

E & O Tool & Plastics, Inc.

	ABS (Acrylonitrile Butadiene Styrene)	Acetal	Acrylic	Nylon 6	Polyamide Nylon 6/6	30% Glass-filled Nylon	40% Mineral filled Nylon	Super Tough Nylon	Poly- Carbonate (PC)	Poly- Carbonate/ ABS blend	Poly- Carbonate Polyest blend
1 Trade Name	Cyclocac® Lustran® Magnum®	Celcon® Delrin®	Acrylite® Plexiglas®	Zytel®	Zytel® Celanese®	Thermofil® Zytel®	Minlon®	Zytel ST®	Lexan® Makrolon® Cailbre® Apec®	Bayblend® Cycloy®	Xenoy®
2 Specific Gravity <i>gm/cm³</i>	1.04	1.42	1.19	1.13	1.13	1.38	1.51	1.08	1.20	1.12	1.22
3 Mold Shrinkage <i>in/in</i>	.005	.020	.003-.007	.015	.015	.003	.008	.015	.006	.006	.009
4 Continuous Service Temp <i>F°</i>	160	195	140	155	180	130	250	160	250	.225	250
5 Melting Point <i>range F°</i>	221-475	350	270-350	410	490	491	4.93	491	302-590	280	400
6 Processing temp <i>range F°</i>	400-525	360-400	390-490	50	520-560	480-575	500-580		480-650	490	480
7 Tensile Strength <i>yield lb/in²</i>	6000	9000	8800-11300	11500	12000	26000	14200	10000	9000	8500	7400
8 Izod, Notched Impact Strength	6.5	1.4	0.3	1.0	1.0	2.1	0.6	17.0	12.0	8.5	14.8
9 Compressive Strength <i>10³lb/in²</i>	8-12	5	13-17	12	15	29			12		12
10 Flexural Strength <i>10³lb/in²</i>	10-12	13	14-19	5-16	6-16	36			13	13	12
11 Elongation <i>%, break</i>	5	25	2-6	35	60	3	3		100	15	145
12 Dielectric Strength <i>v/10³in</i>	375-450	500	500	420	600	400		3	380	434	500
13 Flammability	HB-5V	HB	94HB	V2	V2-HB	94HB	94HB	94HB	V2-V0	94HB	94HB
14 Hot Stamp	Yes	No	Yes	Poor	Poor	Fair	Fair	Poor	Yes	Yes	Yes
15 Ultrasonic Welding	Excellent	Good	Good	Good	Good	Poor	Good	Good	Excellent	Excellent	Fair
16 Solvent Resistance	Good	Fair	Good	Fair	Fair	Fair	Good	Good	Poor	Poor	Excellent
17 Weatherability	Poor	Fair	Excellent	Good	Good	Good	Good	Excellent	Good	Fair	Good
18 FDA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
19 Approximate Cost**	\$1.56	\$2.20	\$2.18	\$2.65	\$2.65	\$2.55	\$2.00	\$3.00	\$2.70	\$2.30	\$3.63
20 End Use Applications	Automobile Interiors Appliances Office Equipment Refrigerator Doors Consoles Wheel Covers	Slides Rollers Gears Cams Springs Handles Valves Bushings Bearings	Lenses Lighting fixtures Medical Display Fixtures	Cosmetic Automotive Applications	Handles Gears Bearings Connectors Fans Plugs Terminal Block Sporting Goods	Automotive under hood Industrial Valve Brake Fluid Housing	Carburetor Valve Engine Shroud	High Impact Nylon Applications Low Temperatures	Windows Helmets Electrical Medical Compact Discs Bus. Mach. Housing Computer Parts Mugs	Typewriter Housing Headlight Rings Taillight Housing Food Trays Business Mach. housing	Gas tank Automoti Bumper Power Hand Cases

* Values are generic & approximate. Specific resin properties need to be verified by manufacturers' data sheets.

**Approximate costs are based on 5,000 lb buy of Natural resin and are relative only, subject to change as feedstock costs fluctuate

RESIN PHYSICAL PROPERTY DATA*

Polyester (PBT)	Polyether Etherketone (PEEK)	Poly-Etherimide	Polyethylene (PE)		Poly-Phenylene Oxide (PPO)	Poly-Propylene (PP)		Poly-Styrene (PS)		Poly-Sulfone	Poly-Urethane	Styrene Acrylonitrile (SAN)	Thermo-Plastic Elastomer (TPO)
			Low Density	High Density		Homo	CO	GP	Impact				
Valox® Celanex® Rynite®	Victrex®	Ultem®	Rexene® Norchem® Marlex®		Noryl®	Norchem® Profax®		Styron® Lustrex® Styrafil®		Udel® Mindel®	Texin® Estane®	Tyrl® Lustran® Starex®	Kraton® Hytrel® Santoprene®
1.40	1.38	1.27	0.91	0.94	1.06	0.903	0.900	1.04	1.09	1.24	1.22	1.10	1.00
.020	.001-.005	.007	.020	.020	.006	.012		.005		.007	.012	.004	.003-.027
155	400	338	180	250	170	200	90	150		300		170	150
						NO LOAD							
435	635	640-800	325	275	356-555	168		200-485		375	300	239-300	290
400-525	710-738	675-730	400-500		500-575	375-425		150-250	400-450	575-625	400-450	425-475	350
8900	30000	15200	600	3600	7800	4400	3100	2600/7500		10200	7000	10000	1100
0.9	2.5	1.0	No Break	0.5	5.0	.07	.70	0.2	4.0	1.3	No Break	0.3-0.5	N/A
8-15	25	20	2	6	16	6-8		11-16		13-14	20	14-17	N/A
12-16	23-47	21	0.3	6	13	6-8		8-14		14-15	1-9	14-19	N/A
50	3	60	600	20	50	9-12		1		50	100	2	800
580	400	831	450-500		400-550	500-600		500-700		425	525	400-500	415
V0-HB		5V	HB		.058 V1 .240 V0	HB		HB		V2	HB	HB	HB
Yes	Yes	Yes	No		Yes	No		Yes		Yes	No	Yes	Fair
Good	Fair	Good	Poor		Good	Poor		Excellent		Fair	Poor	Excellent	No
Good	Excellent	Good	Good		Good	Good		Poor		Poor	Poor	Poor	Fair
Good	Excellent	Good	Poor		Good	Poor		Poor		Poor	Fair	Poor	Good
Yes	No	Yes	Yes		Yes	Yes		Yes		Yes			Yes
GP / \$3.12 Glass / \$4.55	\$23.00	\$8.00	\$.90	\$.82	\$3.20	\$.75	\$.85	\$.85	\$.90	\$4.70	\$3.00	\$1.30	\$2.65
Electrical Appliances Car body Panels Switches Key Caps Coffee Makers Propellers Bicycle Gears	Engine parts Fluid Handling Aerospace	Electrical Connectors Temperature Sensors Lamp Sockets Jet Engine Comp. Medical/ Surgical Instruments Autoclave Microwave Cookware	Toys Bottles Utensils Containers Shotgun Shells Milk Bottle Caps	Terminal Housing Dryer Housing Pump Housing Fuse blocks	Automotive Hdwe. Electrical Hdwe. Household Goods Battery Cases Syringes	Household Goods Containers Packaging Disposable Glassware Video Cassettes Medical Vials Toys		Appliance Parts Electronic Parts Insulators Medical Instruments Sterilization Trays Connectors	Rollers Seals Wheels Gaskets	Blender Bowls Humidifiers Petri Dishes IV Connectors Instrument Lenses Disposable Lighters Typewriter Keys	Automotive Medical Grips Toys Lawn Equipment Personal Care Pens & Pencils		

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