



# CHawk Technology Intl., Inc.

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## Techtron® PPS, Polyphenylene sulfide, unfilled, extruded

Search Categories: Polyphenylene Sulfide; ;

**Material Notes:** PPS products offer the broadest resistance to chemicals of any advanced engineering plastic. They have no known solvents below 392°F (200°C) and offer inertness to steam, strong bases, fuels and acids. A very low coefficient of linear thermal expansion, combined with Quadrant EPP's proprietary stress relieving processes, make these PPS products ideally suited for precise tolerance machined components. In addition, PPS products exhibit excellent electrical characteristics and are inherently flame retardant.

MECHANICAL PROPERTIES	ENGLISH VALUES	COMMENTS	METRIC VALUES
Specific Gravity	1.35	ASTM D792	1.35
Tensile Strength, psi	13500	ASTM D638	93 MPa
Tensile Modulus, psi	500000	ASTM D638	3,448 MPa
Elongation, %	15	ASTM D638	15 %
Flexural Strength, psi	21000	ASTM D790	145 MPa
Flexural Modulus, psi	575000	ASTM D790	3,965 MPa
Shear Strength, psi	9000	ASTM D732	62 MPa
Compressive Strength, psi	21500	ASTM D695, 10% Def.	148 MPa
Compressive Modulus, psi	430000	ASTM D695	2,965 MPa
Hardness, Rockwell M	95	ASTM D785	95
Hardness, Rockwell R	125	ASTM D785	125
Hardness, Durometer, Shore D Scale	85	ASTM D2240	85
Izod Impact (Notched), ft-lb/in	0.6	ASTM D256 Type A	32 J/m
Coefficient of Friction, Dynamic	0.4	Dry vs. Steel, PTM55007	0.4
Limiting PV, psi-fpm	3000	PTM55007	0.11 MPa-m/sec
k (wear) factor, 10 <sup>-10</sup> in <sup>3</sup> -min/lb-ft-hr	2400	PTM55007	2400 10 <sup>-10</sup> in <sup>3</sup> -min/lb-ft-hr

THERMAL PROPERTIES	ENGLISH VALUES	COMMENTS	METRIC VALUES
Coefficient of Thermal Expansion, 10E-4/°F	0.28	ASTM E831 (TMA)	0.50 10 <sup>-4</sup> /K
Deflection Temperature 264 psi, °F	250	ASTM D648	121 °C
Melting Point (Crystalline) Peak, °F	540	ASTM D3418	282 °C
Continuous Service in Air (Max), °F	425	Without Load	218 °C
Thermal Conductivity, BTU-in/hr-ft <sup>2</sup> -°F	2		0.29 W/m-K

ELECTRICAL PROPERTIES	VALUES	COMMENTS	METRIC VALUES
Dielectric Strength, Short Term, Volts/mil	540	ASTM D149(2)	21 kV/mm
Surface Resistance, Ohm/Square	1E+13	Lower Limit; EOS/ESD S11.11	1E+13 Ohm/Square
Dielectric Constant, 1 MHz	3	ASTM D150(2)	3
Dissipation Factor, 1 MHz	0.0013	ASTM D150(2)	0.0013

CHEMICAL PROPERTIES	ENGLISH	COMMENTS	METRIC VALUES
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	VALUES		
Water Absorption Immersion, 24 hr., %	0.01	ASTM D570	0.01 %
Water Absorption Immersion Sat, %	0.03	ASTM D570	0.03 %
Acids, Weak (acetic, dilute HCl)	3	Acceptable Service	3
Acids, Strong (conc. HCl or sulfuric)	2	Limited Service	2
Alkalies, Weak (dilute NaOH)	3	Acceptable Service	3
Alkalies, Strong (conc. NaOH)	3	Acceptable Service	3
Hydrocarbons, Aromatic (toluene)	3	Acceptable Service	3
Hydrocarbons, Aliphatic (gasoline)	3	Acceptable Service	3
Ketones, Esters (acetone)	3	Acceptable Service	3
Ethers (diethyl ether, THF)	3	Acceptable Service	3
Chlorinated Solvents (methylene chloride)	3	Acceptable Service	3
Alcohols (methanol, anti-freeze)	3	Acceptable Service	3
Inorganic Salt Solutions (NaCl, KCl)	3	Acceptable Service	3
Continuous Sunlight	2	Limited Service	2
Steam	3	Acceptable Service	3
COMPLIANCE	ENGLISH VALUES	COMMENTS	METRIC VALUES
FDA (1=Yes)	0	Not Compliant	0
USDA (1=Yes)	0	Not Compliant	0
NSF (1=Yes)	0	Not Compliant	0
3A-Dairy (1=Yes)	0	Not Compliant	0
Canada AG (1=Yes)	0	Not Compliant	0
USP Class VI (1=Yes)	0	Not Compliant	0