

Moly Permalloy

Nickel Alloy: Soft Magnetic Alloy

(UNS N14080)

GENERAL PROPERTIES

An alloy with exceptionally high magnetic permeability, very low coercive force, very low core losses, and low remnance by magnetic field annealing. The alloy finds application in magnetic shielding where fields much less than the Earth's magnetic field are required. The highest volume applications using laminations or tape wound cores today are ground fault interrupter and modem transformer cores. The alloy is used as well in a variety of other high performance transformer core applications such as tape recorder heads and audio transformers. Control of the cooling rate during heat treatment and superimposition of various customer bake treatments are used to develop the most suitable magnetic quality for the application.

TYPICAL COMPOSITION

Element	Weight %
C	0.015
Mn	0.50
P	0.005 max
S	0.001 max
Si	0.30
Cr	0.02 max
Ni	80.20
Mo	4.40
Al	0.01 max
Co	0.02 max
Fe	Balance

SPECIFICATIONS

ASTM A-753, MIL N-14411

PRODUCT FORMS

Strip - Width: Up to 24" (609 mm)
Thickness: 0.004" - 0.062" (0.10 mm - 1.57 mm)

Sheet - Width: Up to 30" (762 mm)
Thickness: 0.014" to 0.062" (0.35mm - 1.57 mm)

Available from ATI

APPLICATIONS

Cores and relay components for high sensitivity ground fault circuit breakers, watch motor stators, magnetic shields, electric transformers.

Data are typical, are provided for informational purposes, and should not be construed as maximum or minimum values for specification or for final design, or for a particular use or application. The data may be revised anytime without notice. We make no representation or warranty as to its accuracy and assume no duty to update. Actual data on any particular product or material may vary from those shown herein. TM is trademark of and ® is registered trademark of ATI Properties, Inc. or its affiliated companies. © The starburst logo is a registered trademark of ATI Properties, Inc. © 2014 ATI. All rights reserved.

Allegheny Technologies Incorporated
1000 Six PPG Place
Pittsburgh, PA 15222-5479 U.S.A.
www.ATImetals.com



Technical Data Sheet

MECHANICAL AND PHYSICAL PROPERTIES

Typical Annealed Properties			
0.2% Yield Strength	49 ksi (338 MPa)	Density	0.298 lb/in ³ (8.25 g/cm ³)
Tensile Strength	99 ksi (682 MPa)	Electrical Resistivity	47 microhm cm
Elongation	32% in 2" (51mm)	Grain Size	ASTM 7 or finer
Hardness	15T 85		(Mill annealed)

Magnetic Properties*	
DC μ @ 40 gauss	80,000
DC μ @ 100 gauss	105,000
DC μ maximum	350,000
DC Hc	0.005 Oe
DC Br (gauss)	4000
AC 60 Hz μ @ 40 gauss	65,000

*0.014" (0.35 mm) test sample thickness
Further magnetic properties are available on request -
please specify text requirement.