

Solvay's New 30% Glass-Filled AvaSpire® PAEK Provides Broader Property Profile Versus Rival PEEK Products

AV-652 PAEK Represents Major Step Change in Overall Performance

FRIEDRICHSHAFEN, Germany, October 14, 2014 – Solvay Specialty Polymers has unveiled a new 30% glass-reinforced AvaSpire® polyaryletherketone (PAEK) grade which delivers significantly greater performance and processing advantages versus competing polyetheretherketone (PEEK) products. The next-generation material, designated AvaSpire® AV-652, expands Solvay's AvaSpire® PAEK range by providing a higher performing alternative to the company's existing 30% glass-filled AvaSpire® AV-651 product for structural and metal replacement applications for the medical, mobile electronics, aerospace, automotive, and chemical processing industries. Solvay made the announcement at Fakuma 2014 held in Friedrichshafen, Germany October 14-18.

"This new AvaSpire® grade complements AV-651 and is a major step change which takes overall performance capabilities to an unprecedented new level," explained Jamal El-Hibri, principal scientist for Solvay Specialty Polymers.

AvaSpire® AV-652 offers 10% to 15% greater strength and stiffness (modulus) compared to 30% glass-filled PEEK grades available today. It also achieves a greater level of mechanical toughness than previously possible versus today's glass-filled PEEK. Impact resistance values are 20% to 30% higher than those of glass-filled PEEK at similar loading and melt flow.

The thermal performance of AvaSpire® AV-652 in terms of modulus at temperature is higher between room temperature and 200 °C (392 °F). Between 160 °C and 200 °C (320 °F and 392 °F), the modulus is on average 70% higher than that of 30% glass-filled PEEK (see graph).

The new grade is designed for processing by injection molding. The material's nominal melt viscosity of 0.49 kPa-s ranks between high-flow injection molding grades and low-flow extrusion grades of 30% glass fiber-reinforced PEEK.

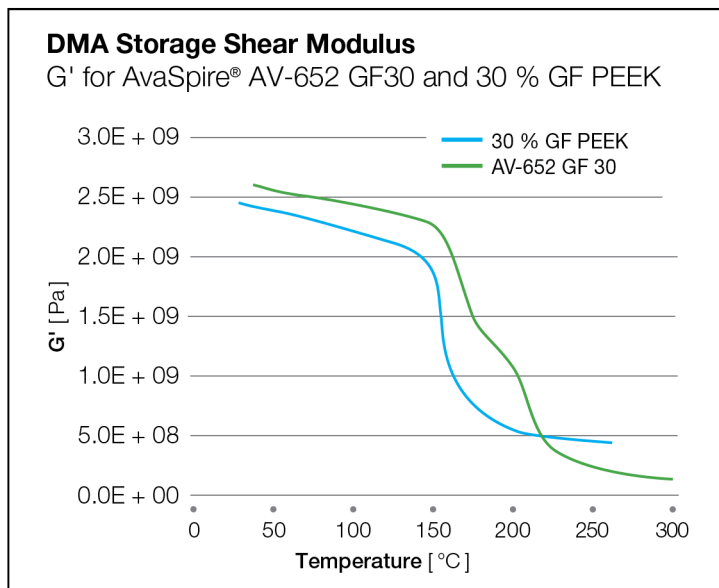
AV-652 also sports a lower absolute crystallinity level which results in several processing and end use advantages over 30% glass-filled PEEK. Benefits include lower mold shrinkage, less warpage, and tighter dimensional control overall for parts injection molded to tight tolerances.

AvaSpire® AV-652 also offers broad chemical resistance to a wide variety of industrial chemicals, including acids, bases, and most organic solvents. The hydrolytic stability of the material is excellent, allowing prolonged use in hot water and steam environments. The material also possesses outstanding resistance to virtually all commercial sterilization techniques including heat, steam, gamma radiation, ethylene oxide, and various organic and inorganic chemical sterilization agents.

The product is available in pellet form in light beige (BG20) and black (BK95). It is semi-commercial and available in pilot scale quantities for evaluation and test production runs. Solvay is also considering an expansion of this technology platform to include other materials such as extrusion grades for stock shapes.

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Comparison of AvaSpire® AV-652 GF30 to Standard 30 % GF PEEK (ASTM Test Methods)			
Properties	Units	30 % GF PEEK	AV-652 GF30
Nominal glass fiber content	%	30	30
Tensile strength	psi (MPa)	26,500 (183)	29,700 (205)
Tensile modulus	ksi (GPa)	1,560 (10.8)	1,740 (12.0)
Tensile elongation at break	%	3.1	3.1
Flexural strength	psi (MPa)	37,700 (260)	44,660 (308)
Flexural modulus	ksi (GPa)	1,530 (10.5)	1,730 (11.9)
Flexural strain at break	%	3.0	3.2
Izod impact, notched	ft-lb/in (J/m)	1.7 (91)	2.1 (110)
Izod impact, unnotched	ft-lb/in (J/m)	16 (854)	24 (1,300)
Heat deflection temperature at 264 psi (1.82 MPa)	°F (°C)	599 (315)	518 (270)
Melt viscosity, 400 °C, 1000 sec ⁻¹	Pa-s	350	490
Specific gravity		1.53	1.54
Absolute crystallinity level	%	40	23



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 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** on NYSE Euronext (www.euronext.com) in Brussels and Paris. Bloomberg (www.bloomberg.com) = **SOLB:BB** and Reuters (www.reuters.com) = **SOLB.BR**.

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