

PRESS RELEASE

Number 01

Middle East Coatings Show 2021: WACKER and Dubai Central Laboratories Present Findings of Joint “Sustainable House Project” Study

Dubai, September 27, 2021 – Wacker Chemicals Middle East together with Dubai Central Laboratories (DCL) launched a study project over a span of twelve months aimed at reducing energy consumption in buildings through silicone and polymer-modified construction material in the UAE. Aligned with Dubai Plan 2021 and the government’s sustainability vision & mission, the project successfully delivered key findings in September 2019. At the Middle East Coatings Show (MECS), WACKER will be presenting the final results of the project which showcased a ~59% reduction in energy consumption through an External Insulation & Finishing System (EIFS). DCL has begun discussions to use the study findings as a basis for revising the environmental and sustainability standards (Al Sa’fat regulations) for construction materials. New standards are set to include application methods and specifications based on the study results, especially those relating to EIFS and low-VOC paints.

During the 12-month project, two model houses were built and placed on the DCL premises. They provided a comparison between conventional and WACKER-enhanced construction materials under local weather conditions. The application of the building materials focused on three key areas: exterior wall elements, interior wall and interior flooring.

The conventional model house was not insulated, had standard paint based on styrene acrylate on the exterior and interior, and the doors and windows were sealed with a standard sealant based on polyurethane. The sustainable house was constructed using an External Thermal Insulation Composite System (ETICS) also known as External Thermal Finishing Systems (EIFS). It was insulated and built with WACKER-enhanced products, such as silicone resin emulsion paint (SREP®), polymer-modified cementitious waterproofing membranes and tile adhesives, solvent-free flooring based on hybrid silicone technology and interior paint based on vinyl acetate-ethylene (VAE) dispersions.

During the study, data were recorded continuously to determine:

- **Energy consumption for both houses**
Results show reduced total energy consumption in the house insulated with ETICS. It consumed over 59% less energy than the non-insulated house. This translates to an almost 60% reduction in carbon dioxide emissions.
- **Interior temperature**
Better indoor climate: despite the higher energy consumption, the temperature in the non-insulated house repeatedly rose to 28 °C whereas 23 °C was measured almost constantly in the insulated house.
- **Atmospheric temperature and humidity**
Better indoor air quality was achieved by using low-VOC paint based on WACKER's vinyl acetate-ethylene (VAE) technology and WACKER silicone sealants, VOC emissions

could be reduced to less than 0.800 ppm maximum and less than 0.500 ppm on average.

- **Total volatile organic compound (VOC) content in both rooms, recorded with an automatic recording unit**

The tests also showed that the sealants used in window and doors of the non-insulated model house cracked and yellowed under the sun's harsh ultra-violet rays, while the facade and seals of the sustainably built house remained clean, intact and blemish free. In addition, the core-shell and exterior SREP® technology repels water and dirt extremely well, is breathable, hinders paint deterioration and reduces dirt pick-up by around 25%.

The treated model house contained an External Thermal Insulation Composite system (ETICS, also known as EIFS). Studies show EIFS or ETICS systems strongly reduce heat loss through the walls and the roof of the building. The reduction in heat loss has a significant positive effect on energy savings, both for cooling in summer and heating in winter. Final results of the project showcased a ~59% reduction in energy consumption through ETICS. Apart from reducing energy costs, the system also creates a healthy indoor ambience and actively protects the masonry work. ETICS could be applied to new buildings during construction and to old buildings under renovation. The system could also be incorporated into national building regulations as a unique thermal cladding system.

“WACKER is one of the largest silicone manufacturers worldwide and a leading producer of binders and polymeric additives. Our extensive knowledge and R&D facilities enabled us to lead this project together with DCL and reaffirmed our commitment to the construction industry and a sustainable future for all living beings”

added Wacker Chemicals Middle East managing director Cyril Cisinski. "Energy consumption in housing has become a particular focus of attention not only for people but also for many governments around the world. With DCL discussing potential changes to Al Sa'fat regulations in line with key results and learnings from this project, we will continue to support the authorities in regulating and setting industry standards, and as well as in continuous improvement"

WACKER is also exhibiting other products applicable to the region during MECS, such as

- **NEXIVA®** – a polymer binder in powder form for high performance powder paints that work without any biocides or preservatives. Paint manufacturers can use NEXIVA® to create individual paint formulations, just as they can with traditional binders in dispersion form.
- **VINNAPAS® 547 ED** - a vinyl acetate- ethylene (VAE) copolymer dispersion. This product acts as a low-VOC and UV-resistant binder for bonding agents and primers with outstanding bond strength. The vinyl acetate content secures stiffness and adhesion, while the ethylene content provides flexibility. This results in a combination of tensile adhesion strength and crack-bridging ability which is superior to that of traditional products based on styrene acrylics and is especially valuable for waterproofing membranes.
- **SILRES® BS 333** is a nonionic, solvent-free, water-dilutable emulsion of a reactive polysiloxane, used in undiluted form as an additive for aqueous indoor paints or coatings in order

to improve the workability. It offers long-lasting increase in hydrophobicity, enhanced stain resistance, improved scratch resistance, improves soft touch and enhanced dry burnishing.

WACKER offers a broad range of products: water-borne and solvent-borne as well as solids for powder coatings, thus delivering many sustainable solutions for coatings and construction applications.

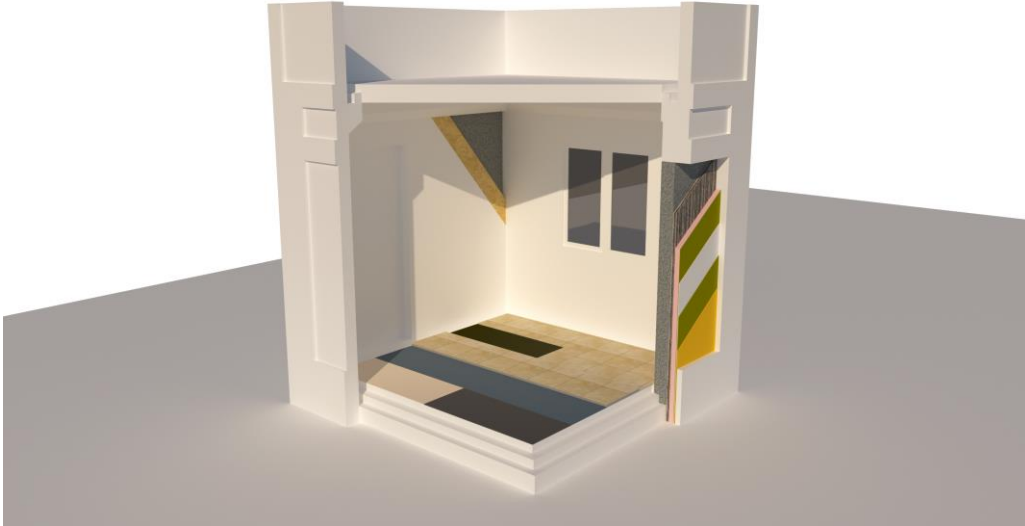
WACKER in Dubai

WACKER set up its local subsidiary Wacker Chemicals Middle East in Dubai back in 2000 and has been operating its own sales office there since then. A technical center has been available to regional customers and partners since 2002. In 2009, WACKER moved to the “Dubai Silicon Oasis” technology park. Spanning nearly 13,000 m², the new location houses technical labs as well as the offices of WACKER’s subsidiary for the Middle East & Africa sales region. In 2010, WACKER further established a local branch of its international training and competence center, the WACKER ACADEMY, at its technical center Dubai. From Dubai, the subsidiary serves customers in the Middle East and Africa.

Business Presentation at MECS

- “Wacker’s latest technologies for exterior & interior paints – SILRES® & NEXIVA®”
September 28, 12.30 – 12.50

Visit WACKER at MECS 2021, Booth C01, Za’abeel Hall 6, Dubai World Trade Center



Above: an illustration of the model house which was erected at DCL premises. A model of the same is available in the booth during the show



The new NEXIVA® product line can be used to make powder-form interior wall paints. (Photo: Wacker Chemie AG)

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The company in brief:

WACKER is a globally-active chemical company with some 14,300 employees and annual sales of around €4.69 billion (2020).

WACKER has a global network of 23 production sites, 21 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