

PRESS RELEASE

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European Coatings Show 2017

WACKER Presents Silane-Terminated Polymers for Flexible and Elastic Sealants and Adhesives and Dispersions for Packaging Adhesives

Munich/Nuremberg, April 4, 2017 – At the European Coatings Show 2017 – held in Nuremberg, Germany, from April 4 to 6 – Munich-based chemical group WACKER is unveiling several novelties for sealant and adhesive applications: The two new silane-terminated polymers GENIOSIL® XM 20 and GENIOSIL® XM 25 can be used as binders in adhesives and sealants, where they can modify the mechanical properties, in particular impacting modulus. This allows adhesives and sealants manufacturers to compound without the need of conventional plasticizers. In plasticizer-free adhesives, the new grades additionally enhance the bonding properties. In low-modulus sealants, they ensure high elastic recovery. As a result, GENIOSIL® XM opens up applications in the adhesives and sealants sector that had previously been unaccessible to silane-crosslinking polymers. For paper and packaging adhesives, WACKER is presenting VINNAPAS® EP 400 E, a dispersion combining high performance with a low formaldehyde content.

The new grades complement the portfolio of silane-terminated polyethers that the Munich-based chemical group markets under its GENIOSIL® brand. As all silane-terminated polymers, GENIOSIL® XM cures at room temperature under the influence of atmospheric humidity via silane crosslinking. In contrast to the other polymers, GENIOSIL® XM 20 and

GENIOSIL[®] XM 25 only have one silane group at one of their chain ends, meaning they are crosslinkable only at one end.

GENIOSIL[®] XM can be blended with other silane-terminated polymers in the desired ratio. On curing, the new polymers are firmly integrated into the resulting three-dimensional polymer network, reducing the crosslink density. This leads to a relatively wide-meshed network.

GENIOSIL[®] XM thereby modifies the elasticity of the cured material, resulting in a low modulus system with high elastic recovery. When stretched or compressed, it behaves like a soft spring. In formulations of silane-terminated polymers, the two new grades thus act as reactive plasticizers. Since they do not alter the mechanical strength of the cured material, they can replace conventional plasticizers. This affords manufacturers of sealants and adhesives the freedom to formulate plasticizer-free products.

The two GENIOSIL[®] XM grades not only adhere to concrete, wood, aluminum and glass, but also to low-energy surfaces such as polyvinyl chloride (PVC), polystyrene (PS) and cured ethylene propylene diene monomer (EPDM) rubber without prior pretreatment of these substrates.

The Adhesive Specialist: GENIOSIL[®] XM 20

GENIOSIL[®] XM 20 is an alpha-silane-terminated polyether. This grade opens the door to plasticizer-free adhesives with extremely high elasticity. At the same time, these possess high ultimate strength and also adhere well to difficult substrates. Furthermore, the product can extend skin-over time. This provides the user with sufficient adhesive tooling time. Typical applications include wood-flooring adhesives and all-round adhesive sealants.

The Sealant Specialist: GENIOSIL® XM 25

GENIOSIL® XM 25, a gamma-silane-terminated polyether, allows the formulation of low-modulus sealants with exceptionally high elastic recovery. Should sealant manufacturers use this grade as a co-binder, low-modulus construction sealants that exceed ISO 11600 specifications are possible. Potential applications include sealants for expansion joints in buildings made of industrially prefabricated concrete parts and for connection joints between window frames and walls.

Toolbox for Adhesives and Sealants Manufacturers

WACKER offers various silane-terminated polyethers that have been designed as binders for adhesive and sealant manufacture. They can be blended with each other acting either as the main binder or as a co-binder. This allows formulators to use the product portfolio like a toolbox to adjust the desired final properties of given products. Both gamma- and alpha-silane-terminated polyethers are available.

Within this portfolio, the hybrid polymers of the GENIOSIL® STP-E product line constitute the standard. They cover a wide range of demanding adhesive and sealant applications. GENIOSIL® XB is ideal for the manufacture of powerful and tough adhesives which make strong bonds possible. If, on the other hand, exceptionally strong yet elastic adhesives need to be formulated, polymers of the GENIOSIL® XT range are the binders of choice. GENIOSIL® XM is suitable for low-modulus sealants or flexible, highly elastic adhesive sealants with virtually universal adhesion.

For Higher Standards: VINNAPAS® EP 400 E

Like many sectors, the paper and packaging industry, too, is making stricter demands on the environmental compatibility of the raw materials it uses. To meet these needs, WACKER has developed the dispersion VINNAPAS®

EP 400 E, which is characterized by an extremely low formaldehyde content (< 20 ppm).

It also has an impressive performance profile: the vinyl acetate-ethylene copolymer-based binder is not only fast setting, but also shows a good balance between adhesion and cohesion. The dispersion is suitable for nozzle application at high speeds, and also has good machinability for roller application. The binder thus also satisfies continually rising productivity demands in paper processing. The new VINNAPAS® EP 400 E dispersion is therefore ideal for formulating paper and packaging adhesives that combine high performance with improved environmental compatibility.

Visit WACKER at ECS 2017 in Hall 1, Booth 1-510.



At the European Coatings Show, WACKER, the Munich-based chemical group, is showcasing GENIOSIL® XM 20 – an alpha-silane-terminated polyether that allows the formulation of plasticizer-free adhesives with extremely high elasticity. Typical applications include wood-flooring adhesives and all-round adhesive sealants (photo: Wacker Chemie AG).



GENIOSIL® XM 25, a gamma-silane-terminated polyether, allows the formulation of low-modulus sealants with exceptionally high elastic recovery. Potential applications include sealants for expansion joints in buildings made of industrially prefabricated concrete parts (photo: Wacker Chemie AG)



Testing the setting speed: The new dispersion VINNAPAS® EP 400 E is ideal for formulating paper and packaging adhesives that combine high performance with improved environmental compatibility (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 17,200 employees and annual sales of around €5.40 billion (2016). WACKER has a global network of 26 production sites, 22 technical competence centers and 51 sales offices.

WACKER SILICONES

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

WACKER POLYMERS

Polyvinyl acetate and vinyl acetate co 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 photovoltaics industries

Siltronic

Hyperpure silicon wafers and monocrystals for semiconductor components