

TOTAL PETROCHEMICALS

MATERIAL DATASHEET

Total Petrochemicals Polystyrene 2451

High Heat Resistance Impact Polystyrene

Total Petrochemicals Polystyrene 2451 is a high heat resistance, high impact polystyrene suitable for injection blow molding, thermoforming. It is recommended for the manufacturing of articles which require good dimensional stability.

Suitable applications for Total Petrochemicals Polystyrene 2451 includes Cultered milk packaging, egg tray

Properties	Test Method	S.I.		Metric		English	
		Value	Units	Value	Units	Value	Units
RHEOLOGICAL							
Melt Flow Index (200°C - 5 kg)	ASTM D-1238	0.005	kg/ 10 min	5.00	g/ 10 min	1.10E-02	lb/ 10 min
Spiral Flow (220 °C)	ASTM D-3123	0.43	m	43	cm	16.93	in
THERMAL							
Vicat Softening Point 10N (T increase = 50 °C/h)	ASTM D-1525	375	K	102	°C	216	°F
Heat Distortion Temperature	ASTM D-648	362	K	89	°C	192	°F
Coefficient of Linear Thermal Expansion (10 ⁵)	ASTM D-696	3.25E-05	m/K	8.90	mm/°C	1.04E-02	in/°C
Ball Pressure Test (2.00 mm)	JET	363.15	K	90.00	°C	194.00	°F
MECHANICAL							
Notched Izod Impact Strength	ASTM D-256	7.00	kJ/m ²	6.50	kg-cm/cm	1.19	ft-lb/in
Tensile Strength at Yield	ASTM D-638	34	MPa	330	kg/cm ²	4880	psi
Tensile Strength at Break	ASTM D-638	30	MPa	290	kg/cm ²	4289	psi
Elongation at Break	ASTM D-638	45	%	45	%	45	%
Tensile Modulus	ASTM D-638	2200	MPa	22000	kg/cm ²	319171	psi
Flexural Modulus	ASTM D-790	2450	MPa	24500	kg/cm ²	355440	psi
Rockwell Hardness	ASTM D-785	R103	-	R103	-	R103	-
ELECTRICAL							
Dielectric Strength	ASTM D-149	152000	kV/m	152	kV/mm	3861	kV/in
Surface resistivity	ISO IEC 93	>10e+13	Ohms ⁻¹	>10e+13	Ohms ⁻¹	>10e+13	Ohms ⁻¹
MISCELLANEOUS							
Density	ASTM D-792	1040	kg/m ³	1.04	g/cm ³	64.91	lb/ft ³
Mold Shrinkage	ASTM D-955	0.4 - 0.7	%	0.4 - 0.7	%	0.4 - 0.7	%
Water absorption	ASTM D-570	0.04	%	0.04	%	0.04	%

RECOMMENDED INJECTION MOLDING PARAMETERS

Barrel Temperature	Value	Units	Mold Temperature	Value	Units
Zone 1	150 - 180	°C	Fixed Half	30 - 50	°C
Zone 2	170 - 210	°C	Moving Half	20 - 40	°C
Zone 3	190 - 230	°C	Injection Pressure	200 - 400	Bars
Zone 4	200 - 240	°C	Hold on Pressure	20 - 80	Bars
Nozzle	210 - 250	°C	Screw Back Pressure	10 - 50	Bars
			Screw Speed	50 - 200	RPM
			Pre Drying Temperature for 2 hours	70	°C

General Information :

Standard Properties: All Tests are carried out at 23 °C unless otherwise stated. Mechanical properties are measured on injection moulded test specimens

Bulk Density: Bulk Density of all Natural grades is approximately 0.6 g/cm3

Total Petrochemicals Polystyrene 2451 should be kept in a cool and dry place. Avoid direct exposure to sunlight.