

Quadrant's Ketron® PEEK Shapes Made of Solvay's KetaSpire® PEEK Resin Meet Norsok M-710 Standards for Oil and Gas

HOUSTON, Texas, May 5, 2014 – Solvay Specialty Polymers has announced that stock shapes made of its KetaSpire® KT-820 polyetheretherketone (PEEK) resin have achieved Norsok M-710 compliance for use in highly demanding oil and gas applications. The ultra-high performance material is one of the Norsok M-710 compliant resins used by Quadrant Engineering Plastic Products (EPP) to produce Ketron® PEEK stock shapes. Solvay made the announcement at the 2014 Offshore Technology Conference (OTC) May 5-8 in Houston (Booth #5705).

This Norsok M-710 certification for converted shapes (rod, plate, tube) not only validates the resin but also the conversion step into the semi-finished shape – a certification up to the highest level in the supply chain.

KetaSpire® PEEK's unique balance of properties delivers strong chemical and abrasion resistance combined with exceptional heat resistance and strength, making it an ideal choice in extreme oil and gas environments. Parts manufactured from Ketron® PEEK, based on KetaSpire® PEEK, are currently being used in a range of oil and gas applications including but not limited to bearings, seals, and back-up rings.

"With down-hole operations in the oil and gas industry witnessing higher temperatures and more severe environmental conditions, there is a growing trend toward stricter requirements and the need for even greater material performance and durability," said Shayel Ahmed, Sales Development Manager for Spire® Ultra Polymers for Solvay Specialty Polymers. The compliance with Norsok M-710 further reinforces Solvay's strong commitment to the oil and gas market which the company serves with one of the industry's largest portfolios of ultra-high performance polymers.

Frank Olmos, Global Market Segment Manager for the Chemical Processing Industry, Quadrant EPP, adds: "Ketron® 1000 PEEK sets the new industry standard for performance in extreme environments, and achieving Norsok compliance allows us to better serve our customers' needs in the oil and petroleum industries."

KetaSpire®-based Ketron® PEEK shapes have proven superior performance in Norsok M-710 sour single-phase aging tests at high hydrogen sulfide (H₂S) levels. Norsok standards are an internationally recognized set of testing systems originally developed by the Norwegian petroleum industry. The M-710 standard defines the requirements for critical non-metallic (polymer) sealing, seat, and back-up materials for permanent sub-sea applications.

In addition, KetaSpire® PEEK-based Ketron® shapes have met Norsok M-710 multi-phase testing requirements. Ketron® stock shapes were evaluated by ARDL, a U.S.-based material testing specialist, according to Norsok M-710 annex C.

In order to be prepared for higher H₂S levels in future, the multiphase mixture was chosen as 20% gas phase (5% CO₂, 10% H₂S, 85% CH₄), 10% seawater phase, and 70% hydrocarbon phase (60% heptane, 30% cyclohexane, 10% toluene). Testing pressure was 100 bar (10 MPa), and testing temperatures were taken as standard Norsok defined temperatures 210°C (410°F), 220°C (428°F), and 230°C (446°F), plus an extra temperature of 240°C (464°F). Exposure testing was completed for up to 35 days and measurements of swelling and tensile properties were conducted periodically. Results also showed strong H₂S sour gas resistance of KetaSpire® PEEK. Ketron® PEEK shapes made of KetaSpire® PEEK resin complied with Norsok M-710's multi-

phase test which is done at a three times higher H₂S concentration than the standard Norsok M-710 rev2 conditions.

KetaSpire® PEEK is one of the industry's most chemically resistant plastics and offers a superior combination of strength and toughness, along with superior fatigue resistance and a maximum operating temperature of 240°C (464°F). It also exhibits high purity and consistent high quality in processing and part performance. Glass fiber-reinforced and carbon fiber-reinforced grades provide a wide range of performance options for demanding applications.

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About Quadrant EPP

Quadrant Engineering Plastic Products (Quadrant EPP), a member of the Quadrant Group, is the world's leading manufacturer of semi-finished products. Quadrant EPP's materials range from UHMW polyethylene, nylon and acetal to ultra-high performance polymers that resist temperatures to over 425°C. The company's rods, sheets, tubes and custom shapes are used to machine parts for the food processing and packaging sectors, semiconductor manufacturing, aerospace, electronics, chemical processing, life sciences, energy and diverse industrial equipment. Quadrant EPP also manufactures finished products for these industries. Products and services are available through a worldwide network of branch offices, technical support centres and authorized dealers.

About the Quadrant Group

Quadrant is a leading global manufacturer of high-performance thermoplastic materials in the form of semi-finished products and finished parts. The company has locations in 20 countries and more than 2 000 employees. Its specialty engineering thermoplastics and composites are superior in performance to metals and other materials and are used in a wide range of applications, primarily in the capital goods industry. Together with leaders in a broad variety of customer markets, Quadrant is continuously developing new areas of application. With its new owner [Mitsubishi Plastics Inc.](#), Quadrant is well prepared to expand its market leadership position in the future. Ketron is a registered trademark of the Quadrant Group.

About Solvay Specialty Polymers

Solvay Specialty Polymers manufactures over 1500 products across 35 brands of high-performance polymers – fluoropolymers, fluoroelastomers, fluorinated fluids, semi-aromatic polyamides, sulfone polymers, aromatic ultra-high performance polymers, high-barrier polymers and cross-linked high-performance compounds – for use in Aerospace, Alternative Energy, Automotive, Healthcare, Membranes, Oil and Gas, Packaging, Plumbing, Semiconductors, Wire and Cable, and other industries. Learn more at www.solvay.com.

Solvay (www.solvay.com) is an international chemical Group committed to sustainable development with a clear focus on innovation and operational excellence. It is realizing over 90% of its sales in markets where it is among the top 3 global leaders. Solvay offers a broad range of products that contribute to improving quality of life and the performance of its customers in markets such as consumer goods, construction, automotive, energy, water and environment, and electronics. The Group is headquartered in Brussels and its companies, which employ about 29,400 people in 56 countries, generated EUR 9.9 billion in net sales in 2013 (pro forma). Solvay SA is listed as **SOLB.BE** on NYSE Euronext (www.euronext.com) in Brussels and Paris. Bloomberg (www.bloomberg.com) = **SOLB.BB**. Reuters (www.reuters.com) = **SOLB.BR**.

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