718 AM

MISSION-CRITICAL AND SAFETY-CONSCIOUS APPLICATIONS

Material Description

GMP 718 metal powders have been specifically designed and optimised for use in Additive Manufacturing (AM).

GMP 718 metal powders are widely used and successfully proven in AM. **GMP 718** powder processes well across the broad spectrum of AM machines and technologies due to their excellent flow and melting characteristics in PBF and EBM applications.

GMP 718 is a nickel superalloy which offers good fatigue resistance at high temperatures. Often used in aerospace and oil and gas sectors, **GMP 718** delivers excellent creep-rupture properties at temperatures up to 650ºC and oxidation resistance to 1000ºC.

Material Properties	Typical Applications	Relevant Sectors	Applicable Specification
Good corrosion resistance Good tensile strength Fatigue resistance	Jet engines Gas turbines Tooling High temperature applications	Aerospace Energy Precision Engineering	ASTM F3055, AMS 7008 UNS N07718, DIN 2.4668, AMS5662, AMS5664

PSD

20-53µm - 15-53µm - 15-45µm - 45-150µm - 45-106µm
Custom PSD available on request

APPLICATIONS

Laser Powder Bed Fusion(**PBF**) - Direct Energy Deposition(**DED**)
Electron Beam Melting(**EBM**)

AEROSPACE & DEFENCE – ENERGY – MEDICAL – AUTOMOTIVE-
PRECISION ENGINEERING

YOUR GLOBAL LEADER IN GAS ATOMISED METAL POWDERS

Our range of metal powders for additive manufacturing is optimised for powder bed fusion, direct energy deposition and electron beam melting technologies. Deploying advanced processes including anti-satellite technology, Globus powders deliver excellent flowability and spreadability.

GENERAL PROPERTIES

PSD	d10, d50, d90 reported
Apparent Density	Measured and reported
Hall Flow	Measured and reported

Properties tested to standard guides used for Additive Manufacturing processes AMS7025, ASTM 52907, ASTM F3049

Chemical Composition

Ni	50.0 - 55.0
Fe	bal.
Cr	17.0 - 21.0
Nb+Ta	4.75 – 5.5
Mo	2.8 – 3.3
Ti	0.65 – 1.15
Co	≤1.0
Al	0.20 – 0.80
Mn	≤0.35
Si	≤0.35
C	≤0.08
O	≤0.015
N	≤0.015
P	≤0.005
S	≤0.003

wt%

Industry Powder Names

IN718
Alloy 718
Nickel 718
In718-0405
NickelAlloy IN718

Physical Properties*

Generic Data – Wrought Material	
Density	8.19 g/cm^3
Thermal Conductivity	11.4W/mK
Melting Point	1260°C - 1336°C
Coefficient of thermal expansion	13 10^{-6} K^{-1}

*typical values

Mechanical Properties

		0.2% Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	E-modulus (GPa)	Impact Toughness (J)	Hardness (HRC)
HIP/Sol/Age	Horizontal	1048	1346	24	201		
	Vertical	1038	1327	23	199	55*	
						*Sol/Age	

Heat Treatment

Standard solution treatment and age hardening treatment can be performed per AMS 5662/5664.

Atomisation Process

Vacuum inert gas atomisation
Anti-Satellite technology
Argon gas atomised

Powder Quality

Highly Spherical
Very few satellites
Excellent flowability

Contact

Globus Metal Powders is committed to providing customers with premium powder with guaranteed **Excellence in Every Particle** as well as direct customer support, including metallurgy and AM experts.

Our range of metal powders includes alloy steel, stainless steel, nickel & cobalt alloys.

Globus Metal Powders offers a diverse yet premium range of metal powders and alloys for Additive Manufacturing (AM) and Hot Isostatic Pressing (PM-HIP), along with next generation alloy development including custom grades.

Contact the Globus Metal Powders team for additional information or technical support.

Mechanical and physical properties are provided for guidance only and depict typically achievable properties and are not provided as guaranteed values or design data. Results achieved can vary significantly depending on AM processes, parameters, and part design/geometry.

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GMP HIP Optimised For PM-HIP
GMP AM Optimised For Additive Manufacturing
GMP Custom Next Generation Alloy Development