



28

**Ni**

58.6934

Nickel

# Nickel 270

## Electrical, Electronic Nickel

**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

Nickel 270 is a high-purity material that contains a minimum of 99.97% Nickel. The high purity provides a lower coefficient of expansion, electrical resistivity, Curie temperature and better ductility than found in other grades of Nickel.

### APPLICATIONS

Cathode shanks; Fluorescent lamps; Hydrogen thyratrons; Anodes; Passive cathodes; Heat exchangers; Heat shields.

### TYPICAL PHYSICAL PROPERTIES

Density	lb/in. <sup>3</sup> @68 °F	0.321
	g/cm <sup>3</sup> @20 °C	8.88
Curie Temp	°F	676
	°C	358
Melting Point	°F	2650
	°C	1454
Specific Heat	BTU/lb @68 °F	0.107

Source: ASM Specialty Handbook, Nickel, Cobalt, and Their Alloys, Nickel 270

### TYPICAL TENSILE PROPERTIES & HARDNESS\*

Form & Condition	Tensile Strength		Yield Strength (0.2% offset)		Elongation	Hardness
	MPa	ksi	MPa	ksi		
Rod & Bar, Hot Finished	345	50	110	16	50	40
Strip, Cold Rolled	655	95	621	90	4	95
Strip, Annealed	345	50	110	16	50	35
Sheet, Annealed	345	50	110	16	45	30

\* At room temperature. | Source: ASM Specialty Handbook, Nickel, Cobalt, and Their Alloys, Nickel 270 Table 10, p.21

### FORMS | SIZES AVAILABLE

Round Bar   Rod	0.500" - 2.500"
Sheet	Available on request
Strip   Coil	Available on request

Listed above are our standard stock items. 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	ksi	50
	MPa	345
Yield Strength (0.2% offset)	ksi	16
	MPa	110
Elongation in 50 mm	% in 2 in.	50
Modulus of Elasticity	psi	30x10 <sup>6</sup>
	GPa	207
Hardness	HRB	30

\* At room temperature. Annealed Sheet | Source: ASM Specialty Handbook, Nickel, Cobalt, and Their Alloys, Nickel 270 p.22

### THERMAL & ELECTRICAL PROPERTIES

Temperature		Mean Linear Expansion(a)		Thermal Conductivity		Electrical Resistivity
°C	°F	µm/m • K	µin./in. • °F	W/m • K	Btu/ft • h • °F	nΩ • m
-196	-320	...	...	...	...	6.6
-129	-200	...	...	108	62.4	23.0
-18	0	...	...	91	52.6	59.8
27	80	...	...	...	...	74.8
93	200	13.3	7.4	79	45.6	106.4
204	400	13.7	7.6	70	40.4	169.6
316	600	14.4	8.0	62	35.8	254.3
427	800	15.1	8.4	59	34.1	329.2
538	1000	15.5	8.6	62	35.8	364.1
649	1200	15.8	8.8	65	37.6	395.6
760	1400	16.2	9.0	67	38.7	425.6
871	1600	16.6	9.2	70	40.4	448.8
982	1800	...	...	73	42.2	480.4
1093	2000	...	...	...	...	510.4

(a) From 21 °C (70 °F) to temperature shown

Source: ASM Specialty Handbook, Nickel, Cobalt, and Their Alloys, Nickel 270 Table 11, p.22

### CHEMISTRY %

Nickel 99.97 min., Carbon 0.02 max., Copper 0.001 max., Iron 0.005 max., Magnesium 0.001 max., Manganese 0.001 max., Silicon 0.001 max., Sulphur 0.001 max., Titanium 0.001 max., Cobalt 0.001 max., Chromium 0.001 max. Source: ASTM F3 Table 3, Grade 4, UNS N02270

### SPECIFICATIONS

ASTM F3 Grade 4 • UNS N02270

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# Special Purpose Alloys & Metals From Stock

## 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.