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Aluminum 5052-O

Categories:	5000 Series Aluminum Alloy; Metal; Nonferrous Metal; Aluminum Alloy;		
Material Notes:	Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.		
Composition Notes:	Aluminum content reported is calculated as remainder.		
KeyWords	Aluminium 5052-O; UNS A95052; AA5052-O; ISO AlMg2.5		
Physical Properties	Metric	English	Comments
Density	2.68 g/cc	0.0968 lb. / in ³	AA; Typical
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	47	47	AA; Typical; 500 g load; 10 mm ball
Ultimate Tensile Strength	193 MPa	28000 psi	AA; Typical;
Tensile Yield Strength	89.6 MPa	13000 psi	AA; Typical;
Elongation at Break	25%	25%	AA; Typical; Thickness at 1.59mm / 0.0625 in
Modulus of Elasticity	70.3 Gpa	10200 ksi	AA; Typical; Average of tension and compression. Compression Modulus is about 2% greater than tensile modulus
Poissons Ratio	0.33	0.33	
Machinability	30%	30%	0 - 100 Scale of Aluminum Alloys
Shear Modulus	25.9 Gpa	3760 ksi	
Shear Strength	124 MPa	18000 psi	AA; Typical
Electrical Properties	Metric	English	Comments
Electrical Resistivity	4.99e-006 ohm-cm	4.99e-006 ohm-cm	AA; Typical at 68°F / 20°C
Thermal Properties	Metric	English	Comments
CTE, linear 68°F	23.8 µm/m-°C	13.2 µin/in-°F	AA; Typical; Average over 68-212°F / 20 - 100°C range.
CTE, linear 250°C	25.7 µm/m-°C	14.3 µin/in-°F	Average; 68-572°F / 20-300°C
Specific Heat Capacity	0.88 J/g-°C	0.21 BTU /lb-°F	Estimated from trends in similar Aluminum Alloys
Thermal Conductivity	1938 W/m-K	960 BTU-in/hr-ft ² -°F	AA; Typical at 77°F
Melting Point	607 - 649°C	1125 - 1200°F	AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater.
Solidus	607°C	1125°F	AA; Typical
Liquidus	649°C	1200°F	AA; Typical
Processing Properties	Metric	English	Comments
Annealing Temperature	343°C	650°F	Holding at temperature is not required
Material Components Properties	Metric & English		Comments
Aluminum, Al	95.7 - 97.7 %		As Remainder
Chromium, Cr	0.15 - 0.35 %		
Copper, Cu	Max 0.1		
Iron, Fe	Max 0.4		
Magnesium, Mg	2.2 - 2.8 %		
Manganese, Mn	Max 0.1		
Other, each	Max 0.05 %		
Other, total	Max 0.15 %		
Silicon, Si	Max 0.25 %		
Zinc, Zn	Max 0.10 %		

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