

Polimotor 2 All-Polymer Race Engine Project Chooses Solvay's Amodel® PPA and Tecnoflon® FKM for Water Cooling Components and Seals

Alpharetta, Ga., March 8, 2016 – Solvay Specialty Polymers, a leading global supplier of high-performance polymers, announced today that the water inlet/outlet fixture in the Polimotor 2 engine's cooling system will be fabricated from Solvay's Amodel® A-8930 HS polyphthalamide (PPA), a high-performing reinforced grade that retains mechanical properties in high-temperature engine coolant better than standard polyamide 66 (PA66). Solvay's proven Tecnoflon® PL855 fluoroelastomer (FKM) will also provide a strong chemical- and heat-resistant seal for the fixture. Led by legendary automotive innovator Matti Holtzberg, the Polimotor 2 project aims to design and manufacture a next-generation, all-plastic engine for competitive racing in 2016. Solvay is a leading materials sponsor for this highly anticipated technical endeavor.

"Automotive designers – on and off the race track – are seeking more heat-resistant polymer technologies as engine downsizing raises the performance demands on cooling system components," said Holtzberg, who is also president of Composite Castings, LLC, based in West Palm Beach, Fla. "No company can match both the breadth and depth of Solvay's high-performance polymer portfolio, which continues to provide the Polimotor 2 team with flexible design options. We considered several grades from the Amodel PPA® and Ryton® PPS product families. But, ultimately, Amodel® A-8930 HS PPA was best tailored to meet the thermal and structural requirements for this application, and it also delivered strong corrosion resistance and weight reduction benefits."

Molding Concepts in Sterling Heights, Mich., built the tooling and injection molded the water inlet/outlet, which now links Polimotor 2's cylinder head and engine block to the radiator via a rubber hose. In conventional race engines, the part is more likely to be an aerospace-quality army/navy fitting machined from aluminum billet. In today's production engines, PA66 is more typically used, depending on thermal requirements.

A recent addition to the Solvay portfolio, Amodel® A-8930 HS PPA is a 30-percent glass-fiber reinforced, heat-stabilized polymer specifically offered for high-temperature components in automotive, aerospace and industrial applications. It was selected for the Polimotor 2 water inlet/outlet, in part, for its strong hydrolytic stability, which enables it to retain its outstanding mechanical performance after extended exposure to high-temperature engine coolants. More specifically, Amodel® A-8930 HS PPA retains its high tensile strength and elongation after extended exposure to ethylene glycol at 135° C (275° F).

Solvay's reinforced PPA also exhibits superior creep resistance and low moisture absorption compared to PA66. Its excellent toughness helped ensure that the threaded parts of Polimotor 2's water fixture could form tight seals without cracking.

Solvay's advanced Tecnoflon® PL855 FKM is also helping to ensure a tight, reliable seal on either end of the water inlet/outlet. Offering proven performance in automotive drive environments, this advanced fluoroelastomer forms an excellent seal and provides unmatched chemical resistance as well as superb compatibility with engine coolants. It demonstrates long-term sealing force retention and has a functional temperature range of -40° to over 200° C (-40° to over 392° F).

“Solvay Specialty Polymers is committed to offering automakers the broadest range of high-performance automotive polymers in the industry as they seek new solutions for managing rising underhood temperatures,” said Brian Baleno, global automotive business manager for Solvay Specialty Polymers. “The Polimotor 2 race engine exemplifies many of the challenges emerging for commercial automotive thermal management systems, such as thermostat housings, water inlets/outlets, cross-overs and thermal management modules. Solvay’s advanced Amodel® PPA and Ryton® PPS polymers both signal a higher-performing alternative to standard polyamide, and they are helping automakers push the boundaries of temperature and chemical resistance.”

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About Solvay

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 & Cable, and other industries. Learn more at www.solvayspecialtypolymers.com.

An international chemical and advanced materials company, **SOLVAY** assists its customers in innovating, developing and delivering high-value, sustainable products and solutions which consume less energy and reduce CO₂ emissions, optimize the use of resources and improve the quality of life. Solvay serves diversified global end markets, including automotive and aerospace, consumer goods and healthcare, energy and environment, electricity and electronics, building and construction as well as industrial applications. Solvay is headquartered in Brussels with about 30,000 employees spread across 53 countries. It generated pro forma net sales of €12.4 billion in 2015, 90% of which was made from activities where it ranks among the world’s top 3 players. Solvay SA (**SOLB.BE**) is listed on Euronext in Brussels and Paris (Bloomberg: **SOLB.BB** - Reuters: **SOLB.BR**).

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The Polimotor 2 project chose Solvay Specialty Polymer's Amodel® A-8930 HS polyphthalamide (PPA) to fabricate the water inlet/outlet fixture in its advanced race engine. Solvay's high-performing reinforced grade of PPA withstands high temperature automotive coolants better than polyamide 66. It also expands design options for automotive cooling system components as automakers contend with rising underhood temperatures. Photo courtesy of Solvay Specialty Polymers.