



## GPPS

### General Purpose Polystyrene

<b>Description</b>	
This is a clear material but does not have a good degree of impact strength or toughness unless a high molecular weight grade is used. A widely used economic clear styrene	
<b>Typical Applications</b>	
Toys, containers, CD cases, disposable tumblers, advertising aids, medical applications	
<b>Types of grade available</b>	
Very high flow grades – MFI 25	
High molecular weight grades with improved impact and heat resistance – MFI 3	
Reprocessed	
<b>Optical Properties</b>	
Transmission	88%
<b>General Processing</b>	
Drying Time	N/A
Drying Temperature	N/A
Type of Drier	N/A
Purging	No need to purge with another material
Moisture Absorption	Low
Other Considerations	Poor impact strength and low abrasion resistance, bear this in mind when mouldings are handled
<b>Processing Injection Moulding</b>	
Barrel Settings	190C to 240C
Injection speed	Medium to High
Injection Pressure	Medium
Back Pressure	Low
Screw Speed	Low
Tool Temperature	20 to 65C
Melt Temperature	220 to 240C
Processing Stability	Good resistance to heat, max residence time 5 minutes
Gate Considerations	Edge, tab, pin, film and submarine gates are all used
Sprue & Runner Considerations	Typical runner sizes range from 4mm to 6mm. Runner lengths to be kept as short as possible
<b>Processing Extrusion</b>	
Barrel Settings	215C to 245C
Screw Speed	50 -rpm

Screen Packs	GPPS is shear sensitive so screen packs to be kept to minimum
Haul-off / Cooling	Water bath chilled 20c
Calibration	Suitable for use with a vacuum calibrator or sizing plates.
<b>Mechanical Properties</b>	
Shrinkages	0.3 to 0.6%
Flexural Strength	70 110 MPa
Tensile strength at Yield	36 - 46 MPa
<b>Physical Properties</b>	
Density	1.05
Cold Bend	N/A
Cold Flex	N/A
Elongation at Break	1 to 3%
Tensile Modulus	3 – 4 GPa
General Impact Strength	Poor
Material Finish	High clarity
<b>Thermal Properties</b>	
Vicat Softening Temperature	94c
Heat Deflection Temperature	80c
<b>Flammability</b>	
Flammability Rating	Not flame retardant
<b>Weatherability</b>	
Suitability for outdoor use	Not suitable prone to environmental stress cracking
<b>Fillers &amp; Additives</b>	
	Lubrication
<b>Chemical Resistance</b>	
Resistant to	Water, alcohols, inorganic salts
Not resistant to	Oils, ethers, esters, acids
<b>Food Contact Status</b>	
	Suitable for contact with food
<b>Colouring</b>	
	Can be readily coloured by a range of techniques, for example, dry colouring and mastebatches. Dry colours are widely used with PS, and it is customary to add a binder (for example, liquid paraffin or a mineral oil) to stop separation.

<b>WEEE &amp; ROHS Compliance</b>	Contains no harmful substances
<b>Bonding</b>	May be bonded to itself by the use of solvents or by the use of solutions of GPPS in solvents. Bonded to other substrates by the use of impact adhesives.
<b>Welding</b>	Easily joined by ultrasonic welding

*This information has been provided as a general guide and we suggest that you carry out your own specific tests to be sure that this material is suitable for your application.*