



SDPPL Logo

# SDPPL - SD Polymer Pvt Ltd

## TECHNICAL DATA SHEET

### PP-GF (Glass Fiber Reinforced Polypropylene)

Empowering Plastics Through Technology

High Strength • Superior Rigidity • Excellent Heat Resistance

45+ Years of Excellence in Polymer Compounding

---

 Faridabad, India |  +91-9911143733 |  [technical@sdpolymer.in](mailto:technical@sdpolymer.in)

</div>

---

## Product Overview

SDPPL's PP-GF (Glass Fiber Reinforced Polypropylene) compounds deliver exceptional mechanical strength, stiffness, and heat resistance for structural automotive and industrial applications. Glass fiber reinforcement provides superior performance characteristics enabling metal replacement in demanding load-bearing applications.

**Product Family:** PP Compounds

**Grade Series:** SDPP-GF Series

**Applications:** Structural automotive parts, under-the-hood components, industrial equipment

**Certifications:** ISO 9001:2015, IATF 16949:2016, ISO 14001:2015

---

## Key Features & Benefits

Feature	Benefit
High Strength & Stiffness	Enables metal replacement and weight reduction
Enhanced Heat Resistance	HDT up to 145°C for under-the-hood applications
Excellent Dimensional Stability	Maintains tight tolerances under load and temperature
Superior Creep Resistance	Long-term structural integrity
Good Chemical Resistance	Withstands automotive fluids and chemicals
Lightweight Solution	40-50% lighter than metal alternatives

---

# Product Grades & Specifications

## Standard Glass Filled Grades

Property	Test Method	Unit	PP-GF10	PP-GF20	PP-GF30	PP-GF40
Glass Fiber Content	Internal	%	10	20	30	40
Tensile Strength	ISO 527	MPa	45-50	60-70	80-90	95-110
Tensile Modulus	ISO 527	MPa	3500-4000	5500-6500	7500-8500	9500-11000
Flexural Strength	ISO 178	MPa	65-75	90-105	120-140	145-165
Flexural Modulus	ISO 178	MPa	3200-3700	5000-6000	7000-8000	9000-10500
Impact Strength (Notched Izod, 23°C)	ISO 180	kJ/m <sup>2</sup>	5.0-6.5	6.0-8.0	7.0-9.0	7.5-10.0
Heat Deflection Temperature (0.45 MPa)	ISO 75	°C	125-130	135-140	140-145	145-150
Heat Deflection Temperature (1.8 MPa)	ISO 75	°C	110-115	120-125	125-130	130-135
Melt Flow Index (230°C, 2.16 kg)	ISO 1133	g/10 min	18-28	12-20	8-15	5-12
Density	ISO 1183	g/cm <sup>3</sup>	1.02-1.05	1.08-1.12	1.14-1.18	1.20-1.24

## Long Glass Fiber Grades (LGF)

Property	Test Method	Unit	PP-LGF30	PP-LGF40
Glass Fiber Content	Internal	%	30	40
Glass Fiber Length	Internal	mm	10-25	10-25
Tensile Strength	ISO 527	MPa	85-95	100-115
Tensile Modulus	ISO 527	MPa	7000-8000	9000-10500
Flexural Strength	ISO 178	MPa	125-145	150-175
Flexural Modulus	ISO 178	MPa	6500-7500	8500-10000
Impact Strength (Notched Izod, 23°C)	ISO 180	kJ/m <sup>2</sup>	12-16	14-18
Heat Deflection Temperature (0.45 MPa)	ISO 75	°C	142-147	147-152
Density	ISO 1183	g/cm <sup>3</sup>	1.13-1.17	1.19-1.23

**Note:** LGF grades offer superior impact resistance and mechanical properties compared to standard short fiber grades

---

## Typical Applications

### Automotive Structural:

- Pedal systems and pedal brackets
- Seat frames and seat back structures
- Steering column components
- Front-end modules and structural supports
- Battery trays and mounting brackets

### Under-the-Hood:

- Air intake manifolds
- Engine covers and shields
- Cooling fan assemblies

- Radiator end tanks
- Thermostat housings

### **Chassis & Powertrain:**

- Transmission components
- Oil pans and sumps
- Suspension components
- Wheel covers and hubcaps

### **Industrial Applications:**

- Power tool housings and structural parts
  - Pump housings and impellers
  - Electrical enclosures
  - Industrial equipment components
  - Material handling equipment
-

# Processing Guidelines

## Injection Molding Parameters

Parameter	Recommended Range	Notes
Drying	Required: 80-90°C, 2-3 hours	Essential to prevent surface defects
Barrel Temperature - Rear	220-230°C	Gradual temperature increase
Barrel Temperature - Middle	230-240°C	Maintain uniform melt
Barrel Temperature - Front	240-250°C	Optimize flow
Nozzle Temperature	240-250°C	Prevent premature solidification
Mold Temperature	40-80°C	Higher temp improves surface finish & weld lines
Injection Pressure	80-140 MPa	Higher pressure needed for fiber-filled grades
Holding Pressure	50-80% of injection	Critical for dimensional stability
Back Pressure	10-20 MPa	Ensure melt homogeneity
Screw Speed	40-100 rpm	Avoid excessive fiber breakage

## Processing Recommendations

- **Drying:** Mandatory drying to prevent moisture-related defects (splay marks, voids)
- **Purging:** Use glass-filled purging compound or same grade material when switching
- **Regrind:** Maximum 10-15% regrind due to fiber length reduction; monitor impact on properties
- **Colorants:** Use high-concentration masterbatches (0.5-2%); fiber content affects color intensity

- **Mold Design:**
  - Use larger gates (60-80% of wall thickness) to accommodate fiber flow
  - Provide adequate venting to prevent gas traps and burn marks
  - Design flow path to minimize weld lines in critical areas
  - Consider fiber orientation effects on part strength
- **Cycle Time:** Cooling time may be reduced due to higher thermal conductivity of glass fibers
- **Wear Considerations:** Glass fibers are abrasive; use hardened tool steel (minimum 52-58 HRC) for screws, barrels, and molds

### Special Considerations for LGF Processing

- Use specialized LGF injection molding machines or adapted conventional machines
  - Larger shot capacity needed due to lower bulk density
  - Gentle plasticizing to preserve fiber length
  - Optimized gate design to maintain fiber length during injection
- 

## Quality Control & Testing

### Incoming Material Inspection:

- Visual inspection for contamination and color consistency
- Melt flow index verification
- Moisture content check (critical for GF grades)
- Glass fiber content verification (burn-off test)

### Process Monitoring:

- Real-time temperature and pressure monitoring
- Cycle time tracking and consistency
- Dimensional checks on production parts
- Surface quality inspection (fiber show, surface finish)

## Property Testing:

- Mechanical properties per ISO standards (tensile, flexural, impact)
- Thermal properties (HDT at 0.45 MPa and 1.8 MPa)
- Rheological properties (MFI, viscosity)
- Fiber length distribution analysis
- Weld line strength testing
- Long-term creep testing for structural applications

## Certifications:

- ISO 9001:2015 Quality Management System
  - IATF 16949:2016 Automotive Quality Management
  - ISO 14001:2015 Environmental Management
  - RoHS & REACH Compliance
  - UL94 flame rating (available on request for specific grades)
- 

## Packaging & Storage

### Standard Packaging:

- 25 kg polyethylene bags
- 1000 kg (1 MT) big bags / super sacks
- Bulk delivery in tankers (for high-volume customers)

### Storage Conditions:

- Store in dry, cool, well-ventilated area
- Keep away from direct sunlight and heat sources
- Temperature: 5-35°C
- Relative Humidity: < 60% (lower than unfilled grades)
- Shelf Life: 12 months from manufacturing date under proper storage conditions
- **Critical:** Keep bags sealed until use to prevent moisture absorption (moisture causes processing defects)

## **Handling:**

- Use appropriate material handling equipment
  - Avoid dropping or damaging bags
  - Follow FIFO (First In, First Out) inventory management
  - Re-seal opened bags immediately after use
- 

## **Safety & Environmental Information**

### **Health & Safety:**

- PP-GF compounds are thermoplastic materials with low toxicity
- Glass fibers may cause skin and eye irritation
- Use standard industrial hygiene practices
- Avoid inhalation of dust during handling
- Ensure adequate ventilation during processing
- Processing fumes should be exhausted

### **Personal Protective Equipment:**

- Safety glasses or face shield (mandatory)
- Dust mask or respirator (when handling powder or dust)
- Heat-resistant gloves (during processing)
- Long-sleeved protective clothing (to prevent skin irritation from glass fibers)
- Safety shoes

### **Fire Hazard:**

- Combustible material - avoid open flames and ignition sources
- Fire Extinguishing: Water spray, foam, dry chemical, or CO<sub>2</sub>
- Decomposition products may include carbon monoxide, carbon dioxide, and glass fibers

### **Environmental:**

- Material is recyclable - collect and reprocess production scrap (note: fiber length will be reduced)
  - Dispose of waste according to local environmental regulations
  - No hazardous substances under normal use conditions
  - RoHS and REACH compliant
  - Glass fibers are inert and non-toxic
- 

## **Technical Support & Custom Solutions**

SDPPL offers comprehensive technical support for PP-GF applications:

### **Services Available:**

- Grade selection assistance based on application requirements and load analysis
- Processing optimization and troubleshooting support
- Custom compound development for specific performance needs
- Color matching and appearance optimization
- Mold flow analysis and part design consultation (fiber orientation analysis)
- On-site technical support and training
- Failure analysis and quality issue resolution
- Weld line strength optimization

**Custom Formulations:** We can develop custom PP-GF grades with:

- Specific glass fiber content (5-50%)
- Long glass fiber (LGF) variants for enhanced impact
- Modified impact properties with elastomer addition
- Enhanced UV stability for outdoor applications
- Special color requirements (including natural/unpigmented)
- Flame retardant variants (UL94 V-0, V-2)
- Conductive or anti-static grades
- Low warpage formulations

- Enhanced surface appearance grades (reduced fiber show)
- 

## **Contact Information**

### **India Office - Technical & Sales Support**

**Contact Person:** Mr. Naveen Mittal

**Mobile:** +91 9911143733

**Email (Technical):** technical@sdpolymer.in

**Email (Sales):** sales@sdpolymer.in

### **General Inquiries**

**Contact Person:** Mr. Raghav Vashist

**Mobile:** +91 9650504605

**Email:** info@sdpolymer.in

**Website:** [www.sdpolymer.in](http://www.sdpolymer.in)