Combined Metals Material Datasheet

Alloy 2205 Stainless Steel

UNS: S32205
EN DIN: 1.4462

Description: Alloy 2205 is a duplex (austenitic/ferritic) stainless steel alloyed with chromium, molybdenum, and nitrogen for improved performance and corrosion resistance compared to 304 and 316 stainless steels. The alloy's distributed austenite/ferrite microstructure combined with the alloying additions provide resistance to stress corrosion cracking, pitting, and chlorine induced crevice corrosion. Alloy 2205 also has acceptable oxidation resistance up to 980°C, but only for specific applications as the material can become embrittled when exposed to temperatures between 300°C and 1000°C for extended periods.
Applications include: Mixing tanks, Heat exchangers, Pressure vessels, Extraction/distillation columns, Pulp processing equipment, Pipes, Pumps, Food processing equipment, Springs
Industries supplied include: Chemical Processing, Oil & Gas, Nuclear Power Generation, Food Processing

Nominal Composition

	C	Mn	P	S	Si	Cr	Ni	Mo	N	Fe
min	-	-	-	-	-	22.0	4.5	3	0.14	Bal
max	0.03	2.0	0.03	0.02	1.0	23.0	6.5	3.5	0.20	-

Physical Properties

	At 70°F	At 20°C
Density	0.284 lb/in^3	7.86 g/cm^3
Modulus of Elasticity (E)	29.0 x 10^3 ksi	200 GPa
Coefficient of Expansion	11.1 µin/in-°F (70-2000°F)	14.0 µm/m-°C (0-300°C)
Electrical Resistivity	33.5 µohm-in	85.1 µohm-cm
Thermal Conductivity	104 Btu-in/ft^2-hr-°F	15.0 W/m-°C

Applicable Specifications

Strip & Sheet	ASTM A240, NACE MR0175/ISO 15156

Typical Mechanical Properties Typical Room Temperature Mechanical Properties

Condition	Tensile Strength (UTS)	0.2% Offset Yield	Elongation in 2" (50.8 mm)	Hardness Rockwell
Annealed	120-150 ksi (825-1035 MPa)	95-125 ksi (655-860 MPa)	25%	30 HRC

Typical mechanical properties are based on ASTM A240

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