Aluminum 7475-T7651

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-T7651; AA7475-T7651

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	2.81 g/cc	0.102 lb/in³	AA; Typical
Mechanical Properties			
Hardness, Brinell	140	140	500 kg load with 10 mm ball. Calculated value.
Hardness, Knoop	177	177	Converted from Brinell Hardness Value
Hardness, Rockwell A	51.6	51.6	Converted from Brinell Hardness Value
Hardness, Rockwell B	84	84	Converted from Brinell Hardness Value
Hardness, Vickers	162	162	Converted from Brinell Hardness Value
Ultimate Tensile Strength	531 MPa	77000 psi	AA; Typical
Tensile Yield Strength	462 MPa	67000 psi	AA; Typical
Elongation at Break	12 %	12 %	AA; Typical; 1/2 in. (12.7 mm) Diameter

Modulus of Elasticity	71.7 GPa	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	70 %	70 %	0-100 Scale of Aluminum Alloys
Shear Modulus	27 GPa	3920 ksi	
Shear Strength	310 MPa	45000 psi	Calculated value.

Electrical Properties

Electrical Resistivity	4.31e-006 ohm-cm	4.31e-006 ohm-cm	

Thermal Properties

CTE, linear 68°F	23.2 µm/m-°C	12.9 µin/in-°F	AA; Typical; Average over 68-212°F range.
CTE, linear 250°C	25.2 µm/m-°C	14 µin/in-°F	Average over the range 20-300ºC
Specific Heat Capacity	0.88 J/g-°C	0.21 BTU/lb-°F	Estimated from trends in similar Al alloys.
Thermal Conductivity	163 W/m-K	1130 BTU-in/hr-ft²-°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	477 °C	890 °F	AA; Typical
Liquidus	635 °C	1175 °F	AA; Typical

Processing Properties

Annealing Temperature	413 °C	775 °F	
Solution Temperature	516 °C	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 consistant 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.