %

Iron	Balance
Molybdenum	2.80-3.30 %
Aluminium	0.20-0.80 %
Copper	0.30 %
Oxygen	0.03
Boron	0.006 %

Chromium	17.0-21.0 %
Titanium	0.65-1.15 %
Manganese	0.35 %
Carbon	0.08 %
Phosphorus	0.015 %

Description

LayrrNickel 718 - Inconel 718 is a precipitation-hardenable nickel-chromium superalloy engineered for extreme environments. Optimized for Additive Manufacturing (LPBF, EBM, and DED), this powder is atomized to minimize satellite formation and internal porosity. It is the industry standard for components requiring high tensile, fatigue, and creep-rupture strength at temperatures up to 700°C (1290°F).

718 is supplied in cuts optimised by LPBF (15-45µm) and EBM/DED (45-105µm).

- Satellite-Free Morphology: High sphericity ensures the powder flows like a liquid during recoating, preventing short-feeds and layer defects.
- Low Oxide Content: Oxygen pickup is the enemy of superalloys. Our vacuum-sealed handling ensures you start with a clean feedstock, maximizing powder reuse cycles.

Powder Properties

Part number	LayrrNickel 718 - Inconel 718
Application	L-PBF[1]
Maximum particle size	Max 1 wt% > 53 µm[3]
Minimum particle size	Max 10 vol% < 15 µm[3]
LSD percentile	D10, D50, D90[3], reported
Atomisation	Vacuum Induction Melted, Argon Gas Atomised
Apparent density (g/cm³)	Measured according to ASTM B212[4] and reported
Carney flow	Measured according to ASTM B964[4] and reported

[1] ASTM/ISO 52900: Laser - Powder Bed Fusion (L-PBF), Electron-Beam Powder Bed Fusion (EB-PBF), Directed Energy Deposition (DED)
[2] ASTM B214 Standard Test Method for Sieve Analysis for Metal Powders
[3] ASTM B822 Standard Test Method for Particle Size Distribution of Metal Powders and Related Compounds by Light Scattering
[4] ASTM B212 Standard Test Method for Apparent Density of Free-Flowing Metal Powders Using the Hall Flowmeter Funnel Testing of powder will fulfill certification requirements to Nadcap Materials Testing and ISO/IEC 17025 Chemical, per relevant ASTM procedures