



## Aluminum

### General Material Properties

Property	Metric	units	English	units
<b>General</b>				
Density	2.5e3 - 2.9e3	kg/m <sup>3</sup>	156 - 181	lb/ft <sup>3</sup>
<b>Mechanical</b>				
Yield Strength	3e7 - 5e8	Pa	4.35 - 72.5	ksi
Tensile Strength	5.8e7 - 5e8	Pa	8.41 - 79.8	ksi
Elongation	0.01 - 0.44	% strain		% strain
Hardness (Vickers)	1.18e8 - 1.48e9	Pa		HV
Impact Strength (unnotched)	1.9e5 - 2e5	J/m <sup>2</sup>		ft.lbf/in <sup>2</sup>
Fracture Toughness	2.2e7 - 3.5e7	Pa/m <sup>0.5</sup>	20 - 31.9	ksi/in <sup>0.5</sup>
Young's Modulus	6.8e10 - 8.2e10	Pa	9.86 - 11.9	10 <sup>6</sup> psi
<b>Thermal</b>				
Max Service Temperature	120 - 210	°C	248 - 410	°F
Melting Temperature	475 - 677	°C	887 - 1.25e3	°F
Insulator or Conductor	Good Conductor		Good Conductor	
Specific Heat Capability	857 - 990	J/kg °C	0.205 - 0.236	BTU/lb. °F
Thermal Expansion Coefficient	2.1e-5 - 2.4e-5	strain/°C	11.7 - 13.3	μstrain/°F
<b>Electrical</b>				
Insulator or Conductor	Good Conductor	°C	Good Conductor	°F
Electrical Resistivity	2.5e-8 - 6.5e-8	°C	2.5 - 6.5	°F
<b>Eco</b>				
CO2 Footprint	1.85 - 2.04	kg/kg	11.2 - 13.1	lb/lb
Recycleable	Yes		Yes	

The information on this page is intended as general guidance only and is only accurate at the time of posting (7-30-12). Specific material properties vary by manufacturer. Please contact a Dielectric application engineer for help in choosing the optimal material for your application and budget.