

Nickel 270

Electrical, Electronic Nickel

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28
Ni
Nickel

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 ³ @ 68°F	0.321
	g/cm ³ @ 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	%	HRB
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 50mm	% in 2 in.	50
Modulus of Elasticity	psi	30 x 10 ⁶
	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		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	862	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



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

Special Purpose Alloys & Metal From Stock

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EFINEA Services

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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

Controlled Expansion | Glass Sealing

EFINEA 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; 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 & Alloys

EFINEA 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

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

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

EFINEA Alloy 50

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

Trade Names: High Permeability 49®, Manganifer®50

EFINEA 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

Core Iron (Pure Iron)

Forms: Round Bar/Rod, Plate

Trade Names: Electrical Iron®, Alliedpureiron®

Electrical & Electronic Nickels

EFINEA supplies select, Commercially pure grades of Nickel in various forms and sizes.

Electronic Nickels

200/201/205/233/270

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

Copper Metals

EFINEA supplies select, Commercially pure grades of Copper in Coil Form

Copper OFHC 101/102

Nickel-Silver 770

Cupro-Nickel 715 (CuNi 70/30)

Forms: Coil

Stainless Steels & Other Alloys

EFINEA supplies select aircraft quality grades of Stainless Steel available in various forms and sizes.

17-4PH (Type 630)

15-5PH Vac Melt

300 Grade Stainless Steel Coils

Forms: Round Bar/Coils