



ASM Aerospace Specification Metals Inc.



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Aluminum 7475-T651

Subcategory: 7000 Series Aluminum Alloy; Aluminum Alloy; Metal; Nonferrous Metal

Close Analogs:

Composition Notes:

Aluminum content reported is calculated as remainder.

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

Key Words: UNS A97475; ISO AlZn5.5MgCu(A); Aluminium 7475-T651; AA7475-T651

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	88.5 - 91.5	Mg	1.9 - 2.6	Si	Max 0.1
Cr	0.18 - 0.25	Mn	Max 0.06	Ti	Max 0.06
Cu	1.2 - 1.9	Other, each	Max 0.05	Zn	5.2 - 6.2
Fe	Max 0.12	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>2.81 g/cc</u>	0.102 lb/in ³	AA; Typical

Mechanical Properties

Hardness, Brinell	150	150	500 kg load with 10 mm ball. Calculated value.
Hardness, Knoop	190	190	Converted from Brinell Hardness Value
Hardness, Rockwell A	53.5	53.5	Converted from Brinell Hardness Value
Hardness, Rockwell B	87	87	Converted from Brinell Hardness Value
Hardness, Vickers	175	175	Converted from Brinell Hardness Value
Ultimate Tensile Strength	<u>586 MPa</u>	85000 psi	AA; Typical
Tensile Yield Strength	<u>510 MPa</u>	74000 psi	AA; Typical
Elongation at Break	<u>13 %</u>	13 %	AA; Typical; 1/2 in. (12.7 mm) Diameter

Modulus of Elasticity	<u>71.7 GPa</u>	10400 ksi	AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus.
Poisson's Ratio	0.33	0.33	
Machinability	<u>70 %</u>	70 %	0-100 Scale of Aluminum Alloys
Shear Modulus	<u>27 GPa</u>	3920 ksi	
Shear Strength	<u>350 MPa</u>	50800 psi	Calculated value.

Electrical Properties

Electrical Resistivity	<u>4.99e-006 ohm-cm</u>	4.99e-006 ohm-cm	AA; Typical at 68°F
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Thermal Properties

CTE, linear 68°F	<u>23.2 $\mu\text{m}/\text{m}\cdot\text{°C}$</u>	12.9 $\mu\text{in}/\text{in}\cdot\text{°F}$	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	<u>25.2 $\mu\text{m}/\text{m}\cdot\text{°C}$</u>	14 $\mu\text{in}/\text{in}\cdot\text{°F}$	Average over the range 20-300°C
Specific Heat Capacity	<u>0.88 J/g·°C</u>	0.21 BTU/lb·°F	Estimated from trends in similar Al alloys.
Thermal Conductivity	<u>138 W/m-K</u>	960 BTU-in/hr-ft ² ·°F	AA; Typical at 77°F
Melting Point	477 - 635 °C	890 - 1175 °F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater
Solidus	<u>477 °C</u>	890 °F	AA; Typical
Liquidus	<u>635 °C</u>	1175 °F	AA; Typical

Processing Properties

Annealing Temperature	<u>413 °C</u>	775 °F	
Solution Temperature	<u>516 °C</u>	960 °F	must be preceded by soak at 870 to 890°F
Aging Temperature	121 - 177 °C	250 - 350 °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.