

Material Data Sheet: Pt-RU 4.5 powder for Additive manufacturing



Powder specification data

Powder Chemical composition [wt.%]	95.5% Pt & 4.5 Ru%
Particle size d50	24µm
Particle size d90	56µm
Basic Flowability Energy	1951.4mJ
Application	LPBF
Atomization	Argon Gas Atomized

Material description

Pt-Ru 4.5 alloy comprises platinum mass fraction up to 95.5% alloyed with 4.5% Ruthenium. Alloys of platinum with ruthenium are high-performance materials known for their exceptional combination of strength, durability, and resistance to corrosion and wear. Typically, these alloys contain small amounts of ruthenium (ranging from 1 to 5wt%) added to platinum to enhance its mechanical properties while retaining its desirable characteristics such as high melting point and excellent chemical stability. The addition of ruthenium improves the hardness and tensile strength of platinum, making these alloys suitable for demanding applications in jewellery, space, catalytic vonerters, medical devided and many other various industrial uses. remier process for creating high-quality, spherical metal powders,

Material properties	Applications
High corrosion resistance	Sensors and Instrumentation
High melting point of (1780°C)	Electronic
Good ductility at extremely high temperatures	Catalytic converters
Excellent Electrical Conductivity	Chemical Processing
Biocompatibility	Medical Devices

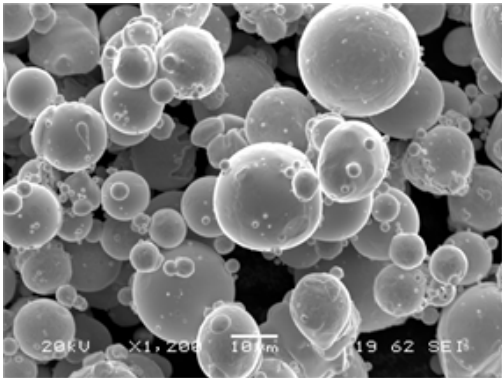


FIGURE 1—SEM IMAGE OF TYPICAL Pt-Ru POWDER

Mechanical Properties of additively manufactured components

Part Density	20.04 g/cm3
Ultimate tensile strength (MPa)	469.56 ± 3.16
Elongation @ break	32%
Hardness (Vickers)	135.8±5.70
Porosity %	0.38%
Oxidation rate (weight loss % during 20 hr @ 1550 °C)	0.4