



# ALUMINUM ALLOY

<b>1. Common trade names:</b>			
	<b>UNITS</b>		
<b>2. Density</b>	g/cm <sup>3</sup>	2.70	Mass per unit volume
<b>3. Mold Shrinkage</b>	in./in.		Size of part versus mold cavity
<b>4. Continuous Service Temp</b>	°F	300	Highest temp material can perform reliably for the long term
<b>5. Melting Point</b>	°F	1205	Temperature material begins to melt
<b>6. Processing Temp</b>	°F	1250-1500	Recommended temperature for molding
<b>7. Tensile Strength</b>	$\frac{lb}{in.^2}$	22000	Maximum stress without yielding to a stretching mold
<b>8. Izod Impact Strength</b>	$\frac{ft-lb}{in.}$	240	Energy required to break at a v-notch
<b>9. Compressive Strength</b>	$\frac{10^3 lb.}{in.^2}$	50	Resist a crushing force
<b>10. Flexural Strength, yeild</b>	$\frac{10^3 lb.}{in.^2}$	30	Resistance to fracture during bending
<b>11. Elongation, tensile break</b>	%	15	Stretching ability before breaking
<b>12. Dielectric Strength</b>	$\frac{V}{10^{-3} in.}$	152*	Voltage material can withstand before dielectric breakdown * = aluminum oxide
<b>13. Water Absorption, 24 hours</b>	%	N/A	% Water absorbed when immersed in water for 24 hours
<b>14. Coefficient of Lin. Thermal Expansion</b>	$\frac{10^{-5} in.}{in. \text{ } ^\circ F}$	1.3	Change in length per change in temperature
<b>15. Crystalline or Amorphous</b>	C = Crystalline A = Amorphous	C	Crystalline: arranged polymer, sharp melting point Amorphous: random polymer, broad melt )
<b>16. Clarity</b>	O = Opaque TP = Transparent TL = Translucent	O	Opaque = no light passes through it Transparent = some light passes through it Translucent = light passes directly through it
<b>17. Flammability</b>	Flame Resistance High — Low 5VA 5VB V-0 V-1 V-2 HB		Reference standard UL 94
<b>18. Process: Drying Required</b>		N/A	Is it recommended to dry the material prior to molding?
<b>19. Hot Stamp</b>			Does the material hot stamp?
<b>20. Machining Qualities</b>	<b>Qualitative Scale: Excellent, Good, Fair, Poor</b>	Excellent	How does the material machine?
<b>21. Creep Resistance</b>		Excellent	Can this material keep it's shape under load? * = with additive or co-polymer
<b>22. Ultrasonic Welding</b>		N/A	Does the material weld via ultrasonics?
<b>23. Low Friction</b>			Surface lubricity
<b>24. Abrasion Resistance</b>		Excellent	How well does the material withstand wear? * = with additive or co-polymer
<b>25. Solvent Resistance</b>		Excellent	How well does the material withstand chemicals?
<b>26. UV Resistance</b>		Excellent	How well does the material withstand UV rays? * = with UV additive
<b>27. Environmental Stress Crack Resistance</b>		Good	Can this material resist environmental stress cracking? * = with additive or co-polymer
<b>28. FDA</b>			Are there FDA grades available?
<b>29. Living Hinge</b>		No	Can this material be used in a living hinge application?
<b>30. Year Developed</b>			
<b>31. Cost: year 2006</b>	$\frac{\$}{lb.}$ @ 5,000 lbs.	\$3.10	Natural/Black Year 2006

**32. Applications:** High Strength Light Weight Applications, Humid Environments