



ED FAGAN INC.

Rhenium

Refractory Metals



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DESCRIPTION

Among the highest density element and melting point, rhenium does not have a ductile to brittle transition temperature and does not form carbides. High resistivity, combined with low vapor pressure, it is an ideal material for filament applications. Excellent resistance to corrosion, resists acid attack and the mechanical effects of electrical erosion. Rhenium has a beneficial effect as an alloying addition with other refractory metals as it greatly enhances the ductility and tensile strength of these alloys.

APPLICATIONS

Mass spectrometer filaments; grid heaters; cathode cups; thermocouples; nuclear reactors; semiconductors.

PHYSICAL PROPERTIES

Density	lb/in³	0.77
	gm/cm³	21.20
Melting Point	°F	5767
	°C	3180
Thermal Conductivity	cal/cm²/cm°C/sec	0.39
Specific Heat	Cal/gm/°C	0.033
Coefficient of Linear Thermal Expansion	micro-in/°F x 10⁶	11.70
	micro-in/°C x 10⁶	6.50
Electrical Resistivity	micro-ohm-cm	13.5

MECHANICAL PROPERTIES

Tensile Strength	KSI(Mpa)-RT	200(1380)
	KSI(Mpa)-500°C	135(930)
	KSI(Mpa)-1000°C	70(480)
Elongation	% in 1.0"	2
Modulus of Elasticity	KSI	67,150
	Gpa	463

* FORMS AVAILABLE

Rod	0.100" - 4.0"
Sheet	0.001" - 0.30"
Foil/Coil	0.001" - 0.005"
Plate	0.150" - 0.30"

**Not a standard stock item. Please call for delivery options.*



Nuclear Applications



Chemical Processing

CHEMISTRY - Minimum % 99.97



Ed Fagan Inc also specializes in locating exotic materials. So, if you can't locate that hard-to-find material you need... Put EFI's material locator service to work for you!

www.material-locator.com

**THE MATERIALS YOU NEED,
WHEN YOU NEED THEM**



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ED FAGAN INC. 6/2016

Glass Sealing / Controlled Expansion Alloys / Electrical & Electronic Nickel

EFI provides the highest quality materials including materials from Carpenter Technology Corp.

ASTM F15 Alloy:

aka Kovar, Pernifer 2918, NILO K & Dilvar P1

Coil/Strip, Sheet, Plate, Round Bar

Invar 36:

aka Pernifer 36, NILO 36 & Invar Steel

Round Bar, Sheet, Plate

Super Invar 32-5:

Round bar, Sheet, Plate

42/*46/48/52 Alloy:

aka Pernifer 40, 46, 48 & 50;

NILO 42, 46, 48 & 50;

Glass Seal 42, 46, 48 & 50

Coil/Strip, Sheet, Plate, Round Bar

Electronic Nickel

200/201/233/270:

Coil/Strip, Round Bar, Sheet

**Products listed in Italics are special order and not standard stock items. Please call for availability.*

Soft Magnetic Alloys/ EMI Shielding & Laminations

EFI is a distributor of magnetic shielding alloys for the world's leading producer of these alloys – VDM Metals GmbH.

EFI Alloy 79:

aka Magnifer 7904, Moly-Permalloy,

HyMu 80, Hypernom & Permalloy 80

Round Bar, Sheet, Coil/Strip

EFI Alloy 50:

aka Magnifer 50, High Permeability 49 & Alloy 47-50

Round & Square Bar, Coil/Strip

Carpenter VimVar Core Iron:

Round Bar

Carpenter Hiperco 50:

Plate, Coil/Strip

Carpenter Hiperco 50A:

Round Bar

Radiometal 4550:

Round Bar, Coil/Strip

Refractory Metals/Alloys

EFI is a stocking distributor of Molybdenum & Tungsten products, as well as many other refractory metals and alloys, providing the highest quality materials available.

Molybdenum:

Round Bar, Sheet, Plate,

Threaded Rod & Nuts

**Foil/Coil/Strip, Wire*

TZM Molybdenum Alloy:

Round Bar, Sheet, Plate

Tungsten:

Round Bar, Plate, **Sheet, *Wire*

Tungsten Alloy:

Round Bar, **Sheet, *Plate,*

**Shapes, *Flat Blanks*

**Tantalum: Round Bar, Sheet*

**Niobium: Foil/Coil/Strip*

**Rhenium: Sheet*

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METALS WE DISTRIBUTE

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

JUST IN TIME DELIVERY: All **standard stock** items can be **shipped within 24 hours** – and are often **shipped the same day**. For **special order** materials, EFI has long relationships with the manufacturers of these materials, so please contact a sales rep to discuss price and delivery options. All materials can be certified with shipment.

SERVICES WE OFFER

Slitting, Shearing, Saw Cutting, Centerless Grinding, Water-jet Cutting, Laser Cutting, Custom Stocking Programs, Consignment Programs



Are you spending too much of your valuable time trying to locate specialty metals and materials? If you can't locate the hard-to-find materials you need, use EFI's Material Locator to source them for you.

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