Data Sheet
HASTELLOY® B-2

HASTELLOY B-2 is a nickel based alloy particularly suited for handling reducing acids at high concentrations and temperatures. The alloy resists formation of grain boundary carbides in the weld HAZ, making it suitable for most chemical process conditions in the as-welded condition.

Because this alloy contains no significant chromium addition it should NOT be used in oxidizing media or in presence of oxidizing salts, such as ferric or cupric salts. The latter may form when iron or copper is present in a system containing hydrochloric acid. Likewise HASTELLOY B-2 does not withstand wet chlorine gas or hypochlorite bleach.

HASTELLOY B-2 should not be exposed to temperatures in the 1000 - 1600°F range because of severe loss of ductility. In a vacuum HASTELLOY B-2 may be used from 1600°F to substantially higher temperatures.

Specifications

UNS: N10665 **W. Nr./EN:** 2.4617 **ASTM:** B 333, B 335, B 619, B 622, B 626, B 366
ASME: SB-333, SB-335, SB-619, SB-622, SB-626, SB-366 **NACE:** MR0175

Chemical Composition, %

	Ni	Cr	Mo	Mn	Si	C	S	P	Co	Fe
MIN	–	–	26.0	–	–	–	–	–	–	–
MAX	balance	1.0	30.0	1.0	0.1	0.02	0.03	0.04	1.0	2.0

Features

- Resists hydrochloric acid at all concentrations and temperatures
- Withstands wet HCl gas, sulfuric, acetic and phosphoric acids
- Excellent resistance to pitting and to stress corrosion cracking

Applications

- Acetic acid production, initial phase in presence of iodide catalyst
- Methyl methacrylate production with hot 98% H_2SO_4
- Production of herbicides, insecticides, ethylene glycol and ethyl benzene
- Butane isomerization to produce high octane gasoline
- Resists corrosion from antimony chloride

Physical Properties

Density: 0.333 lb/in^3 **Electrical Resistivity:** 824 Ohm-circ mil/ft

Temperature, °F	32	212	392	572	752	932
Coefficient* of Thermal Expansion, in/in°F x 10^{-6}	–	6.0	6.0	6.2	6.4	6.5
Thermal Conductivity Btu • ft/ft^2 • hr • °F	6.4	7.1	7.7	8.4	9.2	10.0

** 70°F to indicated temperature.*

Mechanical Properties

Average Tensile Data, Sheet and Plate

	Typical	Minimum Specified
Ultimate Tensile Strength, ksi	130	110
0.2% Yield Strength, ksi	59	51
Elongation, %	60	40
Hardness MAX, HRB	94-98	100 max

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