

MATERIAL PROPERTIES

	UNITS	PA 6-6	TPR	PP	PVDF	PEEK	HDPE	PC	PTFE
PHYSICAL PROPERTIES									
Density (RH 0*)		1.14	0.96-1.03	0.90	1.78	1.32	0.95	1.20	2.16
Moisture Absorption (cold water 24 hrs at 23°C) (RH 0*)	%	1-2	1.03	0.01	0.04	0.15	0.01	0.1	0.01
MECHANICAL PROPERTIES									
TENSILE STRENGTH									
Stress	MPa	60-80	60-80	20-40	40-50	100	30-35	60-70	26.9
Elongation	%	80-180	80-180	150-160	50-300	35	700-1000	110-120	300
Modulus of elasticity	MPa	1500-2000	1500-2000	1100-1600	1500-2500	3800	400-1200	2300-2500	550
BENDING STRENGTH									
Stress	MPa	50-75	50-75	1000-1500	94	165	1200-1500	90	-
Modulus	MPa	1200-1600	1200-1600	1000-1500	1000-2500	4100	1200-1500	2400-2500	480
COMPRESSION									
Stress	MPa	100-110	100-110	100-110	85	120	100-110	100-110	25
Modulus	MPa	2000-2100	2000-2100	2000-2100	2900	4500	2000-2100	2000-2100	500
Charpy test un-notched	kJ/m ²	No break	No break	No break	7-10	-	No break	No break	No break
Charpy test notched	kJ/m ²	12-16	12-16	12-16	10-20	-	12-16	12-16	4.7
IZOD test un-notched	kJ/m ²	No break	No break	No break	10-20	-	No break	No break	4.7
IZOD test notched	kJ/m ²	8-12	8-12	8-12	R110-R115	R126	8-12	8-12	-
Rockwell hardness A		77-82	77-82	60-70	77-82	100	60-70	60-70	50
SHORE hardness D									
THERMAL PROPERTIES									
Heat distortion under load (RH 0*)	°C	75-95	75-95	50-60	100-120	100	45-55	130-150	
Method A - 1.85 MPa	°C	200-200	200-200	95-100	150		120-130	150-160	
Method B - 0/45 MPa	°C	250	250	140-150	150		130-140	140-150	
Vicat softening point	°C	250	250	80-85	150		130-140	140-150	
Method A - 1 daN	°C	255-260	255-260	165-170	165-178		-60 to +110	230-250	335
Method B - 5 daN	°C	-20 to +120	-20 to +120	-10 to +120	-50 to +160		110	-100 to +120	
Melting point	°C	150	150	130	160		HB	130	260
Service temperature:	°C	V-2	HB	HB	V-0		HB	V-2-V-0	V-0
Flammability rating (RH 0*)									
ELECTRICAL PROPERTIES									
Resistance									
Transversal	Ohm.cm	1.10 ¹⁴	1.10 ¹⁴	10 ¹⁶	5.10 ¹⁴	-	10 ¹⁶	2.10 ¹⁶	-
Surface	Ohm	2.10 ¹²	2.10 ¹²	10 ¹⁶	10 ¹³	-	10 ¹⁶	10 ¹⁶	-
Dielectric strength	kV/mm	26.3-45	26.3-45	26.3-45	26.3-45	-	26.3-45	26.3-45	-
Other polymers and their properties:									
<p>The use of specific formulations with their different physical, mechanical, thermal, electrical and other properties can enhance the properties sought.</p> <p>The above information, which has the benefit of our current knowledge, is given solely by way of guidance in your choice of material and to indicate possible applications.</p> <p>The manufacturers of the following raw materials have indicated their properties:</p> <p>We cannot give any absolute guarantee for the properties for a specific usage.</p> <p>An appropriate feasibility study may be deemed necessary.</p> <p>RH 0* = Humidity 0%</p> <p>Other measures = Humidity 50%</p> <p>V-1 NON-FLAMMABLE</p> <p>V-0 SELF EXTINGUISHING</p> <p>V-2 = FLAMMABILITY DIFFICULT</p> <p>HB = SLOW BURNING</p>									
ISO CEI 93/ASTM D-257/DIN53482									
ISO CEI 93/ASTM D-257/DIN53482									
ISO CEI 243/ASTM D-149/DIN53481									
Polyamide 6-6									
<p>Currently offers the best value for money in terms of reliability.</p> <p>Excellent mechanical properties; tensile strength, fatigue, impact strength, friction and abrasion resistance.</p> <p>Very good solvent resistance: oil, lubricants, petrol, benzol, acetone, trichloroethylene, white spirit.</p> <p>Resists most diluted acids.</p> <p>Combustion difficult to self extinguishing.</p>									
TPR									
<p>Thermoplastic elastomers have replaced rubber in many applications, especially in the automotive industry.</p> <p>Ability to be repeatedly stretched without permanently deforming the shape of the part.</p> <p>Suitable for outdoor use because they offer good weather resistance and UV properties.</p> <p>Chemical resistance is also high against a broad range.</p>									
Polypropylene									
<p>Excellent fatigue and bending properties (hinge effect).</p> <p>No cracking under load and good impact resistance.</p> <p>Chemically inert.</p> <p>Good acoustically, withstands vibrations.</p> <p>Suitable for food use.</p>									
Polyvinylidene fluoride									
<p>Meets today's most stringent criteria.</p> <p>Outstanding chemical inertia.</p> <p>Good mechanical properties, excellent abrasion resistance - friction coefficient low.</p> <p>Very high dielectric constants, radiation stability.</p> <p>Very large service temperature range, inflammable and self extinguishing.</p> <p>Suitable for use in food and medical sectors.</p>									
PEEK									
<p>Good chemical and water resistance especially at high temperatures. Can be used continuously to 230 Degrees (Celsius) and in hot water or steam without permanent loss of physical properties.</p> <p>Low smoke and toxic gas emission when exposed to flame.</p>									
High density polyethylene									
<p>Excellent electrical insulation properties and rigidity, low loss factor.</p> <p>Suitable for food use.</p> <p>Friction coefficient low.</p>									
Polycarbonate									
<p>The best transparent material.</p> <p>Excellent mechanical properties, particularly impact resistance between -100° and +120°C.</p> <p>Electrical insulation properties, retains dimensional stability even in humid environment.</p> <p>Self extinguishing, suitable for food and medical use (can be sterilised), can be US welded.</p> <p>Gas permeable.</p>									
PTFE (Teflon)									
<p>High chemical resistance, low and high chemical capability with good resistance to weathering.</p> <p>Low friction with excellent electrical and thermal insulation properties, retains dimensional stability even in humid environment.</p> <p>"Slipperiness".</p>									