



E STEEL SDN BHD (891338-A)

NO 3, Lorong Sungai Puloh 7/KU 6,
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Incoloy 825 , Alloy 825, UNS N08825 W.Nr. 2.4858

INCOLOY Alloy 825 is a nickel-iron-chromium alloy with additions of molybdenum, copper, and titanium. The nickel content is sufficient for resistance to chloride-ion stress-corrosion cracking. The nickel, in conjunction with the molybdenum and copper, also gives outstanding resistance to reducing environments such as those containing sulfuric and phosphoric acids. The molybdenum also aids resistance to pitting and crevice corrosion. The alloy's chromium content confers resistance to a variety of oxidizing substances such as nitric acid, nitrates and oxidizing salt. The titanium addition serves, with an appropriate heat treatment, to stabilize the alloy against sensitization to intergranular corrosion.

Chemical Composition (%)

Alloy 825	Ni	Cr	Fe	C	Mn	Si	Cu	Mo	Al	Ti	P	S
Min	38.0	19.5	bal.				1.5	2.5		0.6		
Max	46.0	23.5		0.05	1.0	0.5	3.0	0.403.5	0.2	1.2	0.020	0.010

Characteristics of Incoloy 825 , 2.4858

- Good resistance to stress-corrosion cracking
- Satisfactory resistance to pitting and crevice corrosion
- Good resistance to oxidising and non-oxidising hot acids
- Good mechanical properties at both room and elevated temperatures, up to approximately 550°C (1020°F)
- Permission for pressure-vessel use at wall temperatures up to 425°C (800°F)

Corrosion Resistance N08825, Incoloy 825

Alloy 825 is a versatile general engineering alloy with resistance to corrosion in acids and alkalis under both oxidising and reducing conditions.

High nickel content gives the alloy virtual immunity to stress corrosion cracking. Corrosion resistance is good in media as diverse as sulphuric, sulphurous, phosphoric, nitric and organic acids, alkalis such as sodium or potassium hydroxide, and aqueous chloride solutions.

The versatility of alloy 825 is illustrated by its use in nuclear fuel element dissolvers where a variety of corrosive media, e.g. sulphuric and nitric acids and sodium hydroxide, are handled in the same equipment.



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Mechanical Properties

Condition	Annealed
Tensile Strength (Mpa)	647
0.2% Yield Strength (Mpa)	333
Elongation (%)	33
Hardness (HB)	160