PARALLEL

TECHNICAL DATASHEET

CYCLIC OLEFIN COPOLYMER (COC)

COC is a high purity amorphous thermoplastic characterized by excellent optical properties and solvent resistance. The material is often selected for microfluidic applications requiring high UV transmission, low protein adsorption, or resistance to acids, bases, and polar organic chemicals. COC is cheaper and easier to process than Cyclic Olefin Polymer (COP), while still achieving similar performance in demanding applications. COC also provides better adhesion to a variety of thermoplastic elastomers and other polymers. COC is not suited for use with fats and oils or nonpolar organic solvents. Parallel Fluidics offers an injection molding grade resin designed for use up to 110°C.

Property	Value	Unit	Test Standard*
Physical Properties			
Density	1020	kg/m^3	ISO 1183
Melt Flow Rate (260°C, 2.16kg)	43	g/10min	ISO 1133
Moisture Absorption (23°C-sat)	0.01	%	ISO 62
Vapor Permeability (23°C, 85% RH)	0.0250	$g{\cdot}mm/\ m^2{\cdot}day$	DIN 53 122
Mechanical Properties			
Tensile Modulus (1mm/min)	3200	MPa	ISO 527-3
Tensile Stress at Break (5mm/min)	46	MPa	ISO 527-3
Tensile Strain at Break (5mm/min)	1.7	%	ISO 527-3
Charpy Impact Strength	13	kJ/m^2	ISO 179/1eU
Charpy Notched Impact Strength	0.8	kJ/m^2	ISO 179/1eU
Hardness (Ball, 961N)	184	N/mm^2	ISO 2039-1
Thermal Properties			
Glass Transition Temperature (10°C/min)	134	°C	ISO 11357-1,-2,-3
Heat Deflection Temperature (0.45 MPa)	127	°C	ISO 75-1,-2
Vicat Softening Temperature (50°C/hr. 50N)	135	°C	ISO 306
Linear Coefficient of Thermal Expansion	60.0	$\mu m/m{\cdot}°C$	ISO 11 359-1,-2
Optical Properties			
Light Transmission	91.4	%	ISO 13468-2
Haze	<1.0	%	ISO 14782
Refractive Index (598nm, 25°C)	1.533	-	ISO 489
Abbe Number	56	-	-

* Reported properties 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.