

Nimonic 80A

Nimonic 80A is a precipitation hardenable nickel-chromium alloy strengthened by additions of titanium and aluminium. It is characterized by:

- excellent resistance to oxidizing atmospheres and high scaling resistance at elevated temperatures
- good mechanical properties and outstanding resistance to creep at service temperatures up to 815°C
- high resistance to fatigue under very arduous conditions

Chemical Composition, %

element	Cr	Ni	Fe	Al	Ti	C	Mn	Si	S
min.	18.0	bal.	3.0	0.5	1.8	0.10	1.0	1.0	0.015
max.	21.0			1.8	2.7				

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
ASTM ASME SAE	UNS N07080		B637	B637			
			SB637	SB637			
DIN	2.4952 NiCr20TiAl	DIN 10302 DIN 17742	DIN 17480	DIN 10302 DIN 17480	DIN 10302	DIN 10302	DIN 10302 DIN 17480
GB/T	GH4080A, GH80A	GB/T 14992		GB/T 14994 GB/T 12773	GJB 3317A		

Density 8.19g/cm³

Corrosion resistance

- high resistance to oxidation under cyclic conditions of heating and cooling
- good resistance to progressive corrosion and oxidation scaling up to 1000°C

Applications

Typical applications are:

- gasturbine components such as blades, rings and discs
- bolts, combustion engine exhaust valves and other highly stressed components
- high temperature springs