Material Data Sheet: 18K Yellow KK powder for Additive manufacturing



Powder specification data

Powder Chemical composition [wt.%]	Au:75.1%;Ag:12.0%;lr:0.01%;Balance:Cu and Zn.
Particle size d50	24 µm
Particle size d90	50 µm
Basic Flowability Energy	1268mJ
Application	LPBF
Atomization	Argon Gas Atomized

Material description

18K yellow gold alloy is a high-quality precious metal alloy powder specifically designed for additive manufacturing processes, such as Laser Powder Bed Fusion (LPBF) with a composition of 75.1% gold, 12.0% silver, 0.01% iridium, and the balance comprising copper and zinc. The alloy offers an excellent balance of mechanical properties, corrosion resistance, and aesthetic appeal, making it ideal for jewellery applications.

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 Yellow Powder

Mechanical Properties of additively manufactured components

Yield Strength (MPa)	258.10 ± 5.83
Ultimate tensile strength (MPa)	420.33 ± 12.57
Young's Modulus (GPa)	80.07 ±5.49
Hardness (Vickers)	159.28 ± 2.74
Porosity %	0.3%



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