

Prince & Izant Company

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99.99% Platinum

TECHNICAL DATA

NOMINAL COMPOSITION	Platinum	99.99% Min.
	Trace Impurities:	
	Silver	20 ppm Max.
	Palladium	40 ppm Max.
	Gold	25 ppm Max.
	Copper	20 ppm Max.
	Nickel	10 ppm Max.
	Silicon	10 ppm Max.
	Aluminum	10 ppm Max.
	Iron	5 ppm Max.
	Iridium	20 ppm Max.
	Rhodium	20 ppm Max.
	Ruthenium	20 ppm Max.
	Osmium	20 ppm Max.
Tin	10 ppm Max.	
Chromium	10 ppm Max.	
Titanium	15 ppm Max.	
	Other elements (each)	10 ppm Max.
	Other elements (total)	100 ppm Max.
PHYSICAL PROPERTIES	Color	Silver/Grey
	Melting Point	3214°F (1768°C)
	Density @ RT (g/cm³)	21.45
	Electrical Resistivity (Microhm-cm)	10.3
	Electrical Conductivity (%IACS)	16
	Thermal Conductivity (W/m•K)	71.6
	Tensile Strength (MPa)	
	Hard:	224
	Fully Annealed:	124-200
	Young's Modulus (GPa)	168-172
	Elongation (%)	
	Hard:	2
Fully Annealed:	35-40	
Recrystallization Temperature	977°F (525°C)	
Hardness (As cast)	43HV	

USES

99.99% Platinum is the least rare of the PGM metals and is the most widely used due to its general corrosion resistance, high melting point and ductility. High purity platinum can be found in a wide range of applications including thermocouples, electrical contacts, brushes, precision potentiometer wire and cathodic protection of ship hulls. It can also be used as a catalyst in the manufacturing of various chemical-based products such as H₂SO₄, high-octane gasolines and for hydrogenation in the production of vitamins. Platinum can also be found in a range of medical applications as well including catheters and cannulas, embolization and occlusion devices, filters, grafts, implantable pacemakers and defibrillators, stents, ossicular replacements and surgical instruments.

SPECIFICATIONS

99.99 Platinum conforms to: ASTM B 561

AVAILABLE FORMS

Wire, rod, engineered preforms and specialty preforms per customer specification, powder and paste.

CORROSION BEHAVIOR

Platinum is highly resistant to acid potassium sulfate, sodium carbonate, potassium nitrate, and sodium carbonate at 1475-1650°F (800-900°C) under non-oxidizing conditions. It also exhibits great resistance to degradation when exposed to sulfuric and persulfuric acids, various sulfate-chloride plating electrolytes and chlorates.

Elements which will vigorously attack platinum include molten alkali cyanides and polysulfides, aqua regia, hydrochloric acid and other oxidizing agents. Care must also be taken to avoid exposure to reducing conditions, particularly when compounds of arsenic, phosphorus, tin, lead or iron are present.

ADDITIONAL PROPERTIES

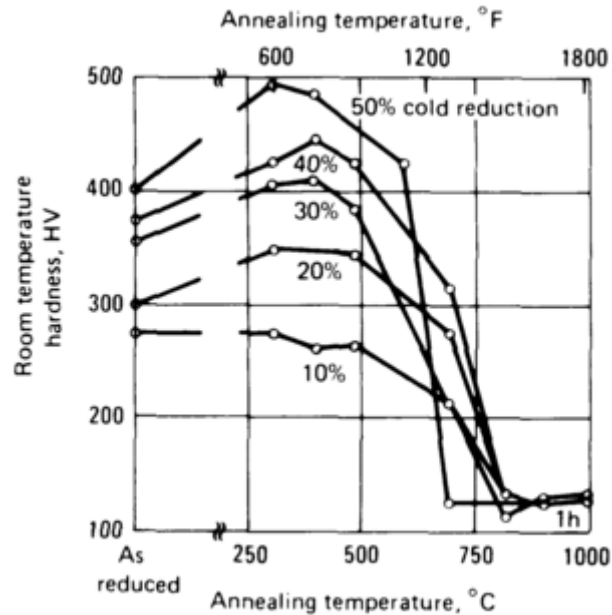


Figure 1: Hardness of warm-rolled 99.99% platinum as a function of annealing temperature

Individuals requiring further information and Engineering Specification Documents may wish to contact the Engineering Society for Advanced Mobility, Land Sea Air and Space, The Society of Automotive Engineers <http://www.sae.org/> (SAE AMS) or The American Welding Society (AWS) <http://aws.org/>

NOTE:

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