

## PRESS RELEASE

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### **SABIC UNVEILS AT NPE 2018 FIRST SUCCESSFUL MICROMOLDING OF IR OPTICAL SENSOR LENSES USING HIGH-PERFORMANCE EXTEM™ RESIN**

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SABIC, a global leader in the chemical industry, unveiled today at NPE 2018, booth S19001, a major breakthrough in the production of infrared (IR) optical sensor lenses for proximity sensing and gesture recognition in smartphones and other electronics applications using its EXTEM™ thermoplastic polyimide (TPI) resin. SOPROD SA, a Swiss molding company, selected the high-performance SABIC material, which features IR transparency, to mass-produce sensor lenses using micromolding with a multi-cavity tool. Efficient, high-volume molding of EXTEM resin can deliver multiple advantages over grinding and polishing of quartz glass and curing of epoxy resin. These benefits can include speed, consistently high quality and the avoidance of costly secondary operations. SOPROD's achievement offers the electronics industry a new and highly efficient solution to meet accelerating demand for IR optical sensors.

"Thanks to the exceptional properties of EXTEM resin, this project – our first experience micromolding a thermoplastic resin – has been a great success," said Jean-Camil Pitteloud, chief operating officer (COO) of SOPROD SA. "The SABIC material's high flow and low shrinkage make it well-suited for mass producing small, precise parts. Further, it can withstand the high temperatures of lead-free soldering commonly used in device assembly. We are excited to leverage our long-standing expertise in producing fine watch movements to help pioneer this new manufacturing approach, which has clearly given us a strong competitive advantage."

"IR optical sensors are widely used to add new functionality in consumer electronics – from phones to video game controllers and even drones," said Andy Verheijden, global EXTEM business manager, SABIC. "Our collaboration with SOPROD demonstrates the advantages and feasibility of micromolding IR optical lenses from EXTEM resin. With this new method, our customers in the electronics industry can quickly produce the components required to develop true next-generation devices."

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## IR Transparency and High-Temperature Capability

EXTEM resin can deliver key optical properties needed in IR sensor lenses. These include IR transparency, high refractive index, low haze and no surface defects. EXTEM resin is available in natural and black, with the black color absorbing visible light but transmitting IR light, which helps increase accuracy for proximity sensing.

The resin's extreme high-temperature capabilities (glass transition temperature of 267°C / 513°F) provide the opportunity for use in lead-free reflow soldering processes, which are popular for assembly of miniaturized device components.

## Expanded Design Freedom

EXTEM resin surpasses epoxy and glass in design flexibility. The SABIC material can be injection molded into lenses with freeform surfaces, while epoxy has geometric limitations and usually needs a substrate layer. Its high shear thinning properties facilitate mold filling, which is essential for small, high-precision parts. The design freedom and the higher refractive index allow the elimination of 1 or 2 layers in an advanced lens design compared to an epoxy solution.

## About SOPROD

SOPROD SA has been developing and manufacturing reliable, high-performance mechanical and quartz movements for the Swiss watch industry since 1966. SOPROD Sion also produces high-precision micro-injection-moulded polymer components for watch movements, as well as other technical components used in a variety of fields. It has a specialist research centre and extensive, efficient production facilities, and can deal with design, mold manufacture, impression, tooling, production and ad hoc quality control, in accordance with the specifications provided.

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## ABOUT SABIC

SABIC is a global leader in diversified chemicals headquartered in Riyadh, Saudi Arabia. We manufacture on a global scale in the Americas, Europe, Middle East and Asia Pacific, making distinctly different kinds of products: chemicals, commodity and high performance plastics, agri-nutrients and metals.

We support our customers by identifying and developing opportunities in key end markets such as construction, medical devices, packaging, agri-nutrients, electrical and electronics, transportation and clean energy.

SABIC recorded a net profit of SR 18.4 billion (US\$ 4.9 billion) in 2017. Sales revenues for 2017 totaled SR 149.8 billion (US\$ 39.9 billion). Total assets stood at SR 322.5 billion (US\$ 86 billion) at the end of 2017. Production in 2017 stood at 71.2 million metric tons.

SABIC has more than 34,000 employees worldwide and operates in more than 50 countries. Fostering innovation and a spirit of ingenuity, we have 11,534 global patent filings, and have significant research resources with innovation hubs in five key geographies – USA, Europe, Middle East, South Asia and North Asia.

The Saudi Arabian government owns 70 percent of SABIC shares with the remaining 30 percent publicly traded on the Saudi stock exchange.

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## PHOTOS AND CAPTIONS



Example of a proximity sensor with IR emitter lens and separate lens to project receiving signal to the sensor (both lenses in EXTEM™ resin)

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