

PRESS RELEASE

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WACKER and Royal Tech CSP Sign Partnership Agreement for New Heat Transfer Medium for Use in Solar Thermal Power Plants in China

Munich and Shanghai, June 29, 2017 – Munich-based Wacker Chemie AG has intensified its cooperation with Royal Tech CSP Limited of China, a specialist for highly efficient solar thermal systems that are based on CSP (concentrated solar power) technologies. The two companies signed an agreement to this effect. Under its terms, WACKER will supply its newly developed HELISOL[®] silicone fluid to Royal Tech, its exclusive partner in China. Royal Tech uses the silicone fluid as a heat-transfer medium in its solar power plants. HELISOL[®] can withstand thermal stress of up to 425 °C for a long period of time and its viscosity remains low even at -40 °C. In combination with Royal Tech's parabolic trough collectors, the fluid enables efficiency levels that are not possible with conventional heat-transfer fluids. At present, Royal Tech is building a 50-megawatt solar power plant in the city of Yumen in western China.

Auguste Willems, member of WACKER's Executive Board, underscored the importance of the new partnership: "As a leading polysilicon manufacturer, we have become a key player in the global expansion of solar power. With our newly developed silicone fluid for solar power plants, we are strengthening our portfolio in the renewable-energy field and, at the same time, are supporting initiatives to cut carbon dioxide emissions. Our partnership with Royal Tech will contribute to significantly enhancing the efficiency of solar power

plants and, in turn, bolster the market position of our two companies in the highly promising market for high-performance CSP systems.”

Richard Yu, general manager of Royal Tech, said at the signing ceremony: “Royal Tech has been devoted to R&D and the industrialization of CSP technologies since 2009. Having established an open-ended value chain from project development, technological R&D, component manufacturing to system integration as well as commissioning and maintenance, we cooperate with various partners to jointly promote the development of the industry and the application of new technologies. Our well-established partnership with WACKER, one of the largest silicone manufacturers in the world, will further strengthen the technological advantage of CSP in China’s renewable energy market. China is making a concerted effort to replace fossil fuels, such as coal, with electricity from advanced solar thermal plants. Our partnership will contribute to China’s ambitious and resolute plans to promote renewable energies even faster and more effectively.”

Royal Tech specializes in developing components and solutions for highly efficient solar thermal systems that are based on CSP technologies. The systems use reflecting parabolic troughs to concentrate sunlight onto pipes (vacuum receivers) filled with heat-transfer fluid. Heat exchangers and steam turbines then convert solar energy into electricity. In such systems, the level of efficiency primarily depends on keeping the heat-transfer medium at the highest possible temperature and on effectively storing part of the heat obtained during the day so that the system can generate electricity after sunset and can operate around the clock.

As the key medium in CSP systems, WACKER's HELISOL[®] silicone fluid features very high heat resistance and durability. In pilot tests conducted jointly with Royal Tech for over a year at its CSP test facility in Inner Mongolia, this transparent and odorless heat-transfer fluid was heated to 425 °C. At the same time, its freezing point of -55 °C is far lower than that of conventional heat-transfer fluids. This significantly reduces the energy needed to uphold operating temperatures in winter. As a result, HELISOL[®] is ideally suited to the harsh climates in the areas where China is conducting its major CSP projects. In addition, the fluid produces no benzene and generates much less hydrogen than conventional heat-transfer fluids.

About Royal Tech

Royal Tech CSP Limited is headquartered in the Chinese city of Changzhou. Founded in 2009, the company specializes in developing components and solutions for highly efficient solar thermal plants based on CSP technologies. At the same time, it is one of China's major project developers for CSP systems. At present, Royal Tech is carrying out solar thermal power projects in Yumen, Gansu (50 megawatts), and in Inner Mongolia (100 megawatts). As one of China's pioneers of this technology, Royal Tech additionally supplies components for overseas commercial CSP systems.

About WACKER




WACKER (www.wacker.com) is a globally-active chemical group headquartered in Munich, Germany. With a wide range of state-of-the-art specialty products, WACKER is a leader in numerous fields and industries. WACKER products are needed in countless high-growth end-

user markets, including photovoltaics, electronics, pharmaceuticals and the household/personal-care sector. In 2016, the Group generated sales of some € 4.63 billion. WACKER's operations are divided among the following business divisions: WACKER SILICONES, WACKER POLYMERS, WACKER POLYSILICON and WACKER BIOSOLUTIONS. Founded in 1914, the Group currently operates 23 production sites, supplying over 3,200 products to more than 3,500 customers worldwide. WACKER is represented by subsidiaries and sales offices in 31 countries in Europe, the Americas and Asia.



Concentrated solar power technologies (CSP) use parabolic trough collectors to concentrate sunlight onto vacuum receivers filled with heat-transfer fluid. According to a recently signed agreement, Munich-based Wacker Chemie AG will supply its newly developed HELISOL[®] silicone fluid in China exclusively to Royal Tech CSP Limited, a specialist for highly efficient solar thermal systems based on CSP technologies. (Photo courtesy of Royal Tech)

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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, excluding 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