

INEOS Styrolution® 168N

Styrolution PS 168N is a high molecular weight, heat resistant grade used where high strength is required. Suitable for physically or chemically expanded extruded sheet. Also use as a blend component with high impact polystyrene or Styrolux SBC.

Physical Properties	Metric	English	Comments
Density	1.048 g/cc	0.03786 lb/in ³	ISO 1183
Moisture Absorption at Equilibrium	<= 0.10 % @Temperature 23.0 °C	<= 0.10 % @Temperature 73.4 °F	50% RH; ISO 62
Water Absorption at Saturation	<= 0.10 % @Temperature 23.0 °C	<= 0.10 % @Temperature 73.4 °F	ISO 62
Linear Mold Shrinkage	0.0030 - 0.0060 cm/cm	0.0030 - 0.0060 in/in	ISO 294-4
Melt Flow	1.2 g/10 min @Load 5.00 kg, Temperature 200 °C	1.2 g/10 min @Load 11.0 lb, Temperature 392 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	150 MPa	21800 psi	ISO 2039-1
Tensile Strength, Yield	59.0 MPa	8560 psi	ISO 527
Elongation at Break	3.0 %	3.0 %	ISO 527
Tensile Modulus	3.30 GPa	479 ksi	ISO 527
Flexural Strength	106 MPa	15400 psi	ISO 178
Izod Impact, Notched (ISO)	2.00 kJ/m ² @Temperature 23.0 °C	0.952 ft-lb/in ² @Temperature 73.4 °F	ISO 180/A
	2.00 kJ/m ² @Temperature -30.0 °C	0.952 ft-lb/in ² @Temperature -22.0 °F	ISO 180/A
Charpy Impact Unnotched	<= 2.50 J/cm ²	<= 11.9 ft-lb/in ²	ISO 179
Charpy Impact, Notched	0.400 J/cm ²	1.90 ft-lb/in ²	ISO 179
Tensile Creep Modulus, 1 hour	3300 MPa	479000 psi	ISO 899
Tensile Creep Modulus, 1000 hours	2600 MPa	377000 psi	ISO 899

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+18 ohm-cm	>= 1.00e+18 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+14 ohm	>= 1.00e+14 ohm	IEC 60093
Dielectric Constant	2.5 @Frequency 100 Hz	2.5 @Frequency 100 Hz	IEC 60250

Dielectric Strength	135 kV/mm @Thickness 1.50 mm	3430 kV/in @Thickness 0.0591 in	Short Time; IEC 60243-1
Dissipation Factor	0.000050 @Frequency 1e+6 Hz	0.000050 @Frequency 1e+6 Hz	IEC 60250
	0.000090 @Frequency 100 Hz	0.000090 @Frequency 100 Hz	IEC 60250

Thermal Properties	Metric	English	Comments
CTE, linear	80.0 $\mu\text{m}/\text{m}^{\circ}\text{C}$	44.4 $\mu\text{in}/\text{in}^{\circ}\text{F}$	ISO 11359
Thermal Conductivity	0.170 W/m-K	1.18 BTU-in/hr-ft ² -°F	DIN 52612-1
Deflection Temperature at 0.46 MPa (66 psi)	98.0 °C	208 °F	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	86.0 °C	187 °F	ISO 75
Vicat Softening Point	101 °C @Load 5.10 kg	214 °F @Load 11.2 lb	50°C/h; ISO 306
	108 °C @Load 5.10 kg	226 °F @Load 11.2 lb	120°C/h; ASTM D 1525

Processing Properties	Metric	English	Comments
Melt Temperature	180 - 260 °C	356 - 500 °F	ISO 294
Mold Temperature	10.0 - 60.0 °C	50.0 - 140 °F	ISO 294
Injection Velocity	200 mm/sec	7.87 in/sec	ISO 294