26
Fe
55.845
Iron

28
Ni
58.6934
Nickel

EFINEA Alloy 79
Soft Magnetic Alloys

EFINEA
Capabilities Beyond Infinity
800.348.6268 | sales@efineametals.com
www.efineametals.com

DESCRIPTION

A soft magnetic, unoriented, nickel-iron-molybdenum alloy consisting of approximately 79% Nickel and the balance Iron. This alloy provides extremely high initial permeability and maximum permeability with minimum hysteresis loss. EFINEA Alloy 79 alloy is also known by the following manufacturer's trade names: Magnifer® 7904, HyMu "80"®, Moly-Permalloy.

APPLICATIONS

Electro-magnetic shielding; Specialty transformer laminations; Toroidal tape wound cores; High-quality motor laminations; Stepping motors.

TYPICAL PHYSICAL PROPERTIES

Density	g/cm³	8.74-8.77
Curie Temperature	°F	734
	°C	390
Melting Range	°F	2650
	°C	1454
Electrical Resistivity	ohm-cir mil/ft	349
	Microhm-cm	58
Thermal Conductivity	BTU-in/sq.ft-hr- F	134
	W/cm · k	0.32
Mean Specific Heat	BTU/lb/ F	0.1180
	J/kg · K	494
Linear Coefficient of Expansion	µm/m/°C (20 to 100°C)	11.5
	µm/m/°C (20 to 500°C)	14.0

Source: ASTM A753, Table X1.1, Alloy Type 4, (Annealed) | Carpenter Electrification HyMu "80®" Data Sheet v. 5/20

FORMS | SIZES AVAILABLE

Round Bar | Rod	0.625" - 2.000"
Sheet (Annealed)	0.010" - 0.125"
Strip | Coil (Annealed)	0.004" - 0.020"

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	84
	MPa	580
Yield Strength	ksi	32
	MPa	220
Elongation	% in 2"	40
Hardness	HR15T	86
	HV 1000	160

Source: ASTM A753, Table X1.3, Alloy Type 4, Mill Annealed Strip w/max. thickness of 0.100 in. |

TYPICAL DC MAGNETIC PROPERTIES

	SHEET & STRIP
Permeability at 4 mT (40 G), min.	55,000
Permeability at 10 mT (100 G), min.	70,000
Maximum Permeability, min.	250,000
Coercive Field Strength A/m (Oe), max.*	1.2 (0.015)

* The coercive field strength is determined from a maximum magnetic flux density of 0.5 T (5 kG)
Source: ASTM A753, Table 4, Alloy Type 4, Sheet and Strip (0.020 < d< 0.060 in.)

TYPICAL AC MAGNETIC PROPERTIES

	Minimum AC Impedance Permability (μ_Z) At A Peak Magnetic Flux Density		
	4 mT (40 G)	20 mT (200 G)	200 mT (2000 G)
60-Hz AC Magnetic Requirements	35,000	40,000	50,000

Source: ASTM A753 , Table 5, Alloy Type 4, UNS N14080, Thickness 0.51 mm / 0.020 in.

CHEMISTRY %

Nickel 79-82, Molybdenum 3.5-6.0, Manganese .80 Max., Iron Bal.
Source: ASTM A753, Table 2, Alloy Type 4, UNS N14080

SPECIFICATIONS

ASTM A753 Alloy 4 • MIL N-14411C • UNS N14080

New Jersey Offices
769 Susquehanna Avenue, Franklin Lakes, NJ 07417
3 Fir Court, Oakland, NJ 07436

CERTIFIED BY SCB AS9100D ISO 9001

California Offices
10537 Humbold Street, Los Alamitos, CA 90720
1847 W. Business Center Drive, Orange, CA 92867