



**TEIJIN**

Human Chemistry, Human Solutions

# Engineering wear resistance in plastics

## Market developments

Engineering plastics are subject to increasingly stringent requirements. The trend is toward more compact designs, smaller components that are subject to greater stresses such as higher temperatures and operating speeds.

Many industries, particularly those in the automotive and electrical & electronic sectors, require components that are lighter, stronger, more compact, and more resistant to wear. Parts made from plastic compounds engineered with Twaron and Technora para-aramid short-cut fibers easily meet these specifications. Adding these to the mix will significantly enhance the endurance of your plastic products and reduce maintenance.

### Key benefits when using our aramid

- High wear resistance, low abrasiveness
- Easy to dose
- Ability to engineer precisely the level of wear resistance required
- Reduction of vibration and sound dampening

**Twaron® | Technora®**

The power of Aramid

## Industry demands

As product designs become more compact and operating speeds and temperatures increase, engineering plastic components such as gear wheels, slide bearings and bushings need to be extremely wear-resistant.

## Modern solution

Traditionally, plastics engineers used glass, carbon or molybdenum sulfide to make compounds such as PA66 and POM more resistant to wear. But these additives make engineering plastic compounds more abrasive, eroding the materials with which they come into contact.

## Our response: less wear, less abrasion

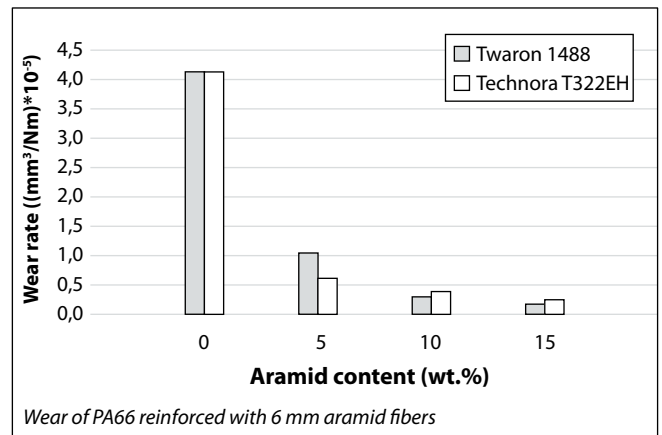
Our short-cut aramid fibers create plastics that combine maximum endurance with minimum maintenance. Using either Twaron or Technora para-aramid significantly improves a compound's wear resistance without affecting, and sometimes even lowering, its frictional coefficient. In addition, when combined with PTFE, they reduce the frictional coefficient even further.

## Additional advantages

Because abrasion dust is noisy under pressure, it's undesirable in for example bushes in brake pads and clutch pedals. Thanks to our fibers, machinery can operate smoothly and silently. What's more, because Twaron and Technora-based engineering plastics dissipate energy efficiently, their damping properties are significantly improved. This makes them particularly suitable for applications where controlled vibration is needed.

## Twaron or Technora – when to use which

Each brings a different combination of properties to engineering plastics, yet both reduce the wear and abrasion rates of plastic compounds, allowing you to produce strong, lightweight, compact mechanical systems that require minimum maintenance. Twaron has a more attractive price-to-performance ratio. Technora, however, is the right choice when maximum strength and rigidity are required.



## Easy to dose

A special sizing and cutting process has been developed to manufacture small rod-like pellets of Twaron and Technora for the engineering plastics market. This makes it possible to dose these products easily and precisely, so that you can achieve exactly the endurance properties you require.

## Product portfolio

The fibers are available in a variety of lengths and, depending on the plastic matrix used, sized with either PU or PET. In addition to the impregnated fibers, Twaron and Technora short-cut fibers are also offered without any sizing. Twaron short-cut fiber is available in lengths from 0.25mm to 12mm, while Technora short-cut fiber is available in lengths from 1mm to 6mm. Twaron is also available as a fine powder.

## Independent endorsement

The positive effects of our aramids on engineering plastics have been extensively documented by the Netherlands Organization for Applied Scientific Research (TNO). R&D statistics have shown that adding 10-15% of Twaron to PA66 results in a reduction in wear by a factor of 20 and POM becomes twice as durable by adding 10-15% of our aramid fibers.

## Dedicated support

We provide technical support, samples, testing and evaluation services. Please contact our specialists who will help you find the right doses of additives and enable you to develop a compound that will precisely meet your requirements.

For more information, please email us at [composites@teijinaramid.com](mailto:composites@teijinaramid.com) or visit [www.teijinaramid.com](http://www.teijinaramid.com)

*We do not accept any liability for the results of the use of these products.*

*The technical data in this leaflet reflects our best knowledge at the time of publication. The content of this leaflet is subject to change, depending on new developments and findings, and a similar reservation applies to the properties described in it.*

**Twaron® | Technora®**

**The power of Aramid**