

Nickel Alloy C-276 is known for its corrosion resistance in a wide range of aggressive media. The high molybdenum content imparts resistance to localized corrosion such as pitting. Low carbon minimizes carbide precipitation during welding, so the material maintains resistance to inter-granular attack in heat-affected zones of welded joints. It is used in chemical processing, pollution control, pulp and paper production, industrial and municipal waste treatment, and in the recovery of "sour" natural gas.

Specifications

UNS: N10276
W. Nr.: 2.4819
ASTM: B 575
ASME: SB 575

Chemical Composition, %

	Cr	Ni	Mn	Si	V	W	S	C	Fe	P	Mo	Co
MIN	14.5	–	–	–	–	3.5	–	–	4.0	–	15.0	–
MAX	16.5	Bal.	1.0	0.08	0.35	4.5	0.03	0.01	7.0	0.04	17.0	2.5

Features

- Excellent resistance to a wide range of corrosive media under oxidizing and reducing conditions
- Excellent resistance to pitting, crevice corrosion, and stress-corrosion cracking
- Most universally corrosion-resistant material available today

Applications

- Air pollution control (stack liners, ducts, dampers, scrubbers, stack-gas re-heaters, fans, and fan housings)
- Chemical processing (heat exchangers, reaction vessels, evaporators, and transfer piping)
- Pulp and paper production
- Industrial and municipal waste treatment
- Flue gas desulfurization system
- Pickling baths
- Aramide plastics production

Physical Properties

Density: 0.321 lb/in ³	Melting Range: 2415 - 2500°F
Specific Heat at 70°F	0.102 Btu/lb °F
Elastic Modulus at 70°F	29.8 x 10 psi
Electrical Resistivity at 75°F	1.30 μ [∧] -m
Specific Gravity	8.90

Linear Coefficient of Thermal Expansion

Temperature °F	200	400	600	800	1000
10 ⁻⁶ in/in/°F	6.2	6.7	7.1	7.3	7.4

Thermal Conductivity

Temperature °F	70	200	400	600	800	1000
Btu/h-ft-°F	5.9	6.4	7.5	8.7	9.8	11.0

Mechanical Properties

Minimum Properties (ASTM B 575)	
Tensile Strength ksi [MPa]	110 [758]
Elongation %	40
Hardness [BHN]	100
Yield Strength (0.2% Offset) ksi [MPa]	41 [283]

Temperature °F	70	200	400	600	800	1000
0.2% Yield Strength (ksi)	60	55	50	46	42	39
Ultimate Tensile Strength (ksi)	115	105	103	98	95	93
Elongation %	50	50	50	55	60	60

Corrosion Resistance

Nickel Alloy C-276 is resistant to general corrosion, stress-corrosion cracking, pitting, and crevice corrosion in a broad range of severe environments. As a result of its resistance to carbide precipitation during welding, the product maintains corrosion resistance in the heat-affected zones of welded joints.