

# PRESS RELEASE

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## Innovative Product Solution for Semiconductor Customers: WACKER Develops New Specialty Silane for High-Performance Microchips

**Munich, September 5, 2024 – WACKER is expanding its specialty portfolio for the semiconductor industry with the development of a new precursor silane for the fabrication of highly integrated memory chips and microprocessors. Such computer chips play an important role, for instance, in highly complex calculations that are typically required in artificial intelligence or cloud computing. WACKER's new silane is used for chemical vapor deposition in semiconductor manufacturing. It reacts with the surface of the wafer and creates an ultrathin insulation layer with a low dielectric constant. This shields electromagnetic fields from the tightly arranged interconnects and circuits and ensures the reliable and trouble-free functioning of highly integrated microchips. The new silane shows once again how the WACKER Group focuses on customer-specific solutions with high added value.**

Modern semiconductor chips contain billions of transistors squeezed into the tightest of spaces. Increasing miniaturization has brought with it a rise in the number of transistors and boosted semiconductor performance, but also presents several technical challenges. One problem, for example, is the interactions between the interconnects and the transistors. As a consequence of the growing number of

circuits and ever-higher switching frequencies, electromagnetic fields are limiting the performance of the latest generation of microchips.

A new product from WACKER now offers a practical solution. The product, a specialty silane consisting of silicon, carbon and chlorine, is an important layer-forming precursor in the production process of semiconductors. It reacts with the surface of the heated hyperpure silicon wafer to create an insulating layer with a low dielectric constant. This reduces electromagnetic interference on the charges moving at high frequency in the interconnects.

“Thanks to intensive research work, our chemists have succeeded in developing a silane that improves the performance of microchips significantly,” says Thomas Koini, head of WACKER’s SILICONES division. “The product facilitates the development of computer chips with highly integrated and highly complex structures. These types of chips are increasingly required for applications that have to handle intensive computational tasks, such as artificial intelligence, autonomous driving, and cloud computing.”

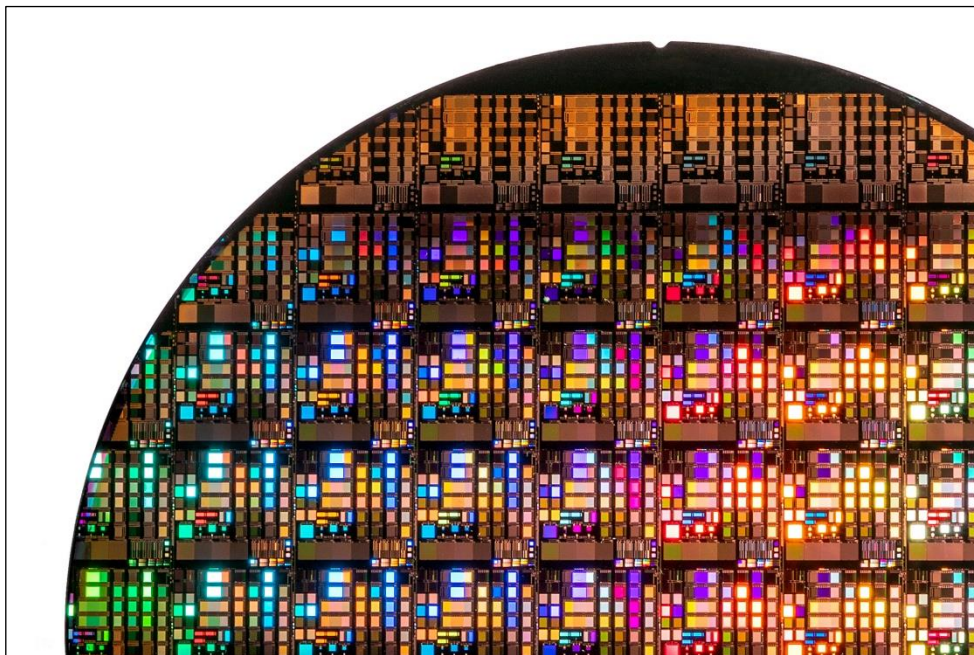
WACKER has been supplying raw materials and additives to the semiconductor industry for many years. The Group is Europe’s largest polysilicon manufacturer and considered a global technology and quality leader in polysilicon for semiconductor applications. Polycrystalline silicon is the basic raw material for the fabrication of hyperpure silicon wafers which in turn are processed in successive steps to the finished product – microchips. One in two microchips consists of ultrapure polysilicon made by WACKER.

A lesser-known fact is that the company is also a manufacturer of important process chemicals for the semiconductor industry. Polishing slurries containing pyrogenic silica from WACKER are used, for instance, as a mechanical abrasive for polishing and smoothing the silicon wafers. The chemical company is also among the few manufacturers of hydrogen chloride that meet the industry requirements of the industry in terms of purity and quality. This base chemical – a key intermediate and auxiliary in the Group’s integrated production system – is ideal for etching wafers and cleaning coating equipment. Last year, WACKER invested a low double-digit € million amount on expanding its production capacity for hydrogen chloride at its Burghausen site.

Precursors – chemicals required for layer deposition – have been an integral part of WACKER’s product portfolio for many years and are used by all leading microchip manufacturers. By developing the new specialty silane, the Group has yet again highlighted the strategic importance of having highly specialized semiconductor chemicals in its product portfolio.

“Today, we are the absolute quality leader in this market and one of the world’s most sought-after suppliers of such specialty silanes,” says Laurent Morineaux, head of WACKER SILICONES’ Performance Solutions business unit. Due to high development costs and immense quality requirements for these specialties more and more competitors are withdrawing from the market, “which is not the case with WACKER”, emphasizes Morineaux. “This market continues to be highly attractive for us. We therefore intend to carry on focusing

on these products in the future and to even expand our activities in this area.”





WACKER has developed a new precursor for the manufacture of highly integrated memory chips and microprocessors. The new specialty chemical ensures the reliable and trouble-free functioning of highly integrated microchips for cloud computing and AI applications. (photo: WACKER)

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**The Company in Brief:**

WACKER is a global company with state-of-the-art specialty chemical products found in countless everyday items, ranging from tile adhesives to computer chips. The company has a global network of 27 production sites, 22 technical competence centers and 48 sales offices. With around 16,400 employees, WACKER generated annual sales of around €6.4 billion in fiscal 2023.

WACKER operates through four business divisions. The chemical divisions WACKER SILICONES and WACKER POLYMERS supply products (silicones, polymeric binders) for the automotive, construction, chemical, consumer goods and medical technology industries. WACKER BIOSOLUTIONS, the life sciences division, specializes in bioengineered products such as biopharmaceuticals and food additives. WACKER POLYSILICON produces hyperpure polysilicon for the semiconductor and photovoltaic industries.