



1199

Aluminium Alloy

Data sheet

Material NOTE: The following data is for general reference only and NOT FOR DESIGN.

General

With a minimum of 99.9% aluminium purity it is high purity aluminium used where high repeatable formability and low structural strength is required. Typically used for fabricated sheetmetal work applications chemical and food packaging .

Description

Aluminium 1199 alloy is the highest purity aluminium and least alloyed content. It is a work hardened alloy with a high degree of ductility but low strength. It cannot be heat treated to a higher strength.

Alloy designations

1199 alloy , Refined aluminium, UNS A91199, AA1199-0

Applications

- Food industry containers and foils
- Heat exchangers
- Packaging foils
- Chemical handling equipment

Substitutable Alloys

Alloys that can be easily substituted for 1199 include 1350, 1100

Chemical Composition¹

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al(min)
1199	0.09	-	0.1	0.05	-	-	-	0.1	-	0.15	99.0%

NB: Assays in % max.

Physical Properties

Property	Value
Density	2.70 g/ cc
Melting point	660 °C
Modulus if Elasticity	62 Gpa
Resistivity	2.70E-08 Ohm-m
Electrical Conductivity	64 % IACS

¹ Complying with ASTM Aluminium Association

Mechanical properties #

AS1865 Aluminium & Alloys – drawn wire, rod bar & strip

Temper	Ultimate Tensile strength		Elongation
	Mpa	Ksi	%
H0 (Annealed)	45		50
H12	65		35
H14	90		25
H16	105		10
H18 (Hard drawn)	130		5

#: Typical averages

Physical performance

Weldability	Readily weldable using commercial filler metals Excellent brazing and solder able characteristics
Fabrication	Unsuitable for machining High resistance to repeatable forming
Corrosion	1xxx series aluminium has the best resistance to corrosion of aluminium alloys. Corrosion resistance relies upon its protective oxide film layer that forms in air. High resistance to aqueous solutions with pH range 4-9. Aluminium is an active noble metal and will form galvanic corrosion readily in contact with most other metals
Appearance	Bright chrome like appearance in drawn condition. Annealed metal is dull in appearance.
Surface coatings	1xxx series alloy is readily anodised to provide a wear coating.
Annealing	1xxx series alloy is readily annealed at 350°C
Surface cleaning	Wire surface can be cleaned readily with mineral solvents. Heavily contaminated surfaces can be cleaned using hot +70°C diluted caustic solution