



## Polypropelene

Polypropelene, one of the lightest or the commercially available thernoplastics, possesses a useful combination of properties:

- Density of only 0.90 - 0.92 g/cm<sup>3</sup>
- Comparatively low cost per unit volume.
- Exceptionally good resistance to attack by a wide range of chemicals.
- Almost no moisture absorption.
- Excellent electrical insulator.
- Continuous service temperature, under moderate loading, of 0°C to 110°C.
- Can be sterilised at temperatures of up to 140°C without deformation.
- Approved for contact with food it is virtually odourless and tasteless.
- Very resilient - it has the ability to form practical integral hinges.
- Comparatively hard surface resistant to abrasion.
- Easily fabricated.

### AVAILABILITY - Polypropelene

- Extruded rod 6mm - 500mm diameter
- Extruded sheet 1.00mm - 30mm thick
- Compression moulded sheet 12mm - 150mm thick
- Machined components
- Injection moulded components

N.B POLYPROPENE EXTRUSIONS AND MOULDINGS TEND TO HAVE SLIGHTLY POROUS CENTRES. THIS IS, IN OUR OPINION, AN UNAVOIDABLE CHARACTERISTIC OF THE MATERIAL.

\*THIS GRADE IS HIGHLY RESISTANT TO HEAT AGEING AND HOT AQUEOUS SOLUTIONS.

MECHANICAL PROPERTIES		Test Method	Natural	Grey*	Units
Density		DIN 53479	0.902	0.915	g/cm <sup>3</sup>
Yield Stress		DIN 53455	31	33	N/mm <sup>2</sup>
Elongation at Yield		DIN 53455	16	20	%
Ultimate Tensile Strength		DIN 53455	34	41	N/mm <sup>2</sup>
Elongation at Break		DIN 53455	700	800	%
3.5% Flexural Stress		DIN 53452	26	29	N/mm <sup>2</sup>
Torsional Stiffness		DIN 53447	380	380	N/mm <sup>2</sup>
Flexural Creep Modulus 1 Min Value			1200	1200	N/mm <sup>2</sup>
Ball Indention Hardness 30 Sec. Value		DIN 53456	63	64	N/mm <sup>2</sup>
Shore Hardness D		DIN 53505	70	72	
Impact Strength			No Failure		mJ/mm <sup>2</sup>
Notched Impact Strength	at 23°C	DIN 53453	10	11	mJ/mm <sup>2</sup>
	at 0°C	DIN 53453	5	5	mJ/mm <sup>2</sup>
	at -20°C	DIN 53453	4	4	mJ/mm <sup>2</sup>
Abrasion by Abrader Wheel Method		DIN 53754	16	15	mm <sup>3</sup> /100 rev
THERMAL PROPERTIES					
Cystalline Melting Range			160 - 165	160 - 165	°C
Average Coefficient of Linear Expansion between 30°C and 100°C		DIN 52328	1.8 10 <sup>-4</sup>	1.8 10 <sup>-4</sup>	K <sup>-1</sup>
Thermal Conductivity at 20°C		DIN 52612	0.22	0.22	W/mk
Specific Heat at 20°C			1.68	1.68	kJ/kgK
Heat Distortion Temperature	Method A	ISO R75	57	60	°C
	Method B	ISO R75	96	102	°C
Inflammability			not self extinguishing		
ELECTRICAL PROPERTIES					
Volume Resistivity		DIN 53482	>10 <sup>16</sup>		oh cm
Surface Resistance		DIN 53482	>10 <sup>13</sup>		ohm
Dielectric Strength		DIN 53481	550-900		kV/cm
Dielectric Constant at 2 10 <sup>6</sup> Hz			2.25		
Tracking Resistance		DIN 53480	KA3c		
Arc Resistance		DIN 53484	L4		
Dissipation factor tan o at	50 Hz	DIN 53483	2 10 <sup>-4</sup> - 2.8 10 <sup>-4</sup>		
	10 <sup>3</sup> Hz	DIN 53483	2.1 10 <sup>-4</sup> - 3.1 10 <sup>-4</sup>		
	10 <sup>4</sup> Hz	DIN 53483	2.8 10 <sup>-4</sup> - 3.5 10 <sup>-4</sup>		
	10 <sup>5</sup> Hz	DIN 53483	3 10 <sup>-4</sup> - 4.5 10 <sup>-4</sup>		