Spire® Ultra Polymers
for Attachments & Flight System Components
**Lightweight, Corrosion-Free Solutions**

Spire® Ultra Polymers offer best-in-class properties for long-life performance in critical applications. They exhibit inherent FST properties, high strength-to-weight mechanical performance, and excellent resistance to chemicals commonly used in the aerospace industry. This helps reduce operational costs through improved fuel economy and maintenance costs due to their non-corrosive nature. They can be easily fabricated using traditional melt processes and machining. Many of these materials are qualified by aircraft manufacturers.

**Torlon® polyamide-imide (PAI)** provides exceptional wear resistance in dry and lubricated environments and retains its toughness, high strength and high stiffness up to 275 °C (525 °F). It exhibits outstanding creep and chemical resistance – including strong acids and most organics – and is ideally suited for harsh environments.

**KetaSpire® polyetheretherketone (PEEK)** offers excellent strength, stiffness and fatigue resistance along with some of the best chemical resistance among plastics. These superlative properties combine with its continuous-use temperature of 240 °C (464 °F) to replace metal in some of the most severe end-use environments.

**AvaSpire® polyaryletherketone (PAEK)** is a versatile family of polymers that is tailored to provide new and unique combinations of performance and value. The AV-600 Series delivers a range of distinctive performance attributes with some grades offering more attractive economics when compared to PEEK. The AV-700 Series offers comparable performance to PEEK at up to 30% lower cost.

---

**Figure 1: Stress vs. strain of unfilled resins at 23 °C**

![Stress vs. strain graph]

Solvay’s aerospace-qualified ultra polymers allow design engineers to optimize component design for maximum strength, maximum toughness or a balance of both.

**Key features**

- Excellent mechanical strength
- Creep and corrosion resistance
- High temperature performance
- Very high ductility
- Broad chemical resistance
- Inherent flame retardant properties
- Outstanding friction & wear properties
- Manufactured into tight-tolerance parts

---

**www.solvay.com**

SpecialtyPolymers.EMEA@solvay.com | Europe, Middle East and Africa
SpecialtyPolymers.Americas@solvay.com | Americas
SpecialtyPolymers.Asia@solvay.com | Asia Pacific

Material Safety Data Sheets (MSDS) are available by emailing us or contacting your sales representative. Always consult the appropriate MSDS before using any of our products. Neither Solvay Specialty Polymers nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this product, related information or its use. Some applications of which Solvay’s products may be proposed to be used are regulated or restricted by applicable laws and regulations or by national or international standards and in some cases by Solvay’s recommendation, including applications of food/feed, water treatment, medical, pharmaceuticals, and personal care. Only products designated as part of the Solviva® family of biomaterials may be considered as candidates for use in implantable medical devices. The user alone must finally determine suitability of any information or products for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. The information and the products are for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right. All trademarks and registered trademarks are property of the companies that comprise Solvay Group or their respective owners.

© 2013 Solvay Specialty Polymers. All rights reserved. D 03/2012 | R 09/2013 | Version 1.4