

LONG FIBER COMPOUNDS

High Performance Compounds From RTP Company

Quick Information

- ▶ Replace Metal With Lightweight, Strong Parts
- ▶ Reduce Processing Costs And Increase Throughput
- ▶ Part design consolidation for overall cost reduction

Imagine replacing metal with a strong, durable thermoplastic compound. One that consolidates parts to reduce expensive assembly and fabricating costs.

At RTP Company, we've helped our customers do more than imagine. Our years of experience with Long Fiber Compounds (LFCs) have made their designs a successful reality.

LFCs produce tough, yet lightweight injection molded solutions. Reinforcement additives such as glass fibers that run continuously through the length of the pellets help these compounds exhibit better mechanical properties than short-fiber reinforced thermoplastics (see back).

In contrast to metal, these non-corrosive compounds increase throughput and reduce part count. Their strength, stiffness, and impact resistance make them an

ideal choice in automotive, sporting goods, industrial, construction, and other demanding applications.

When performance is critical, LFCs come through with high strength-to-weight ratios and very low creep. Parts are able to withstand heavy loads over long periods of time, even in extreme temperatures.

RTP Company engineers will assist in design and material selection, matching a Long Fiber Compound to your needs for performance, processing, and molding. Then, we'll put our reputation for problem solving to work—meeting your exacting demands for strength, wear, color, UV stability, chemical resistance, and other factors.

Long Fiber Compounds...another solution from the leader in specialty compounding.

LONG FIBER

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The Leader in Specialty Compounding

Manufacturing Facilities:



Winona, MN
South Boston, VA
Beaune, France
Fort Worth, TX
Indianapolis, IN
Singapore
6/04

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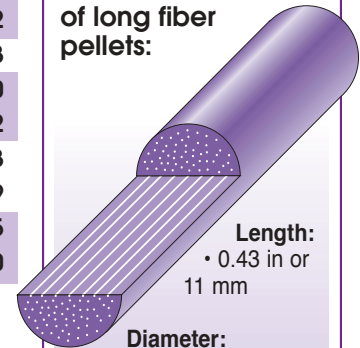


Mechanical Properties of Short and Long Fiber Compounds Nylon 6/6 - 50% Glass Fiber Reinforced

Mechanical Property	Short Fiber	Short Fiber, High Impact	Long Fiber
Specific Gravity	1.57	1.52	1.57
Tensile Strength - psi	30,000	27,000	35,000
MPa	207	186	241
Tensile Modulus - x10 ⁶ psi	2.3	2.1	2.5
GPa	15.9	14.5	17.2
Tensile Elongation %	2 to 3	2 to 3	2 to 3
Flexural Strength - psi	46,000	41,000	54,000
MPa	317	283	372
Flexural Modulus - x10 ⁶ psi	2.1	1.8	2.3
GPa	14.5	12.4	15.9
Impact Strength, notched - ft. lb/in	2.4	4	5
J/m	128.2	213.6	267.0

Comparison of Long Fiber & Short Fiber Pellets

Characteristics of long fiber pellets:



Length:
• 0.43 in or 11 mm

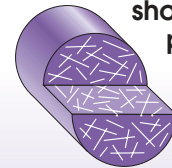
Diameter:

• 0.12 in or 3 mm

• Parallel fibers run length of the pellet

• Fibers encapsulated with resin

Characteristics of short fiber pellets:

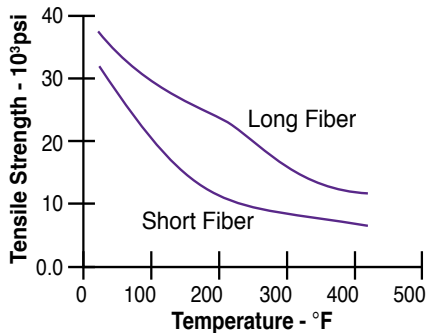
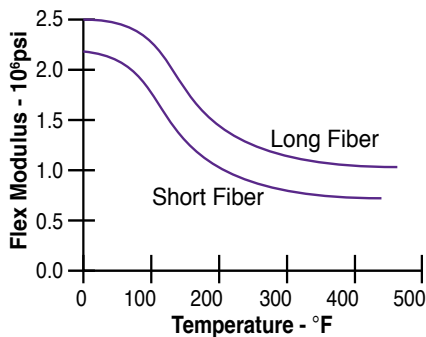


Typical pellet size:
• 0.12 in or 3 mm long

Fiber Length:
• 0.04 in or 1 mm long

• Random fibers vary in length and orientation

LFCs Improve Performance at Elevated Temperatures



LFCs Increase Impact Strength Without Sacrificing Flexural Modulus

Nylon 6/6, 40% Glass Fiber

Long Fiber
 Short Fiber
 Short Fiber, (Impact Modified)

