PARALLEL

TECHNICAL DATASHEET

POLYCARBONATE (PC)

Polycarbonate is our highest temperature amorphous thermoplastic suitable for thermal cycling applications. PC offers better impact resistance and durability over other thermoplastics used for microfluidics but suffers from poor scratch and solvent resistance. Polycarbonate is best suited for use in polymerase chain reaction (PCR) devices, integrated chips with track etched membranes, and enzyme-based assays. PC is optically clear in the visible spectrum but is not suitable for applications requiring UV transmission or fluorescent imaging. Parallel Fluidics offers a medical injection molding grade resin designed for use up to 121°C.

Property	Value	Unit	Test Standard*
Physical Properties			
Density	1200	kg/m^3	ISO 1183
Melt Flow Rate (300°C, 1.20kg)	20	g/10min	ISO 1133
Moisture Absorption (23°C-sat)	0.30	%	IS) 62
Vapor Permeability (23°C, 85% RH)	1.5	$g \cdot mm/ m^2 \cdot day$	ISO 15106-1
Mechanical Properties			
Tensile Modulus (1mm/min)	2400	MPa	ISO 527-1,-2
Tensile Stress at Break (50mm/min)	65	MPa	ISO 527-1,-2
Tensile Strain at Break (50mm/min)	120	%	ISO 527-1,-2
Izod Notched Impact Strength	14.0	kJ/m^2	ISO 7391
Hardness (Ball)	115	N/mm^2	ISO 2039-1
Thermal Properties			
Glass Transition Temperature (10°C/min)	146	°C	ISO 11357-1,-2
Heat Deflection Temperature (0.46 MPa)	139	°C	ISO 75-1,-2
Vicat Softening Temperature (50°C/hr. 50N)	145	°C	ISO 306
Linear Coefficient of Thermal Expansion	65.0	$\mu m/m \cdot °C$	ISO 11359-1,-2
Optical Properties			
Light Transmission (3mm)	88.0	%	ISO 13486-2
Haze	<0.8	%	ISO 14782
Refractive Index (598nm, 25°C)	1.586	-	ISO 489
Abbe Number	30	-	-

* Reported properties and may vary depending on the information available from the manufacturer. Other test methods may report different values and should be considered when comparing materials. More information may be available upon request.