material data chart

Properties*	Aluminum	Polyethylene		Polypropylene Impact (rubber-modified)	Ethylene Vinyl Acetate	FlexTemp Thermoplastic Rubber	Silicone Rubber	Vinyl	
		Low-Density	High-Density					Standard	High-Temp
MECHANICAL CHARACTERISTICS									
Specific gravity (density)	2.73	0.910 - 0.925	0.941 - 0.965	0.890. - 0.91	.920 - .950	.940 - .960	1.18	1.2	1.2
Tensile strength, p.s.i.	31 - 42	600 - 2300	3100 - 5500	2800 - 4400	1440 - 2500	2400 - 3100	200 - 1500	2300	2100
Elongation, %	20% min.	90.0 - 800.0	20.0 - 1000.0	350.0 - >500.0	550 - 900	500 - 620	700	400	270
Compressive strength, p.s.i.	11	–	2700 - 3600	4000 - 6500	–	–	–	–	–
Tear strength (ASTM D1004)	–	–	–	–	–	–	200pli	185pli	270pli
Impact strength, ft. lb./in. of notch (1/2x1/2 in. notched bar, izod test)	No break	No break	0.5 - 20.0	1.0 - 15.0 @ 73°F	No break	–	–	–	–
Hardness, Rockwell	–	D41 - D46 (Shore) R10	D60 - 70 (Shore)	R50-R85	D17 - 45 (Shore)	–	A25 - 80 (Shore)	A60 - 70 (Shore)	A80 - 90 (Shore)
ELECTRICAL CHARACTERISTICS									
Volume resistivity, ohm/cm³ (50% RH and 23°C)	–	$>10^{16}$	$>10^{16}$	$>10^{15}$	$>10^{15}$	–	–	–	–
Dielectric constant, 60 cyc.	–	2.25 - 2.35	2.30 - 2.35	2.3	2.50 - 3.16	–	–	–	–
Dissipation (power) factor, 60 cyc.	–	<0.0005	<0.0005	>0.0003	>0.0030	–	–	–	–
SERVICE TEMPERATURES									
Continuous °C/°F	343/650	66/150	74/165	121/250	60/140	132/275	232/450	93/200	149/250
Intermittent °C/°F	343/650	79/175	102/215			149/300	316/600	177/350	246/475
Brittleness °C/°F	-70/-94	<-70/<-94	-18/0	<-70/<-94	<-68/<-90	0	-32/-29	-32/-26	–
RESISTANCE CHARACTERISTICS									
Water absorp., 24 hr., 1/8" thick, %	0.0	<0.015	<0.01	<0.01	.05-.13	<.10	–	–	–
Burning rate (flammability), in./min.	–	Very Slow (1.04)	Very Slow (1.00 - 1.04)	Slow	–	Slow	Very Slow	Slow	Slow
Effect of sunlight	–	Unprotected material crazes rapidly. Requires black for complete protection.			–	–	Very Resistant	Good Resistance	Good Resistance
Effect of weak acids	Varies	Resistant	Very Resistant	Completely Resistant	Resistant	Very Resistant	Poor	Very Resistant	Very Resistant
Effect of strong acids	Varies	Attacked by oxidizing acids	Attacked slowly by oxidizing acids	Resistant to oxidizing acids	Resistant	–	Poor	Resistant	Resistant
Effect of weak alkalies	Cleaning Agent	Resistant	Very Resistant	Completely Resistant	Resistant	Very Resistant	Poor	Resistant	Resistant
Effect of strong alkalies	Etches	Resistant	Very Resistant	Very Resistant	Resistant	Very Resistant	Poor	Resistant	Resistant
Effect of organic solvents	None	Resistant (below 60°C)	Resistant (below 80°C)	Attacked by hydrocarbons and chlorinated hydrocarbons	Resistant	Swells in contact with hydrocarbons and chlorinated hydrocarbons	Moderate	Good Resistance to alcohols, aliphatic hydrocarbons and oils	Good Resistance to alcohols, aliphatic hydrocarbons and oils
Machine qualities	Fair	Good	Excellent	Good	Fair	Fair	Poor	Poor	Poor
Clarity (Natural Material)	–	Translucent to opaque	Translucent to opaque	Translucent	Translucent to opaque	Opaque	Clear to opaque	Clear to opaque	–
Abrasion resistance	Low	–	–	–	–	–	Low	Very Good	Very Good

This data is to be used as reference for selection purposes only. This data is not a comprehensive representation of specifications for every material or part offered. For specific part or material certifications, please contact a Technical Sales Representative at 1.888.CAPLUGS.

For special materials options, contact Customer Service.

*Property specifications of Caplugs parts are subject to change without notification.

**Independent Third Party Testing supports our published claims of Flex500™ successfully performing under intermittent service temperatures of over 500°F.

Properties*	PVC Extrusion	PETG	Flex500**	Static Conductive	Static Dissipative	LLDPE	Nylon	ABS
MECHANICAL CHARACTERISTICS								
Specific gravity (density)	1.2	1.3	1.35	1.06	1.17	0.925 g/cm³	1.13 g/cm³	1.05
Tensile strength, p.s.i.	2300	5800	2000	1000	1900	10 Mpa	50 Mpa	5990
Elongation, %	400	50	150	300	360	>500	–	–
Compressive strength, p.s.i.	–	7300	–	–	–	–	–	–
Tear strength (ASTM D1004)	185	–	270pli	–	200pli	–	–	–
Impact strength, ft. lb./in. of notch (1/2x1/2 in. notched bar, izod test)	–	0.19 - 0.66	–	No break	–	–	–	1.2 ft. - lb.In.
Hardness, Rockwell	A60-70 (Shore)	Shore R 108	15 Second Shore A84-94	15 Second Shore D 46	A55 - 65 Shore	47 (Shore D)	54 (Shore D)	109
ELECTRICAL CHARACTERISTICS								
Volume resistivity, ohm/cm³ (50% RH and 23°C)	–	–	–	100	Surface Resistivity 10^9 OHM/SQ	10^{18}	–	–
Dielectric constant, 60 cyc.	–	3 - 4	–	–	–	–	–	–
Dissipation (power) factor, 60 cyc.	–	20 - 300 10^4	–	–	–	–	–	–
SERVICE TEMPERATURES								
Continuous °C/°F	93/200	145°F	149/300	140°F	140°F	70/158	120/248	–
Intermittent °C/°F	177/350	160°F	260/500	160°F	160°F	90/194	180/356	–
Brittleness °C/°F	-32/-26	-40°F	–	<-90°F		<-70/158	–	–
RESISTANCE CHARACTERISTICS								
Water absorp., 24 hr., 1/8" thick, %	–	0.1 to 0.2%	–	–	–	–	–	–
Burning rate (flammability), in./min.	Slow	–	Slow	Slow	Slow	Very Slow	–	UL 94 HB
Effect of sunlight	Good Resistance	Fair Resistance	Good Resistance	Very Resistant	Good Resistance	Limited Resistance	Resistant	–
Effect of weak acids	Very Resistant	–	Very Resistant	Resistant	Very Resistant	Resistant	Not Resistant	–
Effect of strong acids	Resistant	–	Resistant	Resistant	Resistant	Resistant	Not Resistant	–
Effect of weak alkalies	Very Resistant	–	Very Resistant	Resistant	Very Resistant	Resistant	Resistant	–
Effect of strong alkalies	Resistant	–	Resistant	Resistant	Resistant	Resistant	Resistant	–
Effect of organic solvents	Good resistance to alcohols, aliphatic hydrocarbons and oil	–	Good Resistance	Resistant	Good Resistance	Resistant	Resistant	–
Machine qualities	Poor	Very Good	Good	Good	Poor	Good	Good	–
Clarity (Natural Material)	Clear to opaque	Clear	Opaque	Opaque	Translucent	Translucent	Opaque	–
Abrasion resistance	Very Good	Very Good	Very Good	Low	Very Good	–	–	–

DIMENSIONAL TOLERANCES*

Caplugs parts are designed in accord with functional dimensions and will perform to dimensions listed in this catalog. In view of the flexibility and stretch of most of the materials used in Caplugs parts, it is recommended that the following tolerances be used in checking purposes, especially by those unfamiliar with measuring this material.

Tolerances for inch dimensions given to three decimal places.
±.010" per each inch of length.
Minimum is ±.010" where dimension is less than one inch.
Examples:
Tolerance for .750" dimension is ±.010"
Reason: Although .750" x ±.010" = ±.0075", ±.010" is the minimum.
Tolerance for 1000" is ±.010".
Reason: 1.000" x ±.010" = ±.010"
Tolerance for 1.500" dimension is ±.015"
Reason: 1.500" x ±.010" = ±.015".

Tolerance for inch dimensions given to two decimal places.
±.020" per each inch of length.
Minimum is ±.020" where dimension is less than one inch.
Examples:
Tolerance for .75" dimension is ±.020".
Reason: Although .75" dimension is ±.020" = ±.015" ±.020" is the minimum.
Tolerance for 1.00" dimension is ±.020" = ±.50mm.
Reason: 1.00" x ±.020" = ±.020".
Tolerance for 1.50" is ±.030".
Reason: 1.50" x ±.020" = ±.030".

Tolerance for metric dimensions given to two decimal places.
±.25mm per each 25.40mm of length (.01 mm per mm). Minimum is ±.25mm where dimension is less than 25.40mm.
Examples:
Tolerance for 19.00mm dimension is ±.25mm.
Reason: Although 19.00mm x ±.01 is ±.19mm, .25mm is the minimum.
Tolerance for 25.40mm is ±.25mm = ±.010".
Reason: 25.40mm x ±.01mm = ±.25mm.
Tolerance for 38.10mm is ±.38mm.
Reason: 38.10mm x ±.01mm = ±.38mm.

Tolerance for metric dimensions given to one decimal place.
±.5mm per each 25.4mm of length (.02 mm per mm). Minimum is ±.5 where dimension is less than 25.4mm.
Examples:
Tolerance for 19.00mm dimension is ±.5mm.
Reason: Although 19.0mm x ±.02mm = ±.38mm, ±.5mm is the minimum.
Tolerance for 25.4mm dimension is ±.5mm.
Reason: 25.4mm x ±.02mm = ±.5mm.
Tolerance for 38.1mm dimension is ±.76mm.
Reason: 38.1mm x ±.02mm = ±76mm.