## Material Data Sheet: 18K White NF powder for Additive manufacturing



## Powder specification data

Powder Chemical composition [wt.%]	Au:75.2%;Pd:13.9%;Ag:3.0%;Ir:0.1%;Balance:Zn and B
Particle size d50	23 µm
Particle size d90	52µm
Basic Flowability Energy	1043mJ
Application	LPBF
Atomization	Argon Gas Atomized

## Material description

White Gold Alloy Powder for Additive Manufacturing is a high-quality, gas-atomized material tailored for creating intricate and luxurious jewellery components. Designed specifically for laser powder bed fusion (LPBF) systems, this alloy offers exceptional aesthetic appeal with its bright, reflective finish and outstanding mechanical properties, including wear resistance and corrosion resistance. Its fine particle size distribution ensures excellent flowability, allowing for precise layer deposition and intricate design possibilities. This powder is ideal for producing rings, pendants, earrings, and bespoke jewellery with complex geometries, offering a sustainable solution by minimising material waste and enabling powder recyclability. Perfect for innovative designs and durable applications, White Gold Alloy Powder sets the standard for modern jewellery manufacturing.

Material properties	Applications
High corrosion resistance	Decorative Arts
Thermal Conductivity	Luxury Jewellery
Durability	Dental Applications
Electrical Conductivity	Electronics
Versatility	Watch Components



FIGURE 1-SEM IMAGE OF TYPICAL 18k White NF Powder

## Mechanical Properties of additively manufactured components

Yield Strength (MPa)	270.18 ± 14.93
Ultimate tensile strength (MPa)	431.02 ± 12.89
Young's Modulus (GPa)	79.87 ± 2.64
Hardness (Vickers)	160.66±2.7
Porosity %	0.2%

