

Re

186.207

Rhenium

Rhenium

Refractory Metals and Alloys

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

DESCRIPTION

Rhenium is represented with chemical element symbol Re and is noted for having the second highest boiling point and the third highest melting point of any of the elements. Rhenium is primarily obtained through the extraction and refinement of Molybdenum and copper ores. Rhenium does not have a ductile to brittle transition temperature and does not form carbides. High resistivity combined with low vapor pressure makes it an ideal material for filament applications. With its excellent resistance to corrosion, Rhenium 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.

TYPICAL PHYSICAL PROPERTIES

| | | |
|---|--------------------------------|-------|
| Density | g/cm ³ | 21.0 |
| Melting Point | °F | 5767 |
| | °C | 3186 |
| Electrical Resistivity @ 20°C | microhms-cm | 13.5 |
| Thermal Conductivity | cal/cm ² /cm/s/°C | 0.17 |
| Specific Heat | Cal/g/°C | 0.033 |
| Coefficient of Linear Thermal Expansion | Micro-in/°F x 10 ⁻⁶ | 3.7 |
| | Micro-in/°C x 10 ⁻⁶ | 6.7 |

Source: ASM Metals Ref Book 3rd Edition; Pubchem.gov; The Availability and Properties of Rhenium - Table 1.

TYPICAL MECHANICAL PROPERTIES

| | | |
|---------------------------|-------------------|-------------|
| Ultimate Tensile Strength | ksi (MPa)-RT | 155 (1070) |
| | ksi (MPa)- 800 °C | 90 (620) |
| | ksi (MPa)-1200 °C | 60 (410) |
| Yield Strength | psi (MPa) | 42100 (290) |
| Elongation @ Break | % | 15 - 25 |
| Modulus of Elasticity | ksi (GPa) | 68000 (469) |

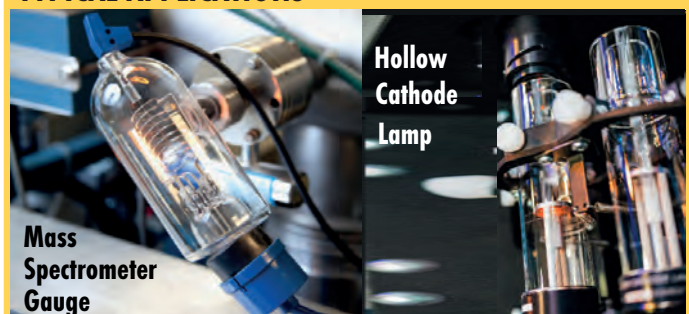
Source: Matweb.com

FORMS | SIZES AVAILABLE FROM OUR MILL

| | |
|---------------|-----------------|
| Plate | 0.150" - 0.300" |
| Rod Bar Rod | 0.100" - 4.000" |
| Sheet | 0.001" - 0.100" |
| Strip Coil | 0.001" - 0.100" |

If you do not see the form or size you require, please call us.

TYPICAL APPLICATIONS



CHEMISTRY %

99.97 Rhenium (Re) Minimum

SPECIFICATIONS

CAS 7440-15-5

EFI 2022-10-31

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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,
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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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