

# CZL-4033

- **Out line:** CZL-4033 is a PAN based carbon fiber and poly tetra fluoro ethylene filled PPS compound that has excellent mechanical property, wear resistance, low friction and electric conductivity.
- **Color:** Natural (Black)

## Engineering Properties of CZL-4033

Properties	Test Method	Unit	CZL-4033
General Information			PAN-CF & PTFE Lubricant
<ASTM>			
<b>Physical</b>			
Specific gravity	D-792	-	1.53
Water absorption, 23deg. /24Hrs. /in water	D-570	Wt. %	0.02
Mold shrinkage, MD /TD <sup>a</sup>	D-955	%	0.1/1.0
<b>Mechanical</b>			
Tensile strength	D-638	MPa	170
Tensile modulus	D-638	MPa	19000
Tensile elongation at break	D-638	%	1.1
Poisson's ratio	-	-	0.35
Flexural strength	D-790	MPa	270
Flexural modulus	D-790	MPa	18000
Flexural elongation at break	D-790	%	1.6
Izod impact strength notched / un notched	D-256	J/m	55/320
Compressive strength	D-695	MPa	200
Rockwell hardness, R/M	D-785	-	118/98
Coefficient of friction <sup>b</sup> , static /dynamic	-	-	0.23/0.23
<b>Thermal</b>			
Distortion temp. of under load, 1.82MPa	D-648	°C	265
Coefficient of thermal expansion <sup>c</sup> , -30 to 90°C	D-696	m/mK	1.4x10 <sup>-5</sup>
UL Flammability <sup>d</sup> , t~0.8mm	UL-94	-	V-0 <sup>e</sup>
<b>Electrical</b>			
Dielectric strength, t=1.6mm	D-149	kv/mm	-
Dielectric constant, 1MHz	D-150	-	-
Dissipation factor, 1MHz	D-150	-	-
Comparative tracking index (CTI)	D-3638	Volt	-
Arc resistance	D-495	sec.	-
Volume resistibility	D-257	Ohm.cm	10 <sup>2-3</sup>
<b>Process Conditions</b>			
Cylinder temperature	-	°C	290-320
Mold temperature	-	°C	120-150

a: MD; Mold direction, TD; Transverse direction, b: P=150KPa, V=0.3m/s, PPS vs. carbon steel,  
c: Average value of MD & TD, d: UL file No. E53829, e: Own data



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