

ASTM B443 / ASME SB443

SPECIFICATION FOR NICKEL-CHROMIUM-MOLYBDENUM-COLUMBIUM ALLOY (UNS N06625) AND NICKEL-CHROMIUM-MOLYBDENUM-SILICON ALLOY (UNS N06219)

PLATE, SHEET, AND STRIP

This specification covers rolled nickel-chromium-molybdenum-columbium alloy (UNS N06625) and nickel-chromium-molybdenum-silicon alloy (UNS N06219) plate, sheet, and strip.

Alloy UNS N06625 products are furnished in two grades of different heat-treated conditions:

Grade 1 (Annealed)—Material is normally employed in service temperatures up to 1100°F (593°C).

Grade 2 (Solution Annealed)—Material is normally employed in service temperatures above 1100°F (593°C) when resistance to creep and rupture is required.

Alloy UNS N06219 is supplied in solution annealed condition only.

A. Chemical Composition :-

The material shall conform to the composition limits specified in Table 1.

Table 1

Element	N06625	N06219
Carbon	0.10 max	0.05 max
Manganese	0.50 max	0.50 max
Silicon	0.50 max	0.70–1.10
Phosphorus	0.015 max	0.020 max
Sulfur	0.015 max	0.010 max
Chromium	20.0 min	18.0–22.0
	23.0 max	...
Columbium + tantalum	3.15 min	...
	4.15 max	...
Cobalt (if determined)	1.0 max	1.0 max
Molybdenum	8.0 min	7.0–9.0
	10.0 max	...
Iron	5.0 max	2.0–4.0
Aluminum	0.40 max	0.50 max
Titanium	0.40 max	0.50 max
Copper	...	0.50 max
Nickel ^A	58.0 min	Bal.

^A Element shall be determined arithmetically by difference.

B. Mechanical Properties :-

The material shall conform to the heat treatment and room temperature tensile properties prescribed in Table 2.

Table 2

Product	Tensile Strength, min, ksi (MPa)	Yield Strength ^A (0.2% Offset), min, ksi (MPa)	Elongation in 2 in. or 50 mm (or 4D), min, % ^B
UNS N06625 Grade 1 (Annealed) ^C			
Cold-rolled sheet and strip	120 (827)	60 (414)	30
Hot-rolled sheet and hot-rolled plate up to 2.75 in. (70 mm), incl	110 (758)	55 (379)	30
Cold-rolled plate up to 0.375 in. (9.5 mm), incl	110 (758)	55 (379)	30
UNS N06625 Grade 2 (Solution Annealed) ^D			
Cold-rolled sheet and strip, hot-rolled sheet, cold-rolled plate, and hot-rolled plate	100 (690)	40 (276)	30
UNS N06219 (Solution Annealed)			
All plate, sheet, and strip	96 (660)	39 (270)	30

^A Yield strength requirements do not apply to material under 0.020 in. (0.508 mm) in thickness.

^B Elongation requirements do not apply to material under 0.010 in. (0.254 mm) in thickness.

^C Annealed at 1600°F (871°C) minimum.

^D Solution annealed at 2000°F (1093°C) minimum, with or without subsequent stabilization anneal at 1800°F (982°C) minimum to increase resistance to sensitization.

C. Length :-

- Sheet and strip of all sizes may be ordered to cut lengths, in which case a variation of 1/8 in. (3.2 mm) over the specified length shall be permitted.

D. Test Methods :-

The chemical composition and mechanical and other properties of the material as enumerated in this specification shall be determined, in case of disagreement, in accordance with the following ASTM standards:

Test	ASTM Designation
Chemical analysis	E 1473
Tension	E 8
Rounding procedure	E 29

Related Keywords

- asme sb443 pdf
- astm b443 pdf
- astm b443 pdf free download
- astm b443
- asme sb443