



ASM Aerospace Specification Metals Inc.



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Aluminum 2124-T851

Subcategory: 2000 Series Aluminum Alloy; Aluminum Alloy; Metal; Nonferrous Metal

Close Analogs:

Composition Notes:

A Zr + Ti limit of 0.20 percent maximum may be used with this alloy designation for extruded and forged products only, but only when the supplier or producer and the purchaser have mutually so agreed.

Agreement may be indicated, for example, by reference to a standard, by letter, by order note, or other means which allow the Zr + Ti limit.

Aluminum content reported is calculated as remainder.

Composition information provided by the Aluminum Association and is not for design.

Key Words: Aluminium 2124-T851; UNS A92124; QQ-A-250/29; ASTM B209; AMS 4101; AA2124-T851

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	91.2 - 94.7	Mg	1.2 - 1.8	Si	Max 0.2
Cr	Max 0.1	Mn	0.3 - 0.9	Ti	Max 0.15
Cu	3.8 - 4.9	Other, each	Max 0.05	Zn	Max 0.25
Fe	Max 0.3	Other, total	Max 0.15		

Material Notes:

Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.

Physical Properties	Metric	English	Comments
Density	<u>2.78 g/cc</u>	0.1 lb/in ³	AA; Typical

Mechanical Properties

Hardness, Brinell	128	128	500 kg load with 10 mm ball
Hardness, Knoop	161	161	Converted from Brinell Hardness Value
Hardness, Rockwell A	48.9	48.9	Converted from Brinell Hardness Value
Hardness, Rockwell B	79	79	Converted from Brinell Hardness Value
Hardness, Vickers	146	146	Converted from Brinell Hardness Value

Ultimate Tensile Strength	483 MPa	70000 psi	AA; Typical
Tensile Yield Strength	441 MPa	64000 psi	AA; Typical
Elongation at Break	8 %	8 %	AA; Typical; 1/2 in. (12.7 mm) Diameter
Modulus of Elasticity	73.1 GPa	10600 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Poisson's Ratio	0.33	0.33	Estimated from trends in similar Al alloys.
Fatigue Strength	125 MPa	18100 psi	500,000,000 Cycles
Fracture Toughness	26 MPa-m^{1/2}	23.7 ksi-in ^{1/2}	K(IC) in S-L Direction
Fracture Toughness	26 MPa-m^{1/2}	23.7 ksi-in ^{1/2}	K(IC) in T-L Direction
Fracture Toughness	32 MPa-m^{1/2}	29.1 ksi-in ^{1/2}	K(IC) in L-T Direction
Machinability	70 %	70 %	0-100 Scale of Aluminum Alloys
Shear Modulus	27 GPa	3920 ksi	Estimated from similar Al alloys.
Shear Strength	295 MPa	42800 psi	

Electrical Properties

Electrical Resistivity	4.49e-006 ohm-cm	4.49e-006 ohm-cm	AA; Typical at 68°F
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Thermal Properties

CTE, linear 68°F	22.9 μm/m-°C	12.7 μin/in-°F	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	24.7 μm/m-°C	13.7 μin/in-°F	Average over the range 20-300°C
Specific Heat Capacity	0.882 J/g-°C	0.211 BTU/lb-°F	
Thermal Conductivity	151 W/m-K	1050 BTU-in/hr-ft ² -°F	AA; Typical at 77°F
Melting Point	502 - 638 °C	935 - 1180 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater. Eutectic melting is not eliminated by homogenization.
Solidus	502 °C	935 °F	AA; Typical
Liquidus	638 °C	1180 °F	AA; Typical

Processing Properties

Annealing Temperature	413 °C	775 °F
Solution Temperature	493 °C	920 °F
Aging Temperature	191 °C	375 °F

References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.