

INEOS Styrolution® 158K

Styrolution PS 158K is a heat resistant, rapid freezing general purpose grade. It is suitable for expanded sheet and film; for blends with high impact Styrolution PS in heat contact applications; for transparent, impact resistant applications in blends with Styrolux.

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	3.0 g/10 min @Load 5.00 kg, Temperature 200 °C	3.0 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	55.0 MPa	7980 psi	ISO 527
Elongation at Break	3.0 %	3.0 %	ISO 527
Tensile Modulus	3.30 GPa	479 ksi	ISO 527
Flexural Strength	103 MPa	14900 psi	ISO 178
Izod Impact, Notched (ISO)	2.50 kJ/m ²	1.19 ft-lb/in ²	ISO 180/A
Charpy Impact Unnotched	1.70 J/cm ²	8.09 ft-lb/in ²	ISO 179
Charpy Impact, Notched	0.300 J/cm ²	1.43 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 $\mu\text{m}/\text{m}\cdot\text{°C}$	44.4 $\mu\text{in}/\text{in}\cdot\text{°F}$	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
	106 °C @Load 1.02 kg	223 °F @Load 2.25 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