



1100

## Aluminium Alloy Data sheet

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

### General

With a minimum of 99.0% aluminium purity it is a commercially pure aluminium used where good formability and moderate structural strength is required. Typically used for fabricated items, architectural items, chemical handling and storage, lightweight assemblies, food utensils, food handling and storage.

### Description

Aluminium 1100 alloy is a high purity aluminium with controlled copper content. It is a work hardened alloy and as such can be hardened by cold work. It has a high degree of ductility. It cannot be heat treated to a higher strength.

### Alloy designations

1100 alloy , UNS A91100, ISOAI99.0Cu, AA1100-0 1xxx series wrought aluminium

### Applications

- Food industry packaging
- Cold fabricated components and hardware
- Chemical handling and storage vessels
- Architectural assemblies

### Substitutable Alloys

Alloys that can be easily substituted for 1100 include 1350

### Chemical Composition<sup>1</sup>

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al(min)
1100	0.09	-	0.1	0.05	-	-	-	0.1	-	0.15	99.0%

NB: Assays in % max.

Alternatives alloys comparison

Alloy	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al(min)
1350	0.10	0.40	0.05	0.01	-	0.01	-	0.05	-	0.10	99.5%

### Physical Properties

<sup>1</sup> Complying with ASTM Aluminium Association

Property	Value
Density	2.71 g/ cc
Melting point	643-657 °C
Modulus if Elasticity	69 Gpa
Resistivity	2.990E-08 Ohm-m
<b>Electrical Conductivity</b>	<b>59 % IACS</b>

### **Mechanical properties #**

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

Temper	Ultimate Tensile strength		Elongation
	Mpa	Ksi	%
H0 ( Annealed)	90		20
H12	105		11
H14	125		1-8
H24 ( Hard drawn)	110		1-8

#: Typical averages

### **Physical performance**

Weldability	Readily weldable using commercial filler metals
Fabrication	Exhibits excellent machinability in the as drawn condition
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	1xxxx 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