

73

Ta

180.94788

Tantalum

# Tantalum

## Refractory Metals and Alloys

**efi** ED FAGAN INC.  
Special Purpose Alloys  
THE MATERIALS YOU NEED, WHEN YOU NEED THEM

www.edfagan.com | sales@edfagan.com  
toll free 800.348.6268

### DESCRIPTION

Tantalum (Ta) is a blue-gray, transition metal that was first discovered in 1802 and is number 73 on the periodic table. Part of the refractory metals group it is closely related to Niobium with their ores that are mainly complex oxides. Tantalum has the fourth highest melting point at 2996°C and recrystallizes between 800°C and 1200°C. This metal is extremely ductile, easily fabricated and is a good conductor of heat and electricity which makes it a popular material choice in the manufacture of heating elements, vacuum tubes and other high-temperature parts. This metal is an excellent material for medical implants and medical devices due to its corrosion resistance by acids and body fluid.

### APPLICATIONS

Dental Industry: Dental instruments and dental spatulas

Electronic Industry: Capacitors, cathodes for use in electrochemical analysis, computer components, cameras

Medical Industry: Surgical implants, hypodermic needles, surgical tools

### TYPICAL PHYSICAL PROPERTIES

Density	g/cm <sup>3</sup>	16.65
Melting Point	°C	2996
Electrical Conductivity	S/m	8.0 x 10 <sup>6</sup>
Specific Electrical Resistance	(Ωmm <sup>2</sup> )/m	0.125
Thermal Conductivity	W(mK)	57.5
Specific Heat @ 20°C	J/(gK)	0.14
Coefficient of Linear Thermal Expansion	m/(mK)	6.4 x 10 <sup>-6</sup>

Source: Plansee, www.plansee.com

### FORMS | SIZES AVAILABLE

Plate	0.1875" - 0.500"
Round Bar	0.010" - 2.000"
Sheet	0.005" - 0.125"
Strip   Coil	0.010" - 0.050"
Wire	0.001" - 0.250"

Listed above are our standard dimensions. Our inventory fluctuates based on market demands. If you do not see the size or form you require, please call us.

### TYPICAL MECHANICAL PROPERTIES

Ultimate Tensile Strength*	psi (MPa)	25,000 (172)
Yield Strength min.*	psi (MPa)	15,000 (103)
Elongation min.*	% 1.0" in	25
Vickers Hardness	MPa	870-1200
Modulus of Elasticity	ksi (GPa)	27 (186)

\*Based on Rod 0.125" to 2.5" Diameter Annealed, Source: ASTM B365, Table 3 | Plansee, www.plansee.com

### TYPICAL APPLICATIONS



### CHEMISTRY %

99.95 Tantalum (Ta) Minimum

### SPECIFICATIONS

AMS 7849, ASTM B365 (Bar, Wire), ASTM B708 (Plate, Sheet, Strip), UNS R05200

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# Special Purpose Alloys & Metals From Stock

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## Controlled Expansion | Glass Sealing

Ed Fagan Inc. supplies the highest quality metals and alloys including materials from Carpenter Technology Corp.

### Kovar® | ASTM F15 Alloy

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil  
Trade Names: Kovar®, Pernifer® 2918, NILO K®, DilverP1®

### Alloy 42/46/48/52

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil  
Trade Names: Pernifer®40, 46, 48, 50; NILO® 42, 46, 48, 50;  
Glass Sealing 42, 46, 48, 52

### Free-Cut Invar "36"® Alloy

Forms: Round Bar/Rod

### Invar "36"® Alloy

Forms: Plate, Sheet  
Trade Names: Pernifer® 36, NILO® 36, Invar

### Super Invar 32-5®

Forms: Plate, Round Bar/Rod, Sheet

## Refractory Metals and Alloys

Ed Fagan Inc. is your leading source for quality refractory metals & alloys. We stock DFARS Molybdenum, ML/MLS/MLR, Molybdenum TZM, Tantalum & Tungsten manufactured from Plansee.

### Molybdenum

Forms: Plate, Round Bar/Rod, Sheet/Coiled Sheet, Threaded Rod/Nuts, Wire

### Molybdenum Lanthanum Oxide (ML)

Forms: Sheet – Stress Relieved, Recrystallized

### Molybdenum TZM

Forms: Plate, Round Bar/Rod, Sheet

### Niobium

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil, Wire

### Rhenium

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil

### Tantalum

Forms: Plate, Round Bar/Rod, Sheet, Strip/Coil, Wire

### Tungsten

Forms: Plate, Precision Cut Wire, Round Bar/Rod, Sheet

### Tungsten Alloys

Forms: Blanks, Flats, Parts, Plate/Sheet, Rod, Shapes

## Soft Magnetic Alloys | EMI Shielding & Laminations

Ed Fagan Inc. is a distributor of "EMI shielding alloys" for VDM Metals GmbH the world's leading producer of these alloys.

### EFI Alloy 50

Forms: Round Bar/Rod, Square Bar, Strip/Coil, Wire Rod  
Trade Names: High Permeability 49®, Magnifer® 50

### EFI Alloy 79

Forms: Rectangular Bar, Round Bar/Rod, Sheet, Strip/Coil  
Trade Names: Hipernom, HyMu80®, Magnifer® 7904, Molypermalloy, Permalloy 80®

### Hiperco® 50

Forms: Strip/Coil

### Hiperco® 50A

Forms: Plate, Round Bar/Rod, Strip/Coil

### Hiperco® 50 HS

Forms: Strip/Coil

### Carpenter VimVar Core Iron

Forms: Round Bar/Rod

## Electrical & Electronic Nickels

Ed Fagan Inc. supplies select, commercially pure grades of Nickel in various forms and sizes.

### Electronic Nickels

200/201/205/233/270

Forms: Round Bar/Rod, Sheet, Strip/Coil, Wire

## Alloys and Metals We Distribute

Corrosion Resistant Alloys • High-Temperature Alloys • Stainless Steel  
• Titanium – CP, 6 Al-4V

## Ed Fagan Inc. Services

Slitting, Shearing, Saw Cutting, Grinding, Water Jet Cutting, Laser Cutting,  
Custom Stocking and Consignment Programs

**JUST-IN-TIME DELIVERY:** All of our **standard stock** items can be **shipped within 24-hours** of your order confirmation and most are **shipped the same day**. All materials certified with shipment. For special orders and non-stock materials, contact our sales team for our competitive pricing and delivery lead times.

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