Alloy 200 Pipe & Tube – UNS N02200/WNR 2.4066

Nickel Alloy 200 are solid solution strengthened, commercially pure wrought materials with good mechanical properties over a wide range of temperature and excellent corrosion resistance, in particular hydroxides. Nickel 201 was a modification of 200 to control carbon which keeps it from being embrittled by intergranular precipitate at temperature of 600°F to 1400°F. Typically, the elemental restrictions of both, Nickel Alloy 200 and nickel 201, dual-certified chemistry resulting in a single alloy with the desired characteristics of both alloys.

It offers corrosion resistance in reducing and neutral media as well as in oxidizing atmospheres provided that the oxidizing media allows the formation of a passive oxide film. This oxide film accounts for the materials excellent resistance in caustic environments. Corrosion rates in both marine and rural atmospheres are very low.

ASME SB161 is usually limited to service at temperatures below 600°F. At higher temperature **Nickel Alloy 200** can suffer from graphitization which can result in severely compromised properties. When operating temperatures are expected to exceed 600°F, carbon content becomes critical. Nickel Alloy 200 is approved for construction of pressure vessels and components under ASME Boiler and Pressure Vessel Code Section VIII, Division 1. It is approved for service up to 600°F.

UNS N02200 is unalloyed nickel with excellent corrosion resistance and excellent stability against alkaline media and good mechanical properties in a broad temperature range. It shows good corrosion resistance under reducing conditions, e.g. hydrofluoric acid and hydrochloric acid. And also shows good stability under oxidizing conditions. Material 2.4066 is used in the chemical petrochemical and industry.

Alloy 200 Characteristics

- Highly resistant to various reducing chemicals
- Excellent resistance to caustic alkalies
- High electrical conductivity
- Excellent corrosion resistance to distilled and natural waters
- Good thermal, electrical and magnetostrictive properties
- Resistance to neutral and alkaline salt solutions
- Excellent resistance to dry fluorine
- Widely used to handle caustic soda
- Offers some resistance to hydrochloric acids and sulfuric acids at modest temperatures and concentrations

It is normally limited to service at temperatures below 600°F. At higher temperature suffer from graphitization which can result in severely compromised properties. When operating temperatures are expected to exceed 600°F, carbon content becomes critical. Nickel Alloy 200 is approved for service up to 600°F while Nickel 201 is approved for service up to 1230°F. Melting point is 2615-2635°F.

Alloy 200 Chemical Composition

Ni	Fe	Cu	C	Mn	S	Si
99.0 min	0.40 max	0.25 max	0.15 max	0.35 max	0.01 max	0.35 max

Alloy 200 Chemical Composition

Material No.	DIN 17744 17750 17751 17752 17753 2.4066
EN symbol (short)	Ni 99.2
UNS	ASTM B160 B161 B162 B163 B366 B564 B704 B705 B725 N02200
B.S.	BS 3072 BS 3073 BS 3074 BS 3075 BS 3076 NA11
Alloy	Nickel Alloy 200
Registered work's label	
Standards	DIN 17744 17750 17751 17752 17753 2.4066

Alloy 200 Applications

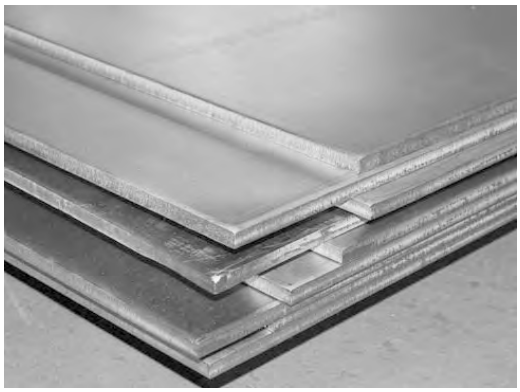
- Marine and offshore engineering
- Food processing equipment
- Salt production
- Reactors and vessels in which fluorine is generated and reacted with hydrocarbons
- Caustic handling equipment
- Manufacture and handling of sodium hydroxide

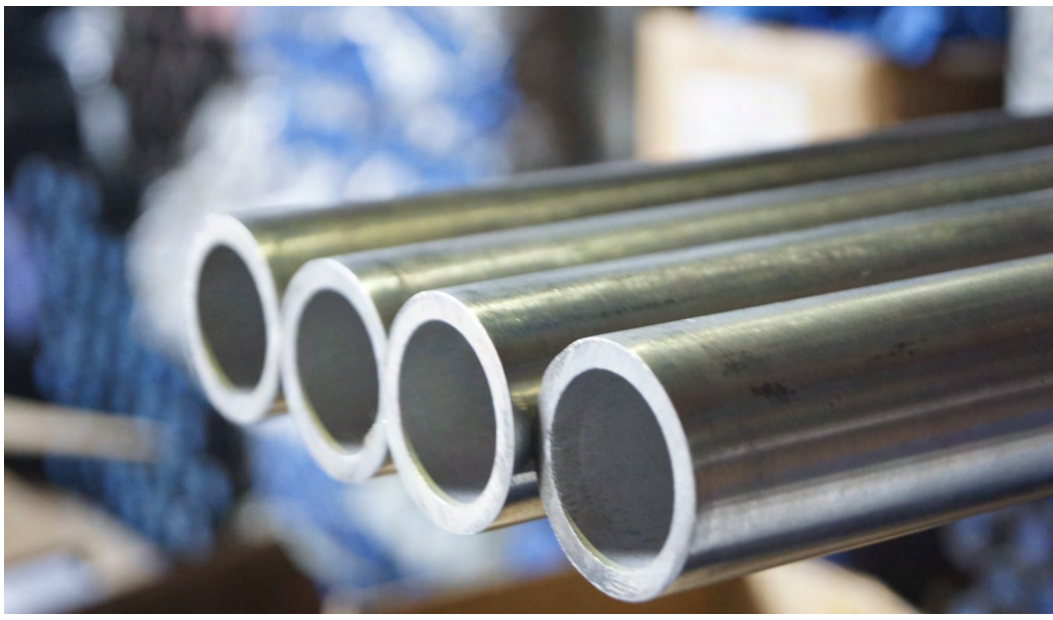
Applications where Alloy 200 can be used include chemical processing and storage, synthetic fiber production, and processes where sodium hydroxide and fluorine is used. Other applications are defense and aerospace as well as food processing. It has exceptional resistance to caustic alkalies at various temperatures and concentrations.

Alloy 200 Fabrication

All hot working and cold working practices can be utilized when shaping Nickel Alloy 201. Hot working temperature should be between 1200°F and 2250°F with heavy forming to be performed at temperature above 1600°F. Annealing should be performed at a temperature between 1300°F and 1600°F. Care should be taken while choosing the annealing temperature and time at temperature for this can greatly influence the mechanical properties and structure of the material.

Alloy 200 can be easily welded by standard welding, brazing, and soldering processes with the exception of the oxyacetylene process.





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