



ADDIPOWDER

Advanced Powders for Next-
Generation Manufacturing

MATERIAL DATA SHEET

High-Performance IN718 Nickel Alloy Powder

CONTACT US

28 RUE DE BELLEVUE, 77810, THOMERY, FRANCE

+33 (0)7 69 52 78 33

addipowder@gmail.com

www.addipowder.com

MATERIAL DATA SHEET

IN718

MATERIAL

AddiPowder's IN718 alloy powder is a nickel-based superalloy formulated for precision and durability across additive manufacturing, powder metallurgy, and advanced forming processes. Known for its outstanding strength at elevated temperatures, oxidation resistance, and fatigue performance, IN718 is the go-to solution for aerospace, energy, and high-performance industrial components.

CHEMICAL COMPOSITION (wt%)

C	Cr	Ni	Co	Nb	Mo	Al	Ti	Fe	B	Mg
0.02-0.06	17.00-21.00	50.00-55.00	≤1.00	4.75-5.50	2.80-3.30	0.20-0.80	0.65-1.15	Bal	≤0.006	≤0.010
Mn	Si	P	S	Cu	O	N				
≤0.35	≤0.35	≤0.015	≤0.015	≤0.030	≤0.020	≤0.015				

PHYSICAL PROPERTIES

Particle Size	15–53 μm
Size distribution	D10: ≥15 μm, D50: 30-40 μm, D90: ≤60 μm
Hall Flow Rate	≤25 s / 50 g
Bulk Density	≥4.3 g/cm³
Tap Density	≥4.8 g/cm³

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MECHANICAL PROPERTIES

815°C Endurance Performance

Tensile Strength (σ_b /MPa) ≥ 690

Duration (t/h) ≥ 80

Elongation at break (δ_5 /%) ≥ 5

Measuring at 25°C

Tensile Strength (σ_b /MPa) ≥ 1270

Yield Strength ($\sigma_{p0.2}$ /MPa) ≥ 1030

Elongation at break (δ_5 /%) ≥ 12

Measuring at 650°C

Tensile Strength (σ_b /MPa) ≥ 1000

Yield Strength ($\sigma_{p0.2}$ /MPa) ≥ 860

Elongation at break (δ_5 /%) ≥ 12

HEAT TREATMENT RECOMMENDATION

Option 1: Solution Heat Treatment

620°C $\pm$ 10°C / 8h / AC

Option 2: Heat Isostatic Pressing

980-1060°C / 1h / AC + 720°C $\pm$ 10°C / 8h / FC

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