

**Melamine Resin – Various Substrates - Property Comparisons**

<b>GENERAL PHYSICAL PROPERTIES</b>	<b>UNITS</b>	<b>ES-1 Values</b>	<b>ES-2 Values</b>	<b>ES-3 Values</b>	<b>ES-4 Values</b>	<b>NP329 Values</b>
Specific Gravity	-	1.40	1.40	1.40	1.40	1.47
Rockwell Hardness (.062")	M Scale	100	100	100	100	110
Moisture Absorption (.062")	%	2.5	2.5	2.5	2.5	1.8
Flexural Strength (.062") LW CW	psi	13,500 13,500	13,500 13,500	13,500 13,500	13,500 13,500	29,000 26,000
Flexural Modulus (.062" LW CW	kpsi	1,500 1,500	1,500 1,500	1,500 1,500	1,500 1,500	1,800 1,400
Tensile Strength (.125") LW CW	psi	10,500 9,200	10,500 9,200	10,500 9,200	10,500 9,200	16,000 9,700
Izod Impact Strength E-48/50 (.500") LW CW	ft-lb/in notched	.60 .55	.60 .55	.60 .55	.60 .55	1.9 1.75
Compressive Strength [flatwise] (.500")	psi	25,000	25,000	25,000	25,000	34,000
Bond Strength (.500")	lb	1,000	1,000	1,000	1,000	1,900
Shear Strength (perpendicular) (.062")	psi	--	--	--	--	13,000
<b>THERMAL &amp; ELECTRICAL PROPERTIES</b>	<b>UNITS</b>	<b>ES-1 Values</b>	<b>ES-2 Values</b>	<b>ES-3 Values</b>	<b>ES-4 Values</b>	<b>NP329 Values</b>
Maximum Operating Temperature	°C	120 <sup>1</sup>	120 <sup>1</sup>	120 <sup>1</sup>	120 <sup>1</sup>	130 <sup>1</sup>
Coefficient of Thermal Expansion X-axis (.062") Y-axis	"/°Cx10-6	14.0 10.0	14.0 10.0	14.0 10.0	14.0 10.0	18.0 19.0
Flammability Rating - U. L. 94	Class	V-1	V-1	V-1	V-1	V-0
Breakdown Voltage Condition - A (.062") D-48/50	kV	50 5	50 5	50 5	50 5	20 5
Electric Strength Condition - A (.062") D-48/50	V/mil	-- --	-- --	-- --	-- --	500 300
Permittivity (.062") Condition - D-24/23	-	--	--	--	--	7.0
Dissipation Factor (.062") Condition - D-24/23	-	--	--	--	--	.050
Arc Resistance (.125") D-495	sec	120	120	120	120	120
Comparative Tracking Index (.125") D3638	--	--	--	--	--	200

NOTE: a double dash (--), indicates that the value has not been determined.

<sup>1</sup> NEMA LI-6: This temperature is a recommendation only, and based upon experience in various applications. The maximum operating temperature is dependent upon the application and should be investigated prior to use.