

Incoloy 945

Incoloy 945 is an age hardenable nickel-iron-chromium alloy with additions of molybdenum, copper, niobium, titanium, and aluminum. The alloy chemical composition is designed to provide a combination of high strength and excellent corrosion resistance.

Chemical Composition, %

element	Cr	Ni	Fe	Mo	Nb	Cu	Al	Ti	C	Mn	Si	P	S
min.	19.5	45.0	bal.	3.0	2.5	1.5	0.01	0.50	0.005				
max.	23.0	55.0		4.0	4.5	3.0	0.70	2.50	0.040	1.0	0.5	0.03	0.01

Chemical Composition according to API 6ACRA. Some compositional limits of other specifications may vary slightly.

Designation and standards

National Standards	Material designation	Chemical composition	Forgings	Rod and bar
API	UNS N09945	API 6ACRA	API 6ACRA	API 6ACRA
NACE		MR 0175	MR 0175	MR 0175

Density 8.2g/cm³

Corrosion resistance

- excellent resistance to chloride-ion stress corrosion cracking
- outstanding general corrosion resistance to reducing chemicals
- excellent resistance to pitting and crevice corrosion
- good resistance to oxidizing environments

Applications

Incoloy 945 is suitable for downhole oil and gas applications requiring high strength and corrosion resistance in aggressive sour wells containing high levels of hydrogen sulfide and chlorides.

Typical applications are:

- tool joints, completion tools, hangers and packers
- down-hole and surface gas-well components
- pump shafting and similar high-strength hardware particularly in marine environments and others containing both chlorides and sulfides