

## INCOLOY 800

Incoloy 800 (UNS N08800, W.Nr. 1.4876) is a widely used material for construction of equipment requiring corrosion resistance, heat resistance, strength, and stability for service up to 1500°F (816°C). Alloy 800 offers general corrosion resistance to many aqueous media and, by virtue of its content of nickel, resists stress corrosion cracking. At elevated temperatures it offers resistance to oxidation, carburization, and sulfidation along with rupture and creep strength. For applications requiring greater resistance to stress rupture and creep, especially at temperatures above 1500°F (816°C), Incoloy 800H and 800HT are used.

Incoloy 800 is used in a variety of applications involving exposure to corrosive environments and high temperatures. It is used for heat-treating equipment such as baskets, trays, and fixtures. In chemical and petrochemical processing, the alloy is used for heat exchangers and other piping systems in nitric acid media especially where resistance to chloride stress-corrosion cracking is required. In nuclear power plants, it is used for steam-generator tubing. The alloy is often used in domestic appliances for sheathing of electric heating elements. In the production of paper pulp, digester-liquor heaters are often made of alloy 800. In petroleum processing, the alloy is used for heat exchangers that air cool the process stream.

### Chemical Composition

Limiting Chemical Composition, % by Weight

- Nickel.....30.0–35.0
- Chromium.....19.0–23.0
- Iron.....39.5min.
- Carbon.....0.10max.
- Manganese.....1.50max.
- Sulfur.....0.015max.
- Silicon.....1.0max.
- Copper.....0.75max.
- Aluminum.....0.15–0.60
- Titanium.....0.15–0.60

## **Specifications**

Incoloy 800 is designated as UNS N08800 and Werkstoff Number 1.4876. It is listed in NACE MR0175 for oil and gas service.

Available Product Forms: Pipe, tube, sheet, strip, plate, round bar, flat bar, forging stock, hexagon and wire

### **Rod, Bar, Wire, Forgings, and Forging Stock**

- ASTM B408, ASME SB408 (Rod & Bar), ASTM B564, ASME SB564 (Forgings)
- ASME Code Case 1325 (All Product Forms), ASME Code Case 1949 (Forgings), AMS 5766 (Rod & Bar)
- ISO 9723 (Rod & Bar), ISO 9724 (Wire), ISO 9725 (Forgings)
- BS 3076NA15 (Rod & Bar), BS 3075NA15 (Wire)
- VdTÜV 412 (All Products).

### **Plate, Sheet, and Strip**

- ASTM A240, ASTM A480, ASME SA240, ASME SA480 (Plate, Sheet, and Strip), ASTM B409, ASTM B906, ASME SB409, ASME SB906 (Plate, Sheet, and Strip)
- ASME Code Case 1325 (All Product Forms), ASME Code Case 2339 (Plate)
- AMS 5871 (Plate, Sheet, and Strip)
- BS 3072NA15 (Plate & Sheet), BS 3073NA15 (Strip)
- VdTÜV 412 (All Products)
- ISO 6208 (plate, sheet and strip).

### **Pipe and Tubes**

- ASTM B163 & ASME SB163 (Seamless Condenser & Heat Exchanger Tubes), ASTM B407, ASTM B829, ASME SB407, ASME SB829 (Seamless Pipe & Tubes), ASTM B514, ASTM B775, ASME SB514, ASME SB775 (Welded Pipe), ASTM B515, ASTM B751, ASME SB515, ASME SB751(Welded Tubes)
- ASME Code Case 1325 (All Product Forms), ASME N-20 (Cold Worked Seamless Condenser and Heat Exchanger Tubes for Nuclear Service)
- BS 3074NA15 (Seamless Pipe & Tubes)
- VdTÜV 412 (All Products)
- ISO 6207 (Seamless Tubing).

Other Product Forms

- ASTM B366 & ASME SB366 (Fittings)