

Specification Sheet: Alloy 410S

(UNS S41008) W. Nr. 1.4000

Restricted Carbon Modification of 410 that Prevents Hardening and Cracking when Exposed to High Temperatures or Welding

Chemical Analysis

Typical analysis (Weight %)

Cr	Ni	C	Mn
11.5 - 14.5	0.0	0.0	1.00
P	S	Si	Fe
0.040	0.030	1.00	

Physical Properties

Density 0.2810 g/cm ³ 0.375 lb/in ³	Specific Heat 0.11 Btu/lb-°F (32-212°F) 0.4 J/g-°C (0-100°C)
Magnetic Permeability 1.0	Electrical Resistivity 23.0 μΩ-cm (20°C)
Modulus of Elasticity 200,000 psi 138,000 MPa	Melting Range 2000 - 2030°F 1400 - 1530°C
Thermal Conductivity 212°F (100°C) 1.0 Btu/ft-hr-°F 2.0 W/m-K	

Linear Mean Coefficient of Thermal Expansion

	In/in°F	um/m-°K
32 - 212°F (0 - 100°C)	.010	10
32 - 300°F (0 - 315°C)	.014	11.5
32 - 1000°F (0 - 538°C)	.018	12.2
32 - 1200°F (0 - 649°C)	.025	13.5

Mechanical Properties

Typical Room Temperature Mechanical Properties, Mill Annealed

0.2% Offset Yield Strength psi (MPa)	Ultimate Tensile Strength psi (MPa)	Elongation percent in 2" (50mm)	Reduction percent of area	Hardness Rockwell B
42,000 (290)	64,400 (444)	33	65	75

Standards

ASTM..... 240
ASME....., 240



SANDMEYER STEEL COMPANY

100 - 2 - L +1-21 - 100 - +1-21 - 11 - 10

www.SandmeyerSteel.com

Providing Solutions, With Materials and Value Added Products, for Process Industries

Corrosion Resistance

General Corrosion Behavior Compared With Other Non-austenitic Stainless Steels*

5% Test Solution at 120°F (49°C)	Alloy 409	Alloy 410S	Alloy 420	Alloy 425 Mod	Alloy 440A	Alloy 430
Acetic Acid	0.88 (0.022)	0.079 (0.002)	1.11 (0.028)	4.79 (0.122)	2.31 (0.0586)	0.025 (0.0006)
Phosphoric Acid	0.059 (0.002)	0.062 (0.002)	0.068 (0.002)	0.593 (0.015)	0.350 (0.00956)	0.029 (0.00073)

Acid

(Mr1 1 1 S06 0. @ 0.350 0.029

Oxidation Resistance

Fabrication Data

Formability

Heat Treatment

Machining

Surface Preparation

Welding