

**Physical Properties**

**LaserLIGHTS Physical Properties**

# LaserLIGHTS™

Physical Properties	Unit of Measure	Typical Values	ASTM Method
<b><u>Tensile Strength</u></b>			
Ultimate Tensile Strength:	kg/mm <sup>2</sup>		
<b>MD</b>	(kpsi)	20 (29)	D 882
<b>TD</b>		24 (34)	
Strength @ 5% Elongation:	kg/mm <sup>2</sup>		
<b>MD</b>	(kpsi)	10 (15)	D 882
<b>TD</b>		10 (14)	
Modulus	kg/mm <sup>2</sup>		
<b>MD</b>	(kpsi)	490 (710)	D 882
<b>TD</b>		510 (740)	
Elongation	kg/mm <sup>2</sup>		
<b>MD</b>	(kpsi)	116	D 882
<b>TD</b>		91	
Density	gm/cm <sup>3</sup>	1.390	D 1505
Melt Point	°C	254	DSC
Dimensional Stability			
@ 105°C			
<b>MD</b>		.06	
<b>TD</b>	%	.09	D.P.
@ 150°C			
<b>MD</b>		1.8	
<b>TD</b>		1.1	
<b><u>Specific Heat</u></b>	cal/gm/°C	.28	
<b><u>Coefficient of Thermal Expansion</u></b>	in/in/°C	1.7x10 <sup>-5</sup>	D 696
<b><u>UL94 Flame Class</u></b>	Slow to self-extinguishing		94VTM-2
<b><u>Wear Resistance</u></b>	RCA Taber Abrader CS17 @ 500 gm. No wear through to substrate after minimum of 70 cycles.		



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<b>Accelerated Weathering (Humidity &amp; UV)</b>		No change @ 300 hours in QUV chamber (equates to 5 years South Florida) except Brushed Brass/Black and Smooth Gold/Black which began to fade at 150 hours in QUV chamber (equates to 2.5 - 3 years)		
<b>Adhesive Data:</b>				
<b>Peel Strength</b>	<b>1 Hour</b>	1 Week @ 158 °F	1 Week @ -40 °F	PSTC-7
S. Steel	115	128	100	oz/in @ 3 mil
PVC	N/A	115	112	128
<b>Shear Strength</b>		24+ hours for 1 sq. in. (6.54 sq. cm.) @ 2.2 lb (1 kg)		
<b>Temperature Information:</b>		50 -150 °F	10-65 °C	
Laminating Temp. (@ glue line)		50 -150 °F	10-65 °C	
Application Temp. (Range)		200 °F	93 °C	
Maximum (Continuous)		250 °F	121 °C	
<b>Storage/Shelf Life</b>		Minimum 5 years prior to application @ 70 °F (21C) @ 50% relative humidity out of direct sunlight. Once applied, the adhesive can be expected to perform well in "normal" applications for 10-20 years.		

LaserLIGHTS are a 4 mil (.004") two-ply laser etchable and mechanically engravable plastic material with 1 mil (.001") acrylic pressure sensitive adhesive. They are completely flexible yet extremely durable, with excellent exterior properties and resistance to water, solvents, abrasion, and extreme temperatures. LaserLIGHTS can also be embossed, ink and thermal printed, sandblasted and cut with a plotter.

**LaserLIGHTS adhesive information:**

LaserLIGHTS are backed with a 1 mil (.001"), acrylic pressure sensitive adhesive designed for industrial applications.



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The adhesive has excellent exterior properties and resistance to water, solvents and extreme temperatures. It bonds extremely well to metals, plastics, rubbers and foams. The adhesive has good initial tack, and fully sets up over 72 hours.

### **Applications**

Typical applications include: nameplates, electronics, appliances, recreational vehicles, computers, packaging, aviation and automotive.

### **LaserLIGHTS Durability and Weatherability Information:**

LaserLIGHTS surface durability is about twelve times greater than that of a conventional microsurfaced engraving plastic. On an RCA Taber Abrader CS17 set at 500 gm, there was no wear through to the substrate after a minimum of 70 cycles.

LaserLIGHTS and their adhesive withstand high temperatures, up to 250°F (121°C) for intermittent and 200°F (93°C) for continuous use. In specific applications they have been successful at considerably higher temperatures.

### **RoHS 2, Directive 2011/65/EC:**

These products do not contain any intentionally added lead, mercury, cadmium and hexavalent chromium. If these are detected they result from their presence as trace impurities in the raw materials used to manufacture the product. Analysis of these and/or similar products has shown that, if detected, these fall well below the limitations set by the above Directive in that maximum concentration up to 0.1% by weight of lead, mercury, and hexavalent chromium and 0.01% by weight of cadmium. These products do not contain any polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

**NOTE:** *The above information is given in good faith, but no warranty, express or implied, is given.*