

Alloy 20 was designed specifically to withstand sulfuric acid. Its nickel, chromium, molybdenum and copper levels all provide excellent general corrosion resistance. Restricted carbon plus columbium stabilization permits welded fabrications to be used in corrosive environments, normally without post-weld heat treatment. At 33% nickel, Alloy 20 has practical immunity to chloride stress corrosion cracking. This alloy is often chosen to solve SCC problems, which may occur with 316L stainless.

Specifications

UNS: N08020 W. Nr./EN: 2.4660 ASTM: B 463, A 240, B 464, B 473, B 366 ASME: SB-463, SA-240, SB-464, SB-473, SB-366

Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	S	P	Cb + Ta	Fe
MIN	32.5	19.0	2.0	—	3.0	—	—	—	—	8.0 x C 1.0	—
MAX	35.0	21.0	3.0	2.0	4.0	1.0	0.06	0.035	0.035	—	balance

Features

- Excellent resistance to hot sulfuric acid
- Resistant to intergranular corrosion in the as-welded condition
- Chloride stress corrosion cracking resistance

Applications

- Sulfuric acid pickling tanks, hooks and heating coils
- Phosphate coating drums and racks
- Heat exchangers
- Distillation columns and intervals
- Mixing tanks
- Chemical and petroleum process equipment

Physical Properties

Density: 0.278 lb/in³ Melting Range: 2525-2630°F Electrical Resistivity: 651 Ohm-circ mil/ft

Temperature, °F	70	212	392	572	752	842	932
Coefficient* of Thermal Expansion, in/in°F x 10 ⁻⁶	—	8.16	8.37	8.62	8.76	8.84	8.91
Thermal Conductivity Btu • ft/ft ² • hr • °F	6.7	7.57	8.56	9.53	10.5	—	—
Modulus of Elasticity Dynamic, psi x 10 ⁶	28	—	—	—	—	—	—

* 70°F to indicated temperature.

Mechanical Properties

Minimum Specified Properties, ASME SB-688 Plate

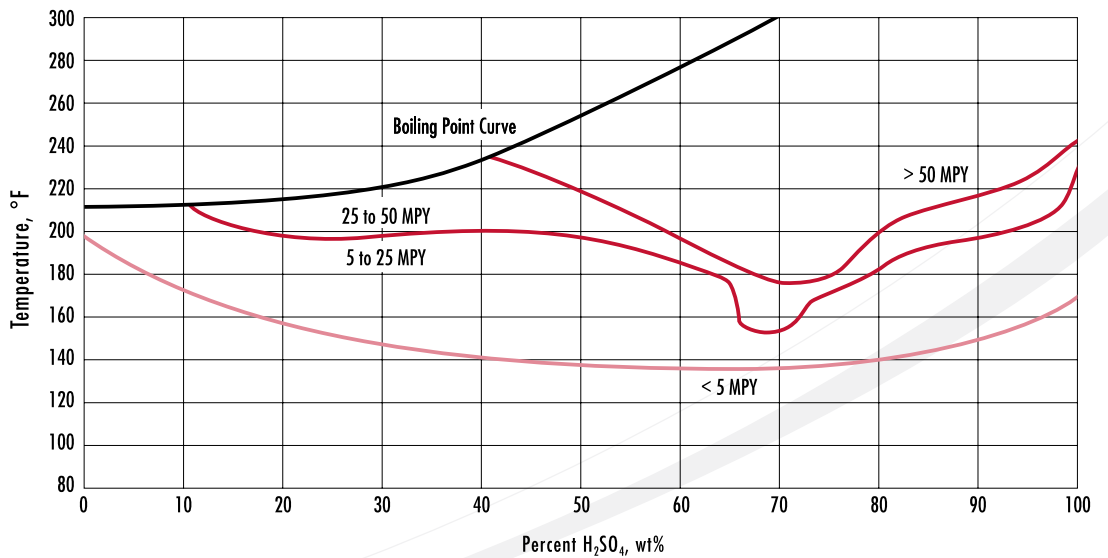
Ultimate Tensile Strength, ksi	80
0.2% Yield Strength, ksi	35
Elongation, %	30
Hardness MAX, Brinell	217

Typical Tensile Properties, Bar

Temperature, °F	70
Ultimate Tensile Strength, ksi	91
0.2% Yield Strength, ksi	48
Elongation, %	45
Charpy Impact V-notch, ft-lbs	200

Sulfuric Acid

Iso-corrosion Curves



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