



ED FAGAN INC.

Niobium aka Columbium

Refractory Metals



769 Susquehanna Avenue, Franklin Lakes, NJ 07417 • **phone 201.891.4003**
10537 Humbolt Street, Los Alamitos, CA 90720 • **phone 562.431.2568**

DESCRIPTION

Niobium, also termed Columbium, is a shiny grey metal that takes on a bluish tinge when exposed to air. At room temperature, niobium is inert to most salt solutions and to the mineral acids. Due to its low capture cross section for thermal neutrons, niobium has application in the nuclear industry. Niobium can be electrically heated and anodized to a wide variety of colors that makes it very attractive in the jewelry industry. Niobium is added to iron or nickel to produce alloys in the aerospace, medical and electronics industries.

APPLICATIONS

Capacitors; superconducting magnets; steel additive; nuclear reactors; optics; and niobium is used to produce various components in the chemical process industry.

PHYSICAL PROPERTIES

Density	<i>lb/in³</i>	0.31
	<i>gm/cm³</i>	8.57
Melting Point	<i>°F</i>	4380
	<i>°C</i>	2415
Specific Heat	<i>Cal/gm/°C</i>	0.065
Coefficient of Linear Thermal Expansion	<i>micro-in/°F x 10⁶</i>	7.10
	<i>micro-in/°C x 10⁶</i>	4.00
Electrical Resistivity	<i>micro-ohm-cm</i>	13.10
Recrystallization Temp.	<i>°C</i>	800

MECHANICAL PROPERTIES

Tensile Strength	<i>KSI(Mpa)-RT</i>	40(275)
	<i>KSI(Mpa)-500°C</i>	30(205)
	<i>KSI(Mpa)-1000°C</i>	10(70)
Elongation	<i>% in 1.0"</i>	30
Hardness	<i>DPH</i>	130
Modulus of Elasticity	<i>KSI</i>	15,250
	<i>Gpa</i>	105

* FORMS AVAILABLE

Wire	0.001" - 4.0"
Sheet	0.010" - 0.125"
Foil/Coil	0.010" - 0.070"
Plate	0.187" - 1.0"

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

CHEMISTRY - Minimum % 99.6

SPECIFICATIONS

AMS 7850 ASTM B392 ASTM B393



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**



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

efi
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*

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

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.

www.material-locator.com

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



toll free 800.348.6268
www.edfagan.com
sales@edfagan.com
international sales
+44 (0) 1548 858 770

efi
ED FAGAN INC.

11/2016