

METAL POWDER

PtRh20

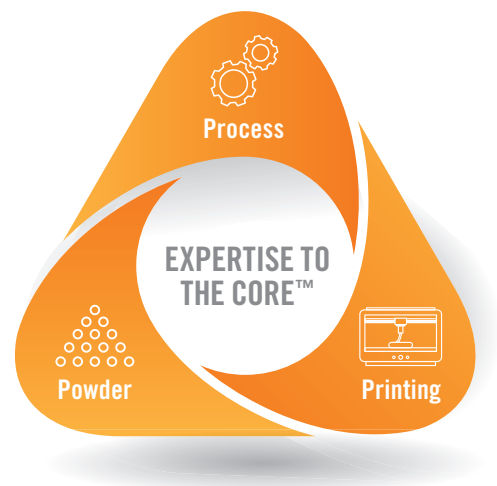


Additive Manufacturing is in our Genes.

When it comes to AM with metals, Heraeus is your reliable partner all along the way. With decades of experience in metal handling and recycling, combined with our thorough expertise in additive manufacturing, we are able to provide you with true peace of mind. Our command of processes, powders and printing enables the highest degree of design freedom for your components.

With high-quality powders, batch consistency and traceability, and variable particle size distribution, we can meet even very exacting AM demands.

That's because we have **EXPERTISE TO THE CORE™**.



Typical Properties

PtRh20 is one of the most quantitatively important construction materials made of precious metal. The alloy has a significantly higher mechanical strength than pure Pt, but exhibits a similar resistance to oxidation.

In addition to being utilized in lab equipment, electrodes and glass fiber bushings, PtRh20 is also used for satellite thruster nozzles in the aerospace industry. For the last mentioned application in particular, PtRh20's excellent strength and resistance to both corrosion as well as temperature fatigue is essential.

Satellite thruster nozzles were successfully manufactured using additive manufacturing.

Chemical Composition

Element	Concentration [wt%]
Al	< 0.5
Si	< 0.5
Ca	< 0.5
Ti	< 0.1
Cr	< 0.1
Mn	< 0.1
Fe	< 0.15
Ni	< 0.1
Cu	< 0.2
Rh	18-22
Pt	balance

Physical Properties

Properties	Value
Density [gcm ⁻³]	18.74
Melting point [°C]	1900
Young's modulus [GPa]	
- RT	246
- 1200°C	179
- 1600°C	tbd
Tensile strength [MPa]	
- RT	92.7
- 1200°C	51.4
- 1600°C	27.4
Elongation [%]	
- RT	43
- 1200°C	29
- 1600°C	34

typical values for reference only

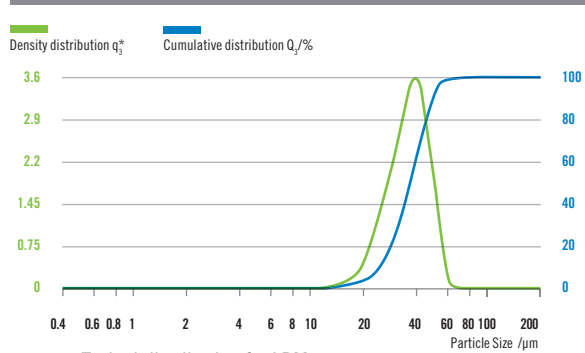
Product Features

- High purity
- High powder density
- Excellent fluidity and machinability

Quality

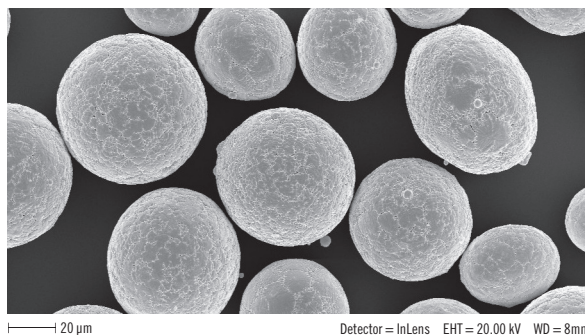
- Powder for additive manufacturing:
- Spherical particles
 - Few satellites

Particle Size Distribution



- Typical distribution for LBM processes
- Additional distributions available upon request

SEM Image



- Stable powder quality
- Customized alloys
- Spherical powders
- High purity

Powder



- Own LBM & EBM equipment
- Printing of prototypes

Printing



- Simulation of printing processes
- Design optimization
- Process development

Process

CONTACT

Heraeus Additive Manufacturing GmbH

Heraeusstrasse 12-14 · 63450 Hanau, Germany · Phone: +49 (0) 6181 35 3513

Email: additive-manufacturing@heraeus.com · www.heraeus-additive-manufacturing.com

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for particular application.