

PRESS RELEASE

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WACKER Receives SolarPACES Innovation Award for New Heat-Transfer Fluid

Munich, December 14, 2017 – The Munich based chemical company WACKER and Royal Tech CSP Limited, a Chinese specialist for the development and promotion of highly efficient solar thermal systems based on concentrated solar power technologies, have received the Technology Innovation Award from the SolarPACES technology network. The award was presented for a joint development project in the field of solar thermal energy. Since 2016, the two companies have been testing a new heat-transfer medium for parabolic trough collectors in a solar thermal power plant in Inner Mongolia (China). The silicone fluid that WACKER developed for this technology is extremely resistant to high and low temperatures. With the project, the two companies were able to demonstrate that the new heat-transfer medium significantly improves the cost/benefit ratio of such plants.

Professor Zhifeng Wang, Vice Chair of the Executive Committee and Head of Solar Thermal Energy and Photovoltaics at the Chinese Academy of Sciences in Beijing, presented the technology award at the 23rd SolarPACES Conference in Santiago, Chile. The distinction was awarded for the efficient cost-benefit ratio provided by the silicone fluid thanks to its heat resistance and longer service life, said Wang.

Most of the heat-transfer media currently used consist of aromatic hydrocarbon compounds. Because of their limited thermal load capacity, they can only be used up to about 400 °C. Higher temperatures result in a significantly shorter lifetime of the medium. Low temperatures, too, are a problem. At exterior temperatures below 12°C, such media solidify, and therefore solar power stations often have to be equipped with trace heating. "The medium's heat and frost resistance have a significant effect on the cost efficiency of industrial solar thermal power plants", Wang emphasized in his speech.

The new WACKER silicone fluid, marketed under the name HELISOL®, on the other hand, is suitable for operating temperatures up to 425°C, and is still liquid at -40 °C. That allows significantly higher efficiencies and energy yields to be obtained. Silicones also release less hydrogen than conventional media. Experts therefore assume that the receiver in which the oil circulates will have a significantly longer lifetime. „WACKER and Royal Tech succeeded in extending the physical limits for the high- and low-temperature resistance of heat-transfer media in solar power plants. Operators of large-scale systems can now use them to significantly improve the cost/benefit ratio and reliability of their systems," said Professor Wang.

WACKER's Head of Corporate Research & Development Dr. Fridolin Stary and project manager Erich Schaffer accepted the award on behalf of the Munich-based chemical group. "We are glad that we have convinced technical experts of the benefits of our silicone fluid," said Dr. Stary. Within a few years, WACKER has succeeded in developing a product that is clearly superior to other media in terms of its heat resistance, durability and reliability. "This silicone fluid sets

standards and makes solar thermal energy even more attractive for operators – both ecologically and economically.”

WACKER’s top researcher also thanked the project partners for their good collaboration. “Royal Tech is an ideal partner for us. The company was the first to recognize what opportunities our silicone fluid offers and made its pilot plant in Inner Mongolia available to us for the test phase. This was a major benefit for us and a key factor in the success of the project.”

The SolarPACES innovation award is one of the most prestigious awards in the field of solar thermal energy. The Executive Committee presents it each year to companies or individuals. Award winners since 2009 have included the German architectural consultants Schlaich Bergermann Partner and the Spanish solar company Ingemetal Solar.

SolarPACES

Solar Power and Chemical Energy Systems (SolarPACES) is a multinational research network in the field of concentrated solar power (CSP). Founded in 1977, it provided a platform that, from the start, shaped research into new technologies and visions in concentrated solar power. Within the technical cooperation program by the International Energy Agency (IEA), SolarPACES coordinates research work by international solar thermal energy experts. The network currently comprises 19 member states.



The deputy chairman of the SolarPACES Executive Committee, Professor Zhifeng Wang, presented this year's innovation award to WACKER's head of R&D, Dr. Fridolin Stary, Royal Tech CSP Limited strategy director, Dou Huaixin, and WACKER project manager, Erich Schaffer (from left to right). (Photo: SolarPACES)

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The company in brief:

WACKER is a globally-active chemical company with some 13,450 employees and annual sales of around €4.6 billion (2016, without Siltronic). WACKER has a global network of 23 production sites, 19 technical competence centers and 49 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