

## Incoloy 800H

Incoloy 800H is an austenitic, high-strength solid-solution nickel-iron-chromium alloy with controlled levels of carbon, aluminium, titanium, silicon, manganese and controlled content of (Al + Ti).

The analysis is similar to Incoloy 800, but a special solution anneal treatment (with grain sizes  $\geq$  ASTM No. 4) gives significantly increased creep-rupture strength above 600°C. For services below 600°C, the soft-annealed Incoloy 800H is suggested.

Incoloy 800H is characterized by:

- good creep-rupture properties at temperatures above 600°C without loss of ductility during long-term use at temperatures below 700°C, due to limitation of (Al + Ti) content to max. 0.7%
- good resistance to reducing, oxidizing and nitriding atmospheres and to atmospheres which alternate between reducing and oxidizing conditions
- metallurgical stability in long-term application at high temperatures

### Chemical Composition, %

element	Cr	Ni	Fe	Cu	Al	Ti	C	Mn	Si	S
min.	19.0	30.0	39.50		0.15	0.15	0.05			
max.	23.0	35.0		0.75	0.60	0.60	0.10	1.5	1.0	0.015

*Chemical Composition according to ASTM. Some compositional limits of other specifications may vary slightly.*

### Designation and standards

National Standards	Material designation	Chemical composition	Forgings	Rod and bar	Plate and sheet	Strip	Wire	Seamless tube
ASTM ASME	UNS N08810		B564 SB564	B408 SB408	B409 SB409	B409 SB409		B407 SB407
DIN	1.4958 X5NiCrAlTi31-20	DIN 10088-1	DIN 17460	DIN 10302	DIN 10028-7	DIN 10028-7	DIN 10302	DIN 10216-5
GB/T	NS1102, NS112	GB/T 15007	YB/T 5264	GB/T 15008	GB/T 15009 GB/T 15010			GB/T 15011 GB/T 30059

**Density** 8.00g/cm<sup>3</sup>

### Corrosion resistance

- excellent resistance to oxidation
- good resistance to carburization, nitridation and oxidizing sulphur-bearing atmospheres
- excellent resistance to hydrogen.

### Applications

Typical applications are:

- steam/hydrocarbon reforming processes, components such as: pigtails, headers/collectors/manifolds, transfer piping, catalyst tubes in low-pressure processes and quench-system piping
- ethylene pyrolysis tubing in convection and radiant sections
- ethylene dichloride cracking tubes
- cracking tubes used in the production of acetic anhydride and ketene
- components, e.g. heat exchangers, piping systems etc. in coal conversion plants
- steam generator tubing in helium cooled, high temperature reactor systems

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