

## **PRESS RELEASE**

### **Silicone instead of natural rubber – first silicone engine mount proves itself in series use**

LEVERKUSEN, GERMANY, 24<sup>TH</sup> OCTOBER 2007

*Together with Momentive Performance Materials (formerly GE Bayer Silicones), Vibracoustic, the technology specialist for vibration technology in automobiles, has developed a unique engine mount in which silicone replaces the normally used natural rubber. The reason: continually increasing temperatures are occurring in the engine compartments of modern vehicles, at which the performance levels of natural rubber fall. In the BMW 335i, the silicone product innovation has now been impressively proving its series production suitability for a year.*

#### **Temperatures under the hood continue to increase**

In modern cars, engine mounts have to provide driving comfort at ever increasing temperatures in excess of 100 degrees Celsius. The reasons for this 'greenhouse effect under the engine hood' are many. On the one hand, many engines today are encapsulated in order to reduce external noise levels to a minimum. On top of this, engine compartments are also getting smaller in their overall size due to aerodynamic reasons. And there's also the fact that engines function more efficiently at higher temperatures and as a result emit less CO<sub>2</sub>. When the sixcylinder, bi-turbo BMW 335i unleashes its 306 horsepower, the natural rubber in the classic mainspring in hydraulic engine mounts reaches its (temperature) limits. Vibracoustic has developed an innovative engine mount for this power train, in which temperature resistant silicone elastomer replaces the natural rubber of the mainspring. For almost a year now, this has been in use in tens of thousands of vehicles from the Bavaria based car manufacturer, to the complete satisfaction of customers.

#### **A lengthy development period**

An intensive period of collaboration preceded this success. "The question about high temperature resistant materials had gone unanswered for many years," says Dr. Jiří Pachta, Manager of materials development at Vibracoustic, "the OEMs had worked with heat shields, adjusted air flows and repositioned mounting points to prevent the natural rubber from finally reaching its limit. We're pleased that we have been able to develop a silicone material together with Momentive which completely fulfils our expectations in the areas of mechanical layout, dampening and adhesion within an extremely narrow hardness tolerance."



Another key challenge was the manufacture of a durable connection between silicone and the metallic assembly. Vibracoustic found an innovative solution that links the pretreatment procedures with the latest adhesive systems.

The hydraulic mount with the silicone mainspring, in the company color of blue, isn't just heat resistant. At the same time it dampens the engine vibrations caused by the road surface, as well as isolating annoying noises equally as effectively as its natural rubber counterpart. In this way, Vibracoustic is also allowing high levels of comfort with a sporty driving style. The technology specialist also benefited from its many years of experience of using silicone in dynamic dampers.

"We originally began working with Vibracoustic several years ago, when silicone engine mounts were only a preliminary strategic development," explains Oliver Franssen, Industry Manager for Automotive Elastomers at Momentive, "over time it became clear to us, however, that it wasn't possible to cope with the high level expectations without the development of a new material. Tensile strength and low dampening are actually contradictory with silicones, but in this case both are necessary at the same time. Today we supply the material to Vibracoustic ready-to-use and are very proud of being able to see our many years of development in use in the first silicone engine mount."

#### **Safe in the production process – safe on the road**

It goes without saying that this product innovation reliably proved its durability before the start of automotive mass production in reality-based durability tests at constant temperatures of 145° C. Like its natural rubber 'sister product', the external design of the new engine mount corresponds exactly with the requirements of the BMW modular design system. Vibracoustic manufactures it in a special production cell which is separated from general production, meaning that other engine mount manufacturing areas aren't affected by any possible silicone volatiles: better safe than sorry.

#### **Vibracoustic – Business Overview**

Vibracoustic supplies innovative vibration control solutions for passenger and commercial vehicles. In Europe, the company generated a turnover of 451 million Euros with 2,100 employees in 2006. Worldwide, with a total of 5,000 employees, Vibracoustic generated over 880 million Euros in sales. The global Vibracoustic alliance maintains 24 production facilities and five development centers.



## **Momentive Performance Materials – Business Overview**

Momentive Performance Materials was created from the sale of GE Advanced Materials and its former Joint Ventures, GE Bayer Silicones and GE Toshiba Silicones to Apollo Management, L.P. in December 2006. Momentive is the world's second-largest producer of silicones and silicone derivatives and a global leader in the development and manufacture of products derived from quartz and advanced ceramics. Silicones are a multi-functional family of materials used in thousands of products and serve as a critical ingredient in many construction, transportation, personal care, electronic, consumer and agricultural uses. Silicones are generally used as an additive to a wide variety of end-use products in order to provide or enhance certain types of their attributes, such as resistance (heat, ultraviolet light and chemical), lubrication, adhesion or viscosity. Some of the most well-known end-use product applications include bath and shower caulk, pressure sensitive adhesive labels, foam products, cosmetics and tires. Our Quartz division manufactures quartz, specialty ceramics and crystal products for use in a number of high-technology industries, which typically require products made to precise specifications.

These materials solutions are used as springboards for innovation in hundreds of consumer and industrial applications ranging from car engines, to biomedical devices, to integrated circuits. Industries served include aerospace, agriculture, appliances, automotive, construction, electronics, furniture and furnishings, healthcare, home care, industrial, lighting, packaging, personal care, plastics, semiconductor, telecommunications, tire, transportation, and water purification.

World Headquarters: Wilton, Connecticut, USA

President & CEO: Jonathan Rich

Number of Employees: Approximately 5,000

Revenue in 2006: \$2.5 Billion

Website information available under: [www.momentive.com](http://www.momentive.com)



**MOMENTIVE**  
performance materials

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