

Alcoa Toolrite 2011®-T4 Aluminum

Category : Metal , Nonferrous Metal , Aluminum Alloy , 2000 Series Aluminum Alloy

Material Notes:

Weldability = D; Stress Corrosion Cracking Resistance = D; General Corrosion Resistance = D (A = best; E = worst). General 2011 characteristics and uses: Good machinability, especially free-cutting qualities, good mechanical properties. Excellent surface finish capability. The T451 temper offers good deep drilling characteristics. Uses: Adapters, carburetor parts, clock parts and gears, knobs, camera parts, meter shafts and gears, nozzles, pencil and pen parts, oil line filters, pipe stems and filters, radio parts, screwdriver caps, spindles, telephone parts, TV fittings, tripod fittings, machine parts, hose parts, pipe stems. Data supplied by the manufacturer, Alcoa.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Alcoa-Toolrite-2011-T4-Aluminum.php

Physical Properties	Metric	English	Comments
Density	2.82 g/cc	0.102 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	80	80	500 kg load/10 mm ball
Hardness, Knoop	103	103	Estimated from Brinell
Hardness, Rockwell B	49	49	Estimated from Brinell
Hardness, Vickers	90	90	Estimated from Brinell
Tensile Strength, Ultimate	>= 276 MPa	>= 40000 psi	
Tensile Strength, Yield	>= 124 MPa	>= 18000 psi	
Elongation at Break	16 %	16 %	
Modulus of Elasticity	70.0 GPa	10200 ksi	
Fatigue Strength	97.0 MPa @# of Cycles 5.00e+8	14100 psi @# of Cycles 5.00e+8	completely reversed; R. R. Moore Machine and specimen.
Machinability	90 %	90 %	0-100 Scale (A=90; B=70; C=50; D=30; E=10)
Shear Strength	207 MPa	30000 psi	

Thermal Properties	Metric	English	Comments
CTE, linear	22.9 µm/m-°C @Temperature 20.0 - 100 °C	12.7 µin/in-°F @Temperature 68.0 - 212 °F	average
Thermal Conductivity	151 W/m-K	1050 BTU-in/hr-ft ² -°F	

Thermal Properties	Metric	English	Comments
Component Elements Properties	Metric	English	Comments
Aluminum, Al	93.7 %	93.7 %	
Bismuth, Bi	0.20 - 0.60 %	0.20 - 0.60 %	
Copper, Cu	5.0 - 6.0 %	5.0 - 6.0 %	
Iron, Fe	<= 0.70 %	<= 0.70 %	
Lead, Pb	0.20 - 0.60 %	0.20 - 0.60 %	
Silicon, Si	<= 0.40 %	<= 0.40 %	
Zinc, Zn	<= 0.30 %	<= 0.30 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000440 ohm-cm	0.00000440 ohm-cm	

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