Specialty Metals – Wire Products

MP35N®

UNS R30035
W.Nr 2.4999

MP35N® is a non-magnetic Cobalt- Nickel-Chromium-Molybdenum alloy having an excellent combination of very high strength, excellent corrosion resistance and high fatigue strength. MP35N® is highly resistant to sulfide stress corrosion cracking and provides excellent performance in the most demanding sour well environments. In seawater MP35N® is virtually immune to crevice and stress corrosion and pitting even at the highest strength levels and can operate at cryogenic temperatures up to 850°F (454°C).
Applications include springs, torsion bars, fasteners, seals, medical devices & implants.
Industries supplied include: Oil & Gas Extraction, Medical & Dental, Aerospace, Defense and Space Exploration.

Nominal Composition

	Co	Ni	Cr	Mo	C	Fe	Mn	P	S	Si	Ti
min		33	19	9							
max	balance	37	21	10.5	0.025	1.0	0.15	0.015	0.01	0.15	1.0

Physical Properties

	At 70°F	At 20°C
Density	0.304 lb/in^3	8.42 g/cm^3
Modulus of Elasticity (E)	33.8 x 10^3 ksi	233 GPa
Modulus of Rigidity (G)	12.1 x 10^3 ksi	83.4 GPa
Coefficient of Expansion	8.2 microinches/in.-°F (70-600°F)	14.8 x µm/m-°C (20-300°C)
Electrical Resistivity	40.6 µ ohm.in	103 µ ohm.cm
Thermal Conductivity	78 Btu-in./ft.^{2}hr.-°F	11.2 W/m-K

Applicable Specifications

Wire & Bar	AMS 5844, 5845, 5758, ASTM F562, NACE MR0175 (ISO 15156-3), NACE MR0103, ISO 5832-6

Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1904°F (1040°C)	120 – 140 ksi (827 – 965 MPa)	-300°F to 800°F (-184°C to 427°C)
Solution Heat Treated	1900 – 1925°F (1038-1052°C) for 4 to 8 hours	115 – 140 ksi (793 – 965 MPa)	-300°F to 800°F (-184°C to 427°C)
Spring Temper		220 – 280 ksi (1517 – 1931 MPa)	-300°F to 800°F (-184°C to 427°C)
Spring Temper + Aged	After spring coiling. 1000 - 1200°F (538 - 649°C) for 4 hours.	240 – 320 ksi (1655 – 2206 MPa)	-300°F to 800°F (-184°C to 427°C)
Spring Temper + Aged	After spring coiling age. 1200°F (649°C) minimum for 4 hours	240 – 300 ksi (1655 – 2068 MPa)	-300°F to 800°F (-184°C to 427°C)

Elgiloy Specialty Metals - Wire Products
356 N.Cross Street
Sycamore, IL 60178 USA

Phone: 1 847 695 1900
WWW.ELGILOY.COM

REV 2024 04 02

LIMITATION OF LIABILITY AND DISCLAIMER OF WARRANTY:

The content in these data sheets is provided primarily by third-party melting mills and is provided for reference only. It is not intended for engineering or design.

Applications may be discussed, however, Elgiloy Specialty Metals does not recommend or endorse any material for any particular end use or application.

The data included in this data sheet are typical values and may vary.

Elgiloy Specialty Metals makes no representations or warranties, express or implied, as to the accuracy, completeness, condition, suitability, performance, fitness for a particular purpose, or merchantability of any information contained in any data sheet.

In no event will Elgiloy Specialty Metals be liable for any damages whatsoever arising from the use of the information included in the data sheets.