PRESS RELEASE

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K 2013: 19th International Trade Fair for Plastics and Rubber
WACKER Presents New High-Performance Silicones and Polymeric Binders for the Plastics and Bioplastics Industry

Munich, October 16, 2013 – WACKER, the Munich-based chemical company, will present eleven new products for the silicone and plastics processing industries at the 19th International Trade Fair for Plastics and Rubber K 2013 in Düsseldorf, Germany. ELASTOSIL® Film – an extremely thin film made of silicone rubber – is a world first. The film, available in thicknesses down to 20 microns, is supplied in rolls and can be used, for instance, as a functional membrane or a dielectric elastomer in pioneering sensor and actuator technologies. Other product highlights include heat- and coolant-resistant silicones for gaskets and hoses, silicone compounds for magnetic applications and highly transparent liquid silicones for optical lenses. For plastics processing, WACKER will present a high-performance additive for food-contact materials and an enhanced polymer binder for the manufacture and processing of bioplastics. K 2013 starts this Wednesday and will run until October 23.

With the “Exploring Tomorrow’s Solutions” motto, WACKER will once again demonstrate its extensive silicone and polymer expertise at K 2013. This time, nine topics are under the spotlight at the
company’s tradeshow booth, which covers a total of 333 square meters (hall 6, booth A10). Rotating product display panels showcase new silicone elastomers for the automotive, electronics, and T&D industries, highly efficient processing auxiliaries for plastics processors and tin-free curing systems for print-pad manufacturers. Flexible lenses are among the highlights to be found in the lighting area. They are made of highly transparent liquid silicones and enable the development of energy- and cost-efficient lighting technologies, for example in general lighting and car headlights. The lenses will be produced on an Arburg injection-molding machine during the tradeshow.

“In many sectors, for example in the automotive and lighting industries, material requirements are constantly on the rise, and conventional materials such as organic plastics are slowly reaching their limits. That’s why many developers increasingly tend to opt for innovative materials, for example silicones,” says Peter Summo, head of the Engineering Silicones business unit at WACKER, to explain the rising demand for this cutting-edge polymer based on elemental silicon. “Silicones are resistant to high mechanical and thermal stress, chemicals, and UV-radiation. And, above all, they are highly versatile. This enables them to cope with rising requirements significantly better than conventional materials,” continues Summo. Processability is another important advantage of these all-rounders, he adds. “Silicones have excellent processing properties. High-quality molded parts can be produced extremely cost-efficiently.”

Another of the company’s key topics at K 2013 is an improved binder for the next generation of bioplastics. VINNEX® makes it possible to
develop higher-performance biopolymer blends, whose property profiles can be tailored better to both application and demand, so that a more diverse range of applications and processing techniques can be tapped. “This example illustrates how diversely WACKER is positioned at this year’s K tradeshow,” Peter Summo stresses. “Our product portfolio not only offers innovative solutions for silicone processors and their customers, but also for plastics and bioplastics processors.”

Extra thin and Immaculate: ELASTOSIL® Film
At K 2013, WACKER will be introducing a world first: precision silicone films. Marketed as ELASTOSIL® Film, this product is available as roll stock in thicknesses down to 20 microns. It is manufactured in cleanroom conditions without the use of solvents. For improved handling, ELASTOSIL® Film comes with an intermediate backing from which they can easily be peeled off intact.

WACKER’s patent-registered production process provides immaculate and extremely uniform silicone films with a defined thickness. The film thickness across the entire width and length of the film web deviates from the specification by ±5 percent at most. This particular property, together with the material’s typical silicone characteristics, permits technical applications that were previously very hard or even impossible to implement on an industrial scale.

Silicone films can be used to manufacture gas-permeable packaging and protective films, membranes for separating or enriching gases or particularly soft and flexible woundcare plasters. Because silicone elastomers are electrically insulating, have good dielectric properties,
and endure long-term mechanical loads with hardly any signs of fatigue, ELASTOSIL® Film can also be used, for example, as an electroactive polymer (EAP). Under certain conditions, EAPs are able to alter their shape when a voltage is applied. As a result, silicon films can be used to design innovative sensors, actuators and generators. Potential applications range from toys, electrical relays and electrically operated valves to artificial limbs and peristaltic pumps.

**Magnetic: ELASTOSIL® R 781/80**

ELASTOSIL® R 781/80 is a silicone rubber filled with tiny magnetic particles. The particles – roughly ten micrometers in size – are made of ferrimagnetic magnetite material, which are firmly integrated into the silicone rubber matrix. The silicone compounds are capable of being magnetized in the presence of a strong magnetic or electromagnetic field. Together with other magnets, this magnetic effect is particularly pronounced.

The new silicone elastomere offers diverse application possibilities. For example, ELASTOSIL® R 781/80 enables the manufacturing of magnetic components and profiles. They not only adhere to flat, but also to curved or rounded metallic surfaces. As silicones elastomers are also known for their very good extrusion behavior, profiles thus can be manufactured very efficiently and in virtually all lengths and shapes. The cured silicone is extremely heat-resistant and withstands temperatures ranging from –40 °C to +200 °C with ease.

The highly filled silicone elastomer contains 70% w/w magnetite and has an 80 Shore A hardness. The ingredients used are in compliance with the recommendations of the German Federal Institute for Risk
Assessment (BfR, XV. Silicones, IX. Colorants) and the US Food and Drug Administration (FDA). The product is therefore suitable for applications involving contact with food. ELASTOSIL® R 781/80 can be processed directly, or else compounded with other silicones prior to further processing. This opens up even more potential applications, especially within the food, packaging and medical-technology sectors.

**Coolant resistant: ELASTOSIL® LR 3022/60**

Standard silicone elastomers are not really suitable as sealants in the hot areas of engine cooling circuits. As soon as such standard elastomers come into contact with a coolant of over 100 degrees Celsius in temperature – usually a water/glycol mixture – some of their key properties for leak-tightness, such as elasticity and high resilience, deteriorate.

At K 2013, WACKER will, for the first time, present a silicone rubber for making seals fully suited for cooling systems. The addition-cure liquid silicone rubber, ELASTOSIL® LR 3022/60, features a very low compression set. The silicone rubber’s lasting resilience ensures consistently high leak-tightness in the seal groove. Furthermore, the overall property profile of cured ELASTOSIL® LR 3022/60 rubber remains virtually unchanged under long-term load. As a result, molded parts made of the new silicone grade can be used as seals or gaskets even when they are directly exposed to hot coolants.

In addition, the silicone rubber exhibits very good low-temperature flexibility down to -45 degrees Celsius. With this combination of temperature and coolant resistance, ELASTOSIL® LR 3022/60 offers an alternative to organic elastomers.
Extremely heat resistant: ELASTOSIL® R 756
The outstanding feature of these peroxide-curing solid silicone rubber grades is the excellent heat resistance of the vulcanized product. Depending on the heat stabilizer added during compounding, the vulcanizates can withstand long term temperatures of 250 °C, medium term up to 300 °C. This makes these new silicone grades ideal for use in self-cleaning ovens and stoves or in automotive applications such as the engine compartment.

ELASTOSIL® R 756 solid silicone rubber grades are designed in such a way that their excellent properties unfold by interaction with the heat stabilizers added to the base rubber during the compounding process. The thermal stability of the vulcanizate is influenced by the type and amount of the chosen stabilizer. The new grades can be processed via compression molding, injection molding or extrusion. The latter method, however, requires the use of a suitable heat stabilizer that is compatible with the crosslinker. WACKER offers ELASTOSIL® R 756 both as a base rubber blend without additives and as a ready-to-process compound that already contains effective heat stabilizers.

Highly transparent – LUMISIL® LR 7600
The new LUMISIL® LR 7600 product range consists of liquid silicone rubber grades that cure to form highly transparent elastomers. The cured rubber grades are crystal clear and can withstand high thermal stress. Unlike highly transparent thermoplastics such as polycarbonate and polymethyl methacrylate, LUMISIL® LR 7600 does not tend to yellow. The cured rubber remains colorless even at high temperatures and under long-term exposure to artificial or natural
light, including ultraviolet radiation. The elastomers are resistant to aging and weathering, electrically insulating, water-repellent and low-temperature flexible.

This property set fulfills all material requirements that play a key role in the manufacture of optical elements. Lens bodies made of LUMISIL® LR 7600 can direct and shape a lamp’s light, for example. In combination with light emitting diodes (LEDs), entirely new designs and housing structures are possible. Furthermore, the product enables the development of energy- and cost-efficient solutions, for example in general lighting and car headlights.

Thanks to their excellent thermal stability, optical components made of LUMISIL® LR 7600 can be combined with xenon lamps and high-performance LEDs. These types of lamps increasingly find use in headlights of cars and get very hot in continuous operation. In adaptive headlight systems, optical elements made of LUMISIL® LR 7600 can help to ensure that the road is optimally illuminated under any traffic conditions.

Further Highlights

- **VINNEX® – Enhanced Binder System for Bioplastics**

VINNEX® is an improved binder system for the next generation of bioplastics. It enables polymers based on renewable raw materials to be processed just like conventional thermoplastics. The system enhances the physical properties of bioplastics and makes different materials compatible with each other. Depending on the composition
and VINNEX® content, polymer blends have higher impact strengths, are more flexible or have a higher melt strength than conventional biopolymers. VINNEX® opens up an expanding range of applications for biopolymers. For example, the new blends can be processed into food packaging materials, brochures, parts for electronic appliances or self-degradable gardening and agricultural containers.

- **ELASTOSIL® R 752 – Solid Silicones with Excellent Damping Properties for Automotive and Mechanical Engineering**
  The two new silicones solid silicone rubber grades ELASTOSIL® R 752/30 and ELASTOSIL® R 752/70 complement the existing ELASTOSIL® R 752 product range. They cure to form elastomers that are significantly less elastic than standard silicone rubber. As a result, they have a strong damping effect on shocks and undesired vibrations. At the same time, they possess all the typical properties of silicones, such as heat resistance, low-temperature flexibility and aging resistance. Thus, ELASTOSIL® R 752 is ideal for making the vibration dampers that are needed in automotive engineering, in particular.

- **ELASTOSIL® R 416 – High Consistency Silicone for Hose Extrusion**
  The new grade of high consistency silicone rubber ELASTOSIL® R 416/70 features very high green strength. The product enables cost-effective production of fabric-reinforced silicone hoses by extrusion. Hoses made from ELASTOSIL® R 416/70 are ideal for automotive applications requiring good temperature and coolant resistance.
• **ELASTOSIL® Tin-Free System for Condensation Curing Mold Making Compounds**

ELASTOSIL® Tin-Free System was designed for all base components of ELASTOSIL® M condensation curing moldmaking compounds and consists of a tin-free catalyst plus booster. Compounds cured with the system can be processed normally and possess the same mechanical properties as compounds cured with standard catalysts. Since its application is not subject to legal restrictions, ELASTOSIL® Tin-Free System represents a practical alternative to conventional, tin-based systems.

• **POWERSIL® 570 PLUS – Solvent-free Silicone Coating for T&D Insulators**

POWERSIL® 570 PLUS is a new silicone coating for electrical insulators. The solvent-free one-component emulsion serves to coat glass or porcelain insulators. The product is sprayed on glass or porcelain parts and then cures to form a water-repellent silicone coating. The coating considerably increases the reliability and fail-safe characteristics of insulators for transmission and distribution (T&D) substations and overhead power lines.

• **GENIOPLAST® Pellet P Plus – All-Purpose Silicone Additive for Food Contact Plastics**

GENIOPLAST® Pellet P plus is a high-performance additive for the compounding and processing of thermoplastics. It improves the viscosity and flow properties of the polymer compound, allowing the compound to be processed more efficiently and at lower cost. It also ensures smooth, easy-to-clean surfaces. GENIOPLAST® Pellet P plus is an approved additive for plastics used in food contact
applications and is therefore suitable for plastics in the kitchen and packaging sector.

Visit WACKER at K 2013 in Hall 6, Booth A10.

Precision silicone film: ELASTOSIL® Film from the Munich-based chemical group WACKER is thinner than human hair. Manufactured under clean-room conditions, the film has excellent dielectric properties. (Photo: Wacker Chemie AG)
One of the novelties WACKER will show at K 2013 is ELASTOSIL® LR 3022/60. Coolant- and heat-resistant, the new liquid silicone rubber is especially suitable for producing gaskets for installation in engine cooling systems. (Photo: Wacker Chemie AG)

At K 2013, WACKER will debut ELASTOSIL® R 781/80. The new magnetic silicone grade is suited to numerous applications in the household and food packaging industry. (Photo: Wacker Chemie AG)
At K 2013, WACKER, the Munich-based chemicals group, will showcase its VINNEX® binder system. It enables easy processing of so-called biopolymer blends, which can be used to manufacture biodegradable plastics for food packaging and containers. (Photo: Wacker Chemie AG)

Note:
These photos are available for download at: http://www.wacker.com/pressreleases
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The company in brief:
WACKER is a globally active chemical company with some 16,300 employees and annual sales of around €4.63 billion (2012).
WACKER has a global network of 24 production sites, 22 technical competence centers and 53 sales offices.

WACKER SILICONES
Silicone fluids, emulsions, rubber and resins; silanes; pyrogenic silicas; thermoplastic silicone elastomers

WACKER POLYMERS
Polyvinyl acetate and vinyl acetate copolymers in the form of dispersible polymer powders, dispersions, solid resins and solutions used as binders for construction chemicals, paints and coatings, adhesives, plasters, textiles and nonwovens, as well as for polymeric materials based on renewable resources

WACKER BIOSOLUTIONS
Biotech products such as cyclodextrins, cysteine and biologics, as well as fine chemicals and PVAc solid resins

WACKER POLYSILICON
Polysilicon for the semiconductor and photovoltaics industries

Siltronic
Hyperpure silicon wafers and monocrystals for semiconductor components