

PRESS RELEASE

Number 9

EUROPEAN COATINGS SHOW 2009: WACKER Presents Novel Polymeric Building Materials and Silicone Products for Sustainable Applications in Coatings, Construction and Adhesives

Munich, March 31, 2009 – At the European Coatings Show (ECS) in Nuremberg from March 31 until April 2, 2009, the Munich-based WACKER Group will present itself with the slogan “Inspired by Excellence.” The focus will be on sustainable product solutions from its areas of expertise: coatings, construction and adhesives. The palette ranges from new dispersible polymer powders for flexible sealing slurries and self-leveling compounds containing no added superplasticizer to new dispersions for wood glues offering extraordinary adhesion, right through to user-friendly dispersions free of ammonia, superplasticizers and solvents. The emphasis will also be on new solvent-free silicone resins and silicone resin emulsions for heat-resistant, or water-based coatings, as well as organo-functional silanes for the adhesives and sealants industries. Moreover, at the ECS 2009, WACKER will premier ETONIS – novel polymer binders for use in infrastructure projects.

A highlight at this year's ECS are the novel polymers, ETONIS, for enhancing sprayed concrete for applications in mining, tunneling, road and underground construction. As the tunnel is driven, the polymer-modified concrete is sprayed onto the walls primarily to consolidate loose rock. It also provides a barrier against water

seepage, and reduces the amount of additives required in the formulation. Since the polymer improves the concrete's adhesion, there is less rebound when it is sprayed onto the tunnel wall. That reduces both material consumption and transportation and disposal costs. The new polymers brand ETONIS speeds up tunnel construction and reduces system costs immensely, thereby increasing the efficiency and economics of tunnel and underground construction.

In Nuremberg, WACKER will present a complete range of new VINNAPAS® products intended for complex, sustainable construction applications.

VINNAPAS® LL 4040 N: Very good workability, excellent crack bridging

The newly developed VINNAPAS® LL 4040 N is stabilized with a high-molecular cationic protective colloid. That makes one-component flexible sealing slurries very easy to process. Even if they contain large quantities of binders, as required for elastic and crack-resistant construction sealants, they are still convenient to process. Other features include strong adhesion after prolonged water exposure and excellent crack bridging. With these benefits, VINNAPAS® LL 4040 N is ideal for applications such as sealing slurries for durable and sustainable coatings beneath tiles in bathrooms, or for sewers, pipes and basements.

VINNAPAS® 5014 F: Two Functions in One

The new VINNAPAS® 5014 F combines two functions in one, since it is not only a polymeric binder but also a highly efficient superplasticizer. Only 1 to 2% dispersible polymer powder provides a

sufficient superplasticizing effect on its own. Moreover, the new VINNAPAS® 5014 F increases the compound's stability against excess water and reduces the shrinkage of cementitious mortars. The shear-thinning rheology of VINNAPAS® 5014 F improves pumping characteristics for machine application. That makes it ideal for formulating efficient, pumpable self-leveling compounds.

VINNAPAS® SAF 72: Easy to Use and Odor-Free

A further innovation is VINNAPAS® SAF 72. This plasticizer-free and solvent-free dispersion is particularly easy to process and allows considerable leeway in preparing formulations, since it can be combined with many different film-formers. In addition to its ease of processing and excellent mechanical properties, it features a unique rheology and superb water resistance. This fine dispersion is also free of ammonia, so there are no unpleasant odors when it is processed and used on alkaline substrates. Fast-drying VINNAPAS® SAF 72 is particularly suitable for tile-adhesive pastes (class D2 as per EN 12004) and primers.

VINNAPAS® DPX for Exceptional Wood Glue

The new, patented line of dispersions VINNAPAS® DPX offers extraordinary bonding properties for wood applications. VINNAPAS® DPX wood glue, featuring water resistance category D3, can dispense with a reactive co-monomer. Thus, discoloration can be avoided even on sensitive wood types. The dispersion is also highly tolerant to fillers, such as calcium carbonate, while maintaining its water resistance and improving its thermal stability, achieving an excellent cost-benefit ratio. Because the use of reactive co-monomers and external crosslinkers is unnecessary, VINNAPAS® DPX is compatible with state-of-the-art environmental and safety standards.

SILRES® IC 232 for Long-Lasting Coatings

SILRES® IC 232 is a new alkoxy silicone resin intermediate which imparts superior resistance to heat and weathering to various organic binders. It is used for the production of siliconized polyester, alkyd, epoxy and acrylic resins. SILRES® IC 232 is notable for its especially high reactivity and, when it comes to speed, offers its users clear advantages when formulating their binder systems. One possible application for SILRES® IC 232 is for exterior coil coatings.

SILRES® MP 50 E: Water-Based Silicone Resin Emulsion

Concern about the environment has led increasingly to the replacement of solvent-based paints with water-based ones. When doing this, it is crucial that the positive characteristics of a binder not be compromised. SILRES® MP 50 E heralds the availability of a silicone resin emulsion that conforms to FDA regulations (e.g. FDA 175.300) and the German Federal Agency for Risk Assessment (BfR, XV.Silicone). It is now possible to create a water-based silicone resin coating that, when fully hardened, provides a surface coating suitable for kitchen appliances, cooking utensils and grills.

GENIOSIL® STP-E: Rapid Curing Hybrid Adhesives

The future belongs to adhesives offering the combination of strength and elasticity needed for a broad range of challenging applications. WACKER SILICONES is introducing its innovative GENIOSIL® STP-E Technology especially for this class of adhesives. These are based on alpha-silanes (with a methylene spacer instead of a conventional propylene spacer) that exhibit extremely high reactivity. The resulting "turbo" effect on curing can be exploited to produce completely novel, fast-curing, one-component adhesives and sealants. Adhesives formulated with GENIOSIL® STP-E possess outstanding mechanical

properties, do not require labeling, and are free of plasticizers and solvents. The α -effect even permits the formulation of totally tin-free systems – representing a technological leap in user safety.

GENIOSIL[®] STP-E is used in numerous sophisticated adhesive formulations, e.g. in the automotive sector, in container construction and for bonding parquet floors. Moreover, within the GENIOSIL[®] N product line, WACKER offers a large selection of ready-formulated products, from highly elastic sealants to high-strength construction adhesives.

Further WACKER product highlights at ECS 2009:

- **SILRES[®] HP: Silicone Resin-Based, UV-Resistant Coating Systems Protect Against Corrosion**

SILRES[®] resins are specialty polysiloxanes that serve as binders or hardeners for paints and surface coatings. The new SILRES[®] HP product line combines the usual characteristics associated with silicone resins, such as excellent weathering resistance, with the property that it can already cure at room temperature, as a two component system. Coating systems modified with SILRES[®] HP are resistant to solvents, and are more resistant to and better protected from aggressive UV radiation, corrosion and chemicals. They are mostly used for applications which have to endure heat, intense sunlight and moisture, e.g. bridges and roofs, coated containers and pipelines, industrial coatings, marine paints and automotive paints.

- **SILRES[®] BS: Silicone Resin Emulsion Paints for Effective Facade Protection**

SILRES[®] BS silicone resin emulsion paints rank among the most advanced facade coating systems. The reason for their huge success

is the good marriage between the outstanding properties of mineral and synthetic-resin-bound paints. These include excellent water-vapor permeability, extremely low water absorption and exceptional durability. SILRES[®] BS products are innovative, environmentally-compatible raw materials for the production of water-repellent masonry coatings, construction chemicals and materials. As a leading producer of silicone resins, WACKER will also be emphasizing the energy-saving effect of silicone resin emulsion paints at the ECS.

▪ **VINNAPAS[®] VAE-Dispersions: Odorless, Decorative Solvent-Free Paints**

Novel, solvent-free, vinyl acetate/ethylene (VAE) dispersions are ideal for environmentally-friendly, decorative paints. They are free of formaldehyde and plasticizers, and contain an extremely low amount of volatile organic compounds (VOC's). The VINNAPAS[®] brand of VAE dispersions therefore not only makes it possible to develop odor-free indoor paints, it also lends itself to decorative outdoor use.

▪ **CAVAMAX[®]/CAVASOL[®] Cyclodextrin-Fragrance Complexes for Innovative Coatings**

WACKER has developed a system that, with the help of cyclodextrins, can effectively incorporate fragrances into building materials despite their high volatility and chemical sensitivity. These ring-shaped sugar molecules bind to the delicate, scent-producing molecules and protect them within an inner cavity. After the coating has dried and set, the cyclodextrins release them at a controlled rate. Thus, for the very first time, essential oils and other fragrances can be used in various non-hydrophobic construction applications, such as floor surfacings, plasters, paints, troweling compounds and other coatings and sealants.

- **VINNOL® Surface-Coating Resins: Versatile Binders for Industrial Coatings and Printing Inks**

VINNOL® is the WACKER brand name for a broad range of vinyl chloride and vinyl acetate copolymers, both with and without functional groups. They accordingly have a wide variety of uses. All VINNOL® grades can be combined with each other, allowing the coating or printing ink to be customized to the requirements of the application, e.g. for the formulation of gravure and screen printing inks, for inkjet inks, and for metal and metalized substrates, such as heat-sealing coatings. Further applications include plastic coatings, wood varnishes or adhesives for fittings.

- **VINNAPAS® Solid Resins: Polyvinyl Acetate for the Application of Coatings and Adhesives**

Due to their excellent adhesion to various substrates, such as wood, cardboard and metal, VINNAPAS® solid resins are the binders preferred by adhesives manufacturers for solvent-based adhesives. VINNAPAS® can also be used to formulate primers for metalizing packaging or modifying NC coatings. The product range covers homopolymers and copolymers in various viscosities and delivery forms.

- **HDK® Pyrogenic Silicas – Complete Control of the Flow of Liquid and Powder Coating Materials**

Pyrogenic silicas from WACKER (brand name: HDK®) are ideal for controlling viscosity and powder flow, for reinforcing coating materials, printing inks, composites and adhesives, as well as for many other applications. In the formulation of low-solvent coatings (high solids), such as for automotive coatings and solventless and water-based systems, HDK® pyrogenic silicas offer selective control

over coating thickness and leveling. Moreover, HDK[®] pyrogenic silica improves the storage stability of the systems by effectively preventing pigment and filler sedimentation. In clear coats, HDK[®] pyrogenic silicas ensure high transparency.

Visit WACKER at the European Coatings Show 2007 – Booth 107, Hall 9.



Sealing slurries modified with VINNAPAS[®] LL 4040 N are extremely flexible and elastic, as well as crack resistant and water repellent. These properties make them particularly suitable for application in baths and pool/spa facilities, in basements or as coatings for pipes and sewers (photo: Wacker Chemie AG).

Polymer-modified concrete is sprayed onto the walls in the Stetten salt mine to stabilize the tunnel and to act as a barrier to water seepage. The innovative formulation reduces the rebound during spray application, and so minimizes waste and material consumption. (photo: Wacker Chemie AG).



The SILRES[®] MP 50 E silicone resin emulsion newly developed by WACKER SILICONES is ideal for formulating heat-resistant, water-based coatings for household and kitchen applications. (photo: Wacker Chemie AG).

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The company in brief:

WACKER is a globally-active chemical company with some 15,900 employees and annual sales of around €4.3 billion (2008). WACKER has 27 production sites and over 100 sales offices worldwide.

WACKER SILICONES

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

WACKER POLYMERS

Dispersible polymer powders and dispersions; PVAc solid resins; VC copolymers; polyvinyl acetates

WACKER FINE CHEMICALS

Fine chemicals, biologics and other biotech products, such as cyclodextrins and cysteine

WACKER POLYSILICON

Polysilicon for the semiconductor and photovoltaics industries; solar wafers

Siltronic

Hyperpure silicon wafers and monocrystals for semiconductor devices