

PRESS RELEASE

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22nd International Trade Fair for Plastics and Rubber

WACKER Presents Silicone- and Polymer-Based Products for Sustainable Applications

Munich and Düsseldorf, June 21, 2022 – Munich-based chemical group WACKER is presenting its product and tradeshow highlights for K 2022, the 22nd International Trade Fair for Plastics and Rubber, in Düsseldorf today. Its tradeshow offerings will center on silicones and silicone-based applications that make sustainable solutions in the fields of electromobility, energy generation, medical technology and plastics processing possible. The product innovations, which will be presented to a wide audience of professionals for the first time, include silicone rubber compounds produced in a resource-efficient manner from biomethanol, self-adhesive silicone products for polycarbonate hybrid parts and a new silicone resin for the manufacture of heat-stable molded parts. Silicone-based additives and polymer binders that improve the processing and end properties of bioplastics round out the topics being showcased at the WACKER booth. The K 2022 plastics tradeshow takes place in Düsseldorf, Germany, from October 19 to 26.

At a press conference in Düsseldorf, Robert Gnann, President of the WACKER SILICONES business division, outlined this year's trade-

show offerings to trade journalists and presented the chemical group's growth targets. Due to a rising demand for silicones, WACKER will invest over €100 million in the expansion of production capacities for both solid and liquid silicone rubber over the coming years. "These investments will particularly focus on high-value specialty silicone grades, which industry urgently requires for the development of innovative products and technologies," emphasized Gnann.

Silicones are high-performance materials, distinguished from many other plastics by their unique property profile. "Silicones are extremely versatile and can be tailored to certain requirements very well, facilitating the development of new solutions and, in many cases, of significantly more sustainable products and technologies," Gnann explained. "With the global expansion of our production capacities for solid and liquid silicone rubber, we want to offer the best-possible support to key sectors such as the energy, automotive and medical technology fields, which depend on high-value materials like silicones."

The Group's expansion plans are already at an advanced stage. New production plants for liquid silicone rubber will start operating at the Burghausen site in the second half of this year. Liquid silicone rubber production at WACKER's Adrian site in Michigan will commence expansion next year. North and Central American customers will particularly benefit from this. Capacity expansion is also being carried out for high-consistency silicone rubber (HCR). A plant at the new Panagarh site in India will go on stream this summer. Additional HCR capacity will be available early next year in Plzeň (Czechia) and

Tsukuba (Japan), and from 2024 in Zhangjiagang (China). Plus, further capacity expansion is being prepared in Europe and the USA.

The Group is considering expanding its production capacity for pyrogenic silica, too. WACKER is one of the few silicone manufacturers that produce this filler required for formulating HCR themselves.

“While our competitors are increasingly withdrawing from this market, we will systematically invest in new capacity,” emphasized Gnann.

“We have a clear goal: we want to become the No. 1 in high consistency solid silicone rubber.”

Thinking Beyond – WACKER at K 2022

At K 2022, WACKER will be welcoming tradeshow visitors at its usual spot – Booth A10 in Hall 6. Under the motto “Thinking Beyond,” numerous product innovations will make their debut: biomethanol-based silicones, self-adhesive liquid silicone rubber grades for hard/soft hybrid parts made of polycarbonate, silicone resins for the manufacture of heat-stable molded parts and silicone-based additives for polyethylene molding compounds. Also celebrating their premiere will be polymer binders which WACKER produces using a climate-friendly method that conserves resources with the aid of renewable acetic acid.

This year, the company’s main tradeshow topics will be electromobility and sustainability. “Whether wind or solar power, building insulation or electric cars: silicones make innovative technologies and problem-solving approaches possible that contribute to a reduction in greenhouse gas emissions in many sectors,” said Gnann, referring to electromobility as an example. Modern electric

cars contain up to four times more silicone than conventional vehicles with combustion engines. “For example, thermally conductive silicone compounds ensure that the heat generated by the battery and power electronics can dissipate unhindered, which considerably increases the performance of such components and extends their service life,” he said, adding: “If we want to meet the climate targets agreed upon, we have to significantly reduce greenhouse gas emissions in the coming years. This will only be possible if we consistently make use of the opportunities afforded by high-performance materials, such as silicones, for the development of sustainable technologies.”

WACKER’s Product Innovations:**▶ ELASTOSIL® eco – Resource-Efficient with Biomethanol**

ELASTOSIL® eco silicone rubber grades are among the product innovations that WACKER will be showcasing at K 2022. They are manufactured in a resource-efficient, certified process with the aid of methanol derived from plants rather than from fossil materials. Since plant-based methanol and its fossil counterpart are chemically interchangeable, ELASTOSIL® and ELASTOSIL® eco products possess the same end properties, and the processing techniques involved are also identical.

In the future, WACKER will be offering its customers “eco” versions of eight of its silicone rubber grades – six hardness values of the non-postcure and tear-resistant liquid silicone rubber ELASTOSIL® LR 5040 (ELASTOSIL® eco LR 5040) and one hardness grade each of the peroxide-curing solid silicone rubber ELASTOSIL® R 401

(ELASTOSIL[®] eco R 401/40) and the addition-curing solid silicone ELASTOSIL[®] R *plus* 4020 (ELASTOSIL[®] eco R *plus* 4020/40). What is more, SILMIX[®] ready-to-use rubber compounds will also be made available on the basis of biomethanol upon request. At its tradeshow booth, WACKER will give live demonstrations of how a SILMIX[®] eco food-grade compound can be processed on an ENGEL injection-molding machine (mold: NEXUS; design of part: LÉKUÉ).

► **VINNEX[®] eco – Polymer Additives Based on Renewable Raw Materials**

At K 2022, WACKER will be presenting another “eco” product line alongside ELASTOSIL[®] eco: VINNEX[®] eco. This line relates to homopolymers, copolymers and terpolymers based on polyvinyl acetate. Thanks to their polarity, they are compatible with biopolyester and are thus ideal for the modification of biodegradable polymers and starches. VINNEX[®] additives simplify processing, improve the material properties of biopolyesters and act as compatibilizers.

The VINNEX[®] eco product line is manufactured from renewable resources based on the mass balance approach. Both fossil and renewable raw materials are introduced at the beginning of the production cycle. The mass balance approach is then used to mathematically determine the percentage of solid resins made from renewable raw materials. VINNEX[®] eco products possess the same chemical and physical properties as the standard products, but they have a lower carbon footprint. All VINNEX[®] eco grades are certified in accordance with the REDcert² certification scheme.

▶ ELASTOSIL® LR 3078 – Self-Adhesive on Polycarbonate

Another product line making its debut at K 2022 is ELASTOSIL® LR 3078. This self-adhesive liquid silicone rubber cures extremely rapidly and establishes a firm bond with the thermoplastic polycarbonate. To this end, WACKER uses a newly developed and already patented self-adhesive technology that does not contain any bisphenol A structures. By eliminating this substance class, the company increases occupational safety and contributes to consumer protection.

All grades of the new product line can be easily processed by two-component injection molding. They do not contain any substances that could result in solid deposits forming in the mold during processing. This ensures that the injection molding machine runs without interruptions. Thanks to the fast curing of the new liquid silicone rubber, injection molding cycle times are very short. In addition, articles with complicated geometric shapes can be produced with high precision without the need for secondary finishing. ELASTOSIL® LR 3078 thus opens the way for further miniaturization of polycarbonate-silicone hybrid parts and for completely new product designs.

▶ Novel Silicone Resin for Heat-Stable Molded Parts

Industry is increasingly facing the challenging task of manufacturing mechanically durable plastic components that can withstand temperatures of over 200 degrees Celsius for long periods. WACKER has developed a novel material solution to this problem, which it will present at K 2022. Thanks to the silicone resin binders SILRES® LR 700 and POWERSIL® Resin 700 and the silicone molding

material POWERSIL® Resin 710 based on these binders, manufacturers can create insulation class R molded parts via compression molding, pressure gelation or even injection molding. These can withstand temperatures of up to 220 degrees Celsius for extended periods of time. The products are not subject to labeling requirements and thus present an advantageous alternative to high-temperature-resistant polymers like PTFE (polytetrafluoroethylene) and PEEK (polyether ether ketone).

SILRES® LR 700 and POWERSIL® Resin 700, both solvent-free phenyl methyl silicone resin binders, are clear, low-viscosity liquids. In order to produce molded parts with good mechanical properties, the binders require suitable combinations of fillers. That's why WACKER has developed an initial, suitably optimized formulation as well: POWERSIL® Resin 710. The company thus offers two product solutions for the manufacture of molded parts that are stable at high temperatures. Customers who prefer to work with their own fillers or filler blends can use SILRES® LR 700 or POWERSIL® Resin 700 liquid binders, while the most suitable product for users who want to take advantage of ready-to-use solutions is POWERSIL® Resin 710, which contains a blend of powdered and fibrous fillers.

► **Silicone-Based Additive GENIOPLAST® for Polyethylene Molding Compounds**

GENIOPLAST® PE50S08 is a new additive masterbatch for polyethylene compounding. This product makes it easier to manufacture ready-to-use polyethylene molding compounds and improves the surface properties of the resulting plastic products. The polyethylene

masterbatch can be used for extruding films and for polyethylene recycling.

The product's silicone active ingredient improves filler distribution in filled formulations and the flow properties of the polymer melt. This increases extruder throughput. It also reduces the energy needed for compounding. Where mixtures of different polyethylene grades are compounded – as is the case in the processing of recycled polyethylene – GENIOPLAST® PE50S08 ensures uniform mixing without any major torque or temperature fluctuations. Polyethylene recycling is consequently one of the new additive's key application areas.

In blown film extrusion, manufacturers of polyethylene films can substantially boost productivity with GENIOPLAST® PE50S08. In the extrusion of cable sheathing, hoses or profiles made of filled polyethylene, there are fewer die deposits. The additive furthermore improves the surface structure of polyethylene products. It reduces the plastic formulation's coefficient of dynamic friction. As a result, the products feature higher scratch and abrasion resistance. This makes it easier to unroll films. The new product can additionally improve the plastic's impact strength.

► **Biopolymers – Highly Efficient VINNEX® and GENIOPLAST® Pellet Additive Combination**

Additives can significantly enhance both the processing of biodegradable polyesters and their material properties. A combination of two well-known additive systems promises even better results: VINNEX® and GENIOPLAST® Pellet produce stronger effects when

blended into a polyester formulation together than when used as separate additives.

WACKER will present the benefits of this additive combination at the K 2022 plastics tradeshow. Both the processing and the material properties of biodegradable polyesters improve considerably when the two additives are used together. Such a combination proves especially advantageous in the production of blown film. Here, VINNEX® enhances melt flow and strength, while GENIOPLAST® Pellet increases the pull-off and winding speed by lowering surface friction.

Both additive systems can help unlock further applications for biopolyesters. The combination greatly mitigates those processing and performance disadvantages – relative to conventional thermoplastics – which have limited the use of biopolyesters to date. When added in the usual amounts and depending on the individual system, VINNEX® and GENIOPLAST® additives do not hamper the degradability of polybutylene succinate, polylactic acid or thermoplastic starch and combinations of these biodegradable polymers.

Visit WACKER at K 2022 in Hall 6, Booth A10.



Lemon squeezer made of SILMIX® eco R *plus* TS 40002 (design: LÉKUÉ). This food-grade compound is formulated with one of WACKER's new biomethanol-based silicone rubber products. The Group will give live demonstrations of how this ready-to-use blend can be processed on an ENGEL injection-molding machine each tradeshow day. (photo: WACKER).



Tests show that the new self-adhesive silicone rubber ELASTOSIL® LR 3078 from chemical group WACKER adheres excellently to polycarbonate without pretreatment. This makes efficient large-scale production of hybrid parts possible, for example in medical technology. (Photo: WACKER)



WACKER will present a new silicone-based additive masterbatch for polyethylene compounding at K 2022. GENIOPLAST® PE50S08 makes it easier to manufacture ready-to-use polyethylene molding compounds and improves the surface properties of the resulting plastic products. (Photo: WACKER)



Packaging film made of biodegradable polyester. VINNEX® and GENIOPLAST® Pellet improve both the processing and material properties of the film. WACKER will present results of the latest studies at the K 2022 plastics tradeshow this fall. (Photo: WACKER)

Note:

These photos are available for download at:
<http://www.wacker.com/pressreleases>

For further information, please contact:

Wacker Chemie AG
Media Relations & Information
Florian Degenhart
Tel. +49 89 6279-1601
florian.degenhart@wacker.com
www.wacker.com
follow us on:   

The Company in Brief:

WACKER is a global chemical company with some 14,400 employees and annual sales of around €6.21 billion (2021).
WACKER has a global network of 26 production sites, 23 technical competence centers and 52 sales offices.

WACKER SILICONES

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

WACKER POLYMERS

Polyvinyl acetates and vinyl acetate copolymers and terpolymers in the form of dispersible polymer powders, dispersions, solid resins and solutions

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 photovoltaic industries