



SDPPL Logo

SDPPL - SD Polymer Pvt Ltd

TECHNICAL DATA SHEET

Polycarbonate (PC) Compounds

Empowering Plastics Through Technology

45+ Years of Excellence in Polymer Compounding

 Faridabad, India |  +91-9911143733 |  technical@sdpolymer.in

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<p style="font-size: 20px; font-weight: bold; color: white; margin: 8px 0; text-shadow: 2px 2px 4px rgba(0,0,0,0.3); text-align: center;">Polycarbonate (PC) Compounds</p>
<p style="font-size: 16px; color: white; margin: 10px 0; text-shadow: 1px 1px 2px rgba(0,0,0,0.3); text-align: center;">Empowering Plastics Through Technology</p>
<p style="font-size: 15px; color: white; margin: 5px 0; text-shadow: 1px 1px 2px rgba(0,0,0,0.3); text-align: center;">45+ Years of Excellence in Polymer Compounding</p>
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Product Overview

SD Polymer's Polycarbonate (PC) compounds deliver exceptional impact resistance, optical clarity, and heat resistance for demanding applications in automotive, electronics, medical devices, and consumer products. Our PC portfolio includes optical grades, flame retardant formulations, glass-filled reinforced grades, and high-heat resistant variants.

Product Grades

1. Optical Grade PC

Description: Crystal-clear polycarbonate with excellent light transmission and optical properties for lenses, light guides, and transparent covers.

Key Properties:

- Light transmission: up to 89%
- Excellent optical clarity and low haze (< 1%)

- High impact strength: 60-70 kJ/m² (Izod notched)
- Good dimensional stability
- HDT: 125-130°C (1.8 MPa)

Typical Applications:

- Automotive headlamp lenses
- Safety glasses and face shields
- Optical discs (CD/DVD)
- Light pipes and light guides
- Medical devices and diagnostic equipment

Processing Recommendations:

- Drying: 120°C for 3-4 hours
 - Melt temperature: 280-310°C
 - Mold temperature: 80-100°C
 - Injection speed: Medium to high
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2. Flame Retardant PC (FR)

Description: UL94 V-0 rated polycarbonate compounds with excellent flame resistance for electrical and electronic applications.

Key Properties:

- UL94 V-0 rating at 0.75mm and 1.5mm
- Halogen-free options available
- Excellent electrical insulation properties
- High heat resistance: HDT 125-135°C (1.8 MPa)
- Impact strength: 50-65 kJ/m² (Izod notched)
- Glow wire test: 750°C (GWIT), 960°C (GWFI)

Typical Applications:

- Electrical enclosures and junction boxes

- Circuit breakers and switches
- LED housings and lighting components
- Battery covers and charger housings
- Appliance components

Processing Recommendations:

- Drying: 120°C for 3-4 hours (critical for FR grades)
 - Melt temperature: 270-300°C
 - Mold temperature: 80-100°C
 - Avoid overheating to prevent degradation
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3. Glass Filled PC (GF)

Description: Glass fiber reinforced polycarbonate with enhanced stiffness, strength, and dimensional stability.

Available Glass Fiber Contents:

- PC GF10: 10% glass fiber
- PC GF20: 20% glass fiber
- PC GF30: 30% glass fiber

Key Properties (PC GF30):

- Tensile strength: 120-130 MPa
- Flexural modulus: 8000-9000 MPa
- HDT: 140-145°C (1.8 MPa)
- Excellent dimensional stability and low warpage
- Impact strength: 12-15 kJ/m² (Izod notched)

Typical Applications:

- Automotive structural parts
- Power tool housings
- Appliance components

- Industrial connectors
- Electronic device frames

Processing Recommendations:

- Drying: 120°C for 4 hours
 - Melt temperature: 290-320°C
 - Mold temperature: 90-110°C
 - Use wear-resistant screws and barrels
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4. High Heat PC (HH)

Description: Heat-resistant polycarbonate grades with enhanced thermal stability for extended exposure to elevated temperatures.

Key Properties:

- HDT: 145-150°C (1.8 MPa)
- Excellent long-term thermal stability
- Maintains impact strength at high temperatures: 55-65 kJ/m²
- Good chemical resistance
- Low moisture absorption

Typical Applications:

- Automotive under-hood components
- LED lighting and high-power lighting
- Industrial equipment housings
- Medical sterilization equipment
- High-temperature electrical components

Processing Recommendations:

- Drying: 120°C for 4 hours
- Melt temperature: 290-320°C
- Mold temperature: 90-110°C

- Ensure adequate venting

General Properties Table

Property	Test Method	Optical PC	FR PC	GF30 PC	HH PC	Unit
Density	ISO 1183	1.20	1.22	1.43	1.21	g/cm ³
Tensile Strength	ISO 527	62-65	60-63	120-130	63-66	MPa
Tensile Modulus	ISO 527	2300-2400	2200-2300	8000-9000	2400-2500	MPa
Elongation at Break	ISO 527	100-120	90-110	3-5	100-120	%
Flexural Strength	ISO 178	90-95	88-92	170-180	92-96	MPa
Flexural Modulus	ISO 178	2300-2400	2200-2300	8000-9000	2400-2500	MPa
Izod Impact (notched)	ISO 180	60-70	50-65	12-15	55-65	kJ/m ²
HDT (1.8 MPa)	ISO 75	125-130	125-135	140-145	145-150	°C
Vicat Softening Temp	ISO 306	145-150	145-150	155-160	155-160	°C
Light Transmission	ASTM D1003	88-89	-	-	-	%
Haze	ASTM D1003	< 1	-	-	-	%
Flame Rating	UL94	HB	V-0	HB	HB	-

Processing Guidelines

Drying

- **Critical:** PC is hygroscopic and must be dried before processing
- Temperature: 120°C
- Time: 3-4 hours
- Moisture content: < 0.02%
- Use dehumidifying dryer with dew point < -40°C

Injection Molding Parameters

Parameter	Range
Barrel Temperature (Rear)	260-280°C
Barrel Temperature (Middle)	280-300°C
Barrel Temperature (Front)	290-310°C
Nozzle Temperature	290-310°C
Mold Temperature	80-110°C
Injection Pressure	80-120 MPa
Back Pressure	5-15 MPa
Screw Speed	40-80 rpm

Design Recommendations

- Wall thickness: 1.5-4.0 mm (optimal 2.5-3.0 mm)
 - Draft angle: 0.5-1.5° per side
 - Corner radius: minimum 0.5 mm
 - Gate size: 60-80% of wall thickness
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Quality Certifications

- ISO 9001:2015 Quality Management System
 - ISO 14001:2015 Environmental Management
 - REACH Compliance
 - RoHS Compliant (for applicable grades)
 - UL Recognition (for FR grades)
 - FDA Compliance (for food contact grades)
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Storage & Handling

- Store in original sealed packaging
 - Storage temperature: 15-30°C
 - Relative humidity: < 70%
 - Protect from direct sunlight and moisture
 - Shelf life: 12 months from manufacturing date
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Safety Information

- Refer to Safety Data Sheet (SDS) for detailed safety information
 - Use appropriate personal protective equipment (PPE)
 - Ensure adequate ventilation during processing
 - Processing temperature should not exceed 320°C to avoid degradation
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Contact Information

SD Polymer Pvt Ltd

India Office - Technical & Sales Support

Faridabad, Haryana, India

Contact Person: Mr. Naveen Mittal

Mobile: +91 9911143733

Email (Technical): technical@sdpolymer.in

Email (Sales): sales@sdpolymer.in

UAE Office:

Dubai, United Arab Emirates

Email: info@sdpolymer.in

General Inquiries

Contact Person: Mr. Raghav Vashist

Mobile: +91 9650504605

Email: info@sdpolymer.in

Website: www.sdpolymer.in