

# ARAMID FIBER COMPOUNDS

Superior Wear-Resistant Thermoplastics From RTP Company

## Quick Information

- ▶ Minimize Abrasion to Counter/Mating Surfaces
- ▶ Improve Wear Resistance
- ▶ Reduce Coefficient of Friction

Imagine a thermoplastic compound designed specifically for parts that move and wear against surfaces such as brass, aluminum, bronze, glass, ceramic, and other plastic components. One that is creep resistant, dimensionally stable, and avoids "plate out" when molded. At RTP Company, we not only imagined it, we made it a reality.

Aramid Fiber Compounds (AFC's) are made with aromatic polyamide fiber, commonly known as Twaron® or Kevlar®. Unlike glass and carbon fiber, aramid is softer and less abrasive. This is a major advantage in wear applications, particularly if the mating surface is sensitive to abrasion.

Designers and molders choose AFC's over metals to minimize costs, reduce weight, lower noise, and ensure corrosion resistance. AFC's are also self-lubricating, lowering the coefficient of friction and extending the life of mating surfaces.

Typical applications include:

- gears
- radial and linear bearings, bushings and slides
- wear pads
- pistons and piston/cylinder rings

For applications where appearance is a factor, AFC's can be precolored to match adjoining parts. Color matches can be made in 10 days or less to meet your short cycle times.

As always, RTP Company's independence means a custom formulation and resin that is based on your performance requirements. We'll put our talented engineers to work to find just the right solution.

Aramid Fiber Compounds from RTP Company...another innovation from the leader in specialty compounding.

Twaron® is a registered trademark of Akzo Nobel Aramid Products Inc.  
Kevlar® is a DuPont registered trademark



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The Leader in Specialty Compounding

### Manufacturing Facilities:



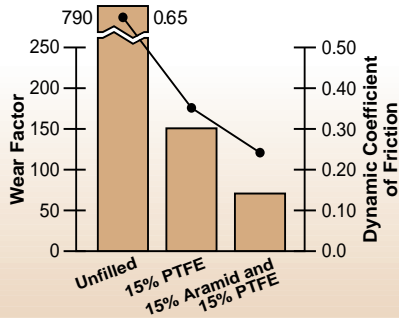
Winona, MN  
South Boston, VA  
Dayton, NV  
Beaune, France

Fort Worth, TX  
Indianapolis, IN

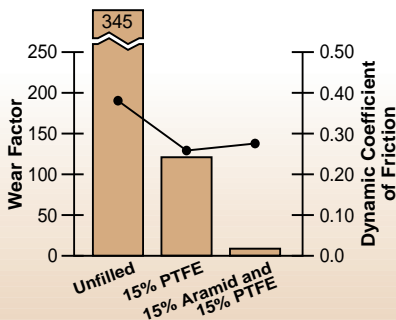
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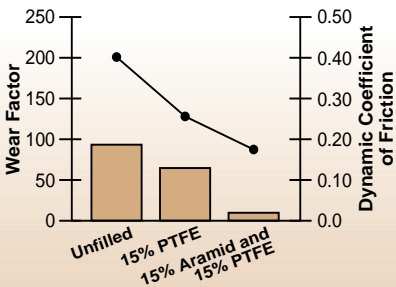
## Adding Aramid Fiber and PTFE Dramatically Improves Wear Resistance and Lowers Friction



Nylon 6/6



PEEK



Acetal

Graphs show effects of compounding four popular resins with aramid fiber and PTFE:

- *Bars* represent wear factor  $[(\text{in}^3 \text{ min}/\text{ft}/\text{lb}/\text{hr})10^{-10}]$ . Lower values indicate greater resistance to wear.
- *Lines* represent dynamic coefficient of friction (force required to sustain motion divided by force pressing mating surfaces together). Lower values mean less force required to sustain motion.

Note: All data generated on Falex Model No.6 thrustwasher wear testing machine at 50 ft/min, 2000 PV, against C1018 steel, hardness 15-25 Rockwell C, 14-17 micro smoothness.

Other resins available with aramid fiber:

- High Temperature Nylon (HTN)
- Polypropylene (PP)
- Polycarbonate (PC)
- Polyphenylene Sulfide (PPS)
- Polyetherimide (PEI)
- Polyphthalamide (PPA)
- Thermoplastic Polyimide (TPI)



### Bearings:

### Aramid Fiber Improves Wear Properties

A desire to reduce cost and improve wear properties over original cast urethane bearings led to the selection of an RTP 200 Series nylon 6/6 compound with aramid fiber and PTFE. The bearings separate the spinning metal cutting blades which instantly cut through lines, nets and weeds before they become entangled or damage the running gear. The bearings are water lubricated and hydroplane on a film of water at all times while spinning.

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U.S. version  
9/00

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