



Incoloy 800H

Incoloy 800H Chemical composition:

Alloy	%	Ni	Cr	Fe	C	Mn	Si	Cu	S	Al	Ti
800	Min.	30	19							0.15	0.15
	Max.	35	23	balance	0.10	1.5	1	0.75	0.015	0.60	0.60
800H	Min.	30	19		0.05					0.15	0.15
	Max.	35	23	balance	0.10	1.5	1	0.75	0.015	0.60	0.60
800HT	Min.	30	19		0.06					0.15	0.15
	Max.	35	23	balance	0.10	1.5	1	0.75	0.015	0.60	0.60
	Al+Ti: 0.85-1.20										

Incoloy 800H Physical properties

Density	8.0 g/cm ³
Melting point	1350-1400 °C

Incoloy 800H Alloy minimum mechanical properties in the room temperature

Alloy	Tensile strength Rm N/mm ²	Yield strength R P 0. 2N/mm ²	Elongation A 5 %
800	500	210	35
800H	450	180	35

800H Characteristic as below:

- 1.Excellent corrosion resistance in the water media of the extremely high temperature of 500°C.
- 2.Good stress corrosion resistance
- 3.Good machining

Incoloy 800H Metallurgical structure:

800H is the face-centered cubic lattice structure, very low carbon content and increased Ti:C rate improve the stability of the structure, anti-allergy, and anti-intergranular corrosion. Low temperature annealing around 950°C ensure the fine grain structure.

Incoloy 800H Corrosion resistance:

800H can not be corroded in many kinds of media. Its higher nickel content made it have good stress corrosion resistance cracking properties in the water corrosion condition. High chromium content made it better resistance to pitting and crevice corrosion cracking. This alloy can resist nitric acid and organic acid, but it is not so fine in the sulfuric acid and hydrochloric acid.

800H have good corrosion resistance to both oxidation and non-oxidizing salt, but maybe a little pitting in halide, and also excellent properties in the mixture of water, smoke, steam, air and carbon dioxide.



Incoloy 800H Application range and field:

- 1.Nitrate condenser---Corrosion resistance of Nitric acid
- 2.Steam heating pipes--Very good mechanical properties
- 3.Heat up element tube--Very good mechanical properties

For the application of up to 500℃ environment, alloy state supplies change to annealing.

Incoloy 800H

UNS	Trademark	JIS	W.Nr
N08800	Incoloy800	NCF800	1.4876

Incoloy 800 Chemical composition:

Alloy	%	Ni	Cr	Fe	C	Mn	Si	Cu	S	Al	Ti	P
Incoloy 800	Min.	30	19	balance						0.15	0.15	
	Max.	35	23		0.10	1.5	1	0.75	0.015	0.60	0.60	0.03

Incoloy 800 Physical properties

Density	7.95 g/cm ³
Melting point	1357-1385 °C

Minimum mechanical properties in the room temperature

Status	Tensile strength Rm N/mm ²	Yield strength Rp0.2 N/mm ²	Elongation As %
annealed treatment	520	205	30

800 Characteristic:

Excellent resisto, superb oxidation resistance and carbonification resistance at high temperature and good corrosion resistance in water.

Incoloy 800 Application range and field:

Used in heat exchangers, piping system, vaporization equipments, reactors, parts and components used in furnace, ammonia nitrogen effluents radiator etc.



Incoloy 825

Incoloy 825 Chemical composition:

Alloy	%	Ni	Cr	Fe	C	Mn	Si	Cu	Mo	Al	Ti	P	S
825	Min.	38	19.5	balance				1.5	2.5	1.0	0.6		
	Max.	46	23.5	balance	0.05	1	0.5	3	3.5	0.2	1.2	0.02	0.03

Incoloy 825 Physical properties

Density	8.1 g/cm
Melting point	1370-1400℃

Incoloy 825 Alloy minimum mechanical properties in the room temperature

Alloy state	Tensile strength Rm N/mm	Yield strength R P0. 2N/mm	Elongation A 5 %	Brinell hardness HB
825	550	220	30	±200

Characteristic as below :

1. Good stress corrosion cracking resistance performance
2. Good resistance for pitting and crevice corrosion performance
3. Good anti-oxidation and non-oxidizing heat acid performance
4. Good mechanical performance in both room temperature and up to 550 ℃
5. Have the pressure vessel authenticate when manufacture temperature up to 450 ℃

Incoloy 825 Metallurgical structure:

825 is the face-centered cubic lattice structure.

Incoloy 825 Corrosion resistance

825 is an all-purpose project alloy, have good corrosion resistance of the acid and alkali metal property in both oxidation and reduction environments. High nickel content made it with effective stress corrosion cracking resistance performance. 825 have excellent corrosion resistance in different kinds of media, such as sulfuric acid, phosphoric acid, nitric acid and organic acid, alkali metal such as sodium hydroxide, potassium hydroxide, and hydrochloric acid. A variety of media corrosion of nuclear-burning dissolver show 825 high integrated property, like sulfuric acid, nitric acid and potassium hydroxide are all dealing in a same device.

Incoloy 825 Application field:

825 widely use in many kinds of industry field that the working temperature no more than 550 ℃.

Incoloy 825 Typical application field:

1. Sulfuric acid factory usage for heating pipe, container, basket, chain and so on.
2. Cooling heat exchanger, marine product pipeline system and gas pipeline of acidic environment.



3. Heat exchanger, steam machine, washing, impregnation pipe, etc. for phosphoric acid produce
4. Oil refining in the air heat exchanger
5. Food project
6. Chemical process
7. Application of high pressure oxygen flam-retardant alloy

Incoloy 600

Inconel 600 Chemical composition:

Alloy	%	Ni	Cr	Fe	C	Mn	Si	Cu	P	S
600	Min.	72	14	6						
	Max.		17	10	0.15	1	0.5	0.5	0.015	0.015

Inconel 600 Physical properties:

Density	8.4 g/cm
Melting Point	1370-1425 ℃

Inconel 600 Alloy minimum Mechanical properties in the room temperature:

Alloy status	Tensile strength Rm N/mm	Yield strength R P 0.2N/mm	Elongation A 5 %	Brinell hardness HB
Annealing treatment	550	240	30	÷195
Solution treatment	500	180	35	÷185

Inconel 600 Characteristic as below:

1. Good corrosion resistance property for the reduction, oxidation, Nitric and other media.
2. Good stress corrosion cracking resistance property in both room temperature and high temperature.
3. Good corrosion resistance of the dry chlorine and chlorine hydride.
4. Good mechanical property when below zero, room temperature and high temperature.
5. Good anti-creep rupture strength, with the recommendation of 700 ℃ or above working environment.

Inconel 600 Metallurgical structure

600 is face-centered cubic lattice structure.

Inconel 600 Corrosion resistance

600 have corrosion resistance to many kinds of corrosive media. Chromium content made it with better corrosion resistance than Nickel 99.2 (alloy200) and Nickel 99.2 (alloy201,low carbon) in the oxidize environment. Meantime, high Nickel content make this alloy with good corrosion resistance in the



reduction condition and alkaline solution, and also effective avoid chlorine-iron stress corrosion cracking. 600 have good corrosion resistance in the acid, acetic acid, formic acid, stearic acid and other organic acid, with medium corrosion resistance in the inorganic acid. The alloy with excellent corrosion resistance in the first and the second recycling use of the high purity water in the nuclear reactor. Especially excellent corrosion resistance to dry chlorine and chlorine hydride applied up to 650 °C. When under the high temperature, annealing and state solution alloy have good antioxidant off and high-intensity in the air, 600 can resist the ammonia, nitriding and carburizing atmosphere, but at the turn of the changes in redox conditions, it will be corrosion by parts of oxidation media. (such as green death liquid)

Inconel 600 Application field:

1. Erosion thermocouple sheath of the atmosphere
2. Vinyl chloride monomer production: corrosion resistance to chlorine, hydrogen chloride, oxidation and carbonation.
3. Oxide shaft chloride converted to six fluoride: hydrogen fluoride anti-corrosion.
4. Corrosive alkali metal produce and usage filed, especially the sulfide use environment.
5. Use Chlorine produce titanium dioxide
6. Organic or inorganic chlorine produce: corrosion resistance to chlorine and fluoride.
7. Nuclear reactor
8. Heat treatment furnace flask and components, especially in the carbonization and nitride atmosphere.
9. Petrochemical works production of catalytic regeneration in the application of more than 700 °C recommended the use of 600, in order to obtain a longer service life.

Incoloy 601

Inconel 601 Chemical composition:

Alloy	%	Ni	Cr	Fe	C	Mn	Si	Cu	Al	P	S
601	Min.	58	21						1.0		
	Max.	63	25	balance	0.1	1.5	0.5	1	1.7	0.02	0.015

Inconel 601 Physical properties

Density	8.1g/cm
Melting point	1320-1370°C

Inconel 601 Alloy minimum mechanical properties in the room temperature

Alloy state	Tensile strength Rm N/mm	Yield strength R _{P0.2} N/mm	Elongation A 5 %	Brinell hardness HB
Annealing treatment	650	300	30	-
Solution treatment	600	240	30	±220



Characteristic as below:

- 1.Excellent inoxidability in the high temperature.
- 2.Good resistance to carbonizing.
- 3.Good inoxidability in sulfur atmosphere
- 4.Good mechanical property in both room temperature and high temperature.
- 5.Good resistance to stress corrosion cracking, 601 have high creep rupture strength since it limits the carbon content and grain size, so recommend to use for above 500 ℃ environment.

Inconel 601 Metallurgical structure:

601 is face-centered cubic lattice structure.

Inconel 601 Corrosion resistance

One of the mainly performance of 601 is inoxidability in high temperature, even in very inclement conditions. If in the process of heating and cooling cycle, 601 can generate the dense layer of oxide film to get high spalling resistance. 601 have good carbonation resistance. With excellent inoxidability in the high temperature of sulfur atmosphere since it has high chromium and aluminum content.

Inconel 601 Application field:

- 1.The tray,basket and tool clamp in the heat treatment factory.
- 2.Steel shares at annealing and radiation control, high-speed gas burners, Industrial furnace silk screen.
- 3.Separate tank of ammonia reforming and catalytic support grid of nitric acid producing.
- 4.Exhaust system parts
- 5.Solid waste incinerator's combustion chamber
- 6.Channel support and soot dealing parts.
- 7.Detoxification exhaust system components
- 8.Oxygen re-heater

Monel 400

Monel 400 Chemical composition

Alloy	%	Ni	Cu	Fe	C	Mn	Si	S
Monel400	Min.	63	28					
	Max.		34	2.5	0.3	2	0.5	0.024

Monel 400 Physical properties

Density	8.83 g/cm
Melting point	1300-1390 ℃

Monel 400 Alloy minimum mechanical properties in the room temperature



Alloy state	Tensile strength Rm N/mm	Yield strength R P0. 2 N/mm	Elongation A 5 %
Monel400	480	170	35

Characteristic as below:

Monel 400 is an extremely combination property that use for largest amount and most widely corrosion resistance alloy. This alloy in the hydrofluoric acid and fluoride gas medium with excellent corrosion resistance, as well as to the hot concentrated alkali. At the same time, is also corrosion resistant to neutral solution, sea water, air, organic compounds. An important feature of this is generally do not generate a stress corrosion cracking, good cutting performance.

Monel 400 Metallurgical structure

Monel 400 alloy is high-intensity single-phase solid solution.

Monel 400 Corrosion resistance

Monel 400 alloy in the fluoride gas, hydrochloric acid, sulfuric acid, hydrofluoric acid and their derivatives have a very good corrosion resistance property, and possess better corrosion resistance more than the copper alloy in the sea water. Acid medium: Monel 400 have corrosion resistance in less than 85% consistency of sulfuric acid. Monel 400 is an important material that resistant to hydrofluoric acid. Water corrosion: Monel 400 alloy in most corrosion cases of water, not only excellent corrosion resistance, but also less pitting, stress corrosion, the corrosion rate less than 0.025mm / a. High temperature corrosion: Monel 400 for the work of the highest temperature at about 600 ℃ in general in the air, in the high temperature steam, the corrosion rate less than 0.026mm / a. Ammonia: Monel 400 can be resistant to an hydrous ammonia and aminate conditions corrosion below 585 ℃ due to the high nickel.

Monel 400 Application field:

Monel 400 alloy is a multi-purpose material in many industrial applications:

1. Seamless water pipe in the power factory
2. Sea-water exchanger and evaporator
3. Sulfuric acid and hydrochloric acid environment
4. Crude distillation
5. Sea-water in the use of equipment and propeller shaft
6. Nuclear industry and used in the manufacture of uranium enrichment isotope separation equipment
7. Manufacturing hydrochloric acid equipment used in the production of pump and valve

Nickel 200

Nickel 200(UNS N02200)

Nickel 200 is 99.6% pure nickel, one of the toughest metals. The Nickel 200 组 characteristics include excellent mechanical properties, a low gas content, low vapor- pressure, magnetic properties, high thermal and electrical conductivity. These properties and its chemical composition make Nickel 200



盱眙凌峰工业材料有限公司

XUYI TIAN AND MATERIAL CO., LTD.

fabricatable and highly resistant to corrosive environment. Nickel 200 is useful in any environment below 600°F. It is highly resistant to corrosion by neutral and alkaline salt solutions. Nickel 200 also has low corrosion rates in neutral and distilled water. The metal can be hot formed to any shape and formed cold by all methods.

Specifications					
Sheet/Plate	Round Bar	Pipe	Tube	Fittings	Forgings
ASME SB-168	ASME SB-160	ASME SB-161 ASME SB-829 ASME SB-775 ASME SB-725	ASME SB-161 ASME SB-163 ASME SB-730 ASME SB-751	ASME SB-366	ASME SB-564

Chemical Analysis of Nickel 200(UNS N02200)															
C	MN	P	S	Si	C	Ni	M	Cu	C	Cb+T	T	A	Fe	Othe	Othe
					r		o		o	a	i	l		r	r
.15 ma x	.35 ma x		.01 max	.35 ma x		99. 0 min		.25 ma x					.40 ma x		

Nickel 201

Nickel 201(UNS N02201)

Nickel 201 is the low-carbon version of Nickel 200. The Nickel 201 扭 has the same characteristics as the Nickel 200. These properties and its chemical composition make Nickel 201 fabricatable and highly resistant to corrosive environment. Nickel 201 is useful in any environment above 600 度. It is highly resistant to corrosion by neutral and alkaline salt solutions, fluorine and chlorine. Nickel 201 also has low corrosion rates in neutral and distilled water. The metal can be hot formed to any shape and formed cold by all methods.

Chemical Analysis of Nickel 201(UNS N02201)															
C	MN	P	S	Si	C	Ni	M	Cu	C	Cb+T	T	A	Fe	Othe	Othe
					r		o		o	a	i	l		r	r
.02 ma x	.35 ma x		.01 max	.35 ma x		99. 0 min		.25 ma x					.40 ma x		



盱眙凌峰工业材料有限公司

XUYI TIAN AND MATERIAL CO., LTD.

Specifications					
Sheet/Plate	Round Bar	Pipe	Tube	Fittings	Forgings
ASME	ASME	ASME	ASME	ASME	ASME SB-564
SB-168	SB-160	SB-161	SB-161	SB-366	
AMS 5553		ASME	ASME		
		SB-829	SB-163		
		ASME	ASME		
		SB-775	SB-730		
		ASME	ASME		
		SB-725	SB-751		