

Press Release

Mainz, Germany, March 2020

NEXTREMA® - a Material for Extremes (Hall 23 / Stand A32)

By combining different material properties, a high-tech glass-ceramic opens up a wide range of options for innovative process and product solutions

In the industrial environment, performance and reliability of materials are a decisive success factors that offer a competitive advantage. Plastics and metals often reach their physical limits quickly at high temperatures, abrupt temperature changes, or chemical stress. High-tech glass-ceramics from SCHOTT, however, can be used to create precisely fitting material solutions even under extreme conditions. The material platform NEXTREMA® allows engineers, designers and developers to obtain exactly the material profiles they need for their projects. "When it comes to covers for IR heaters, carrier plates in display production, and tiling or cladding materials for high-temperature furnaces, NEXTREMA® has already made a name for itself," explains Roberto Perez Castro, Head of

NEXTREMA® Product Management at SCHOTT. "Our glass-ceramic offers great potential, especially in the industrial sector. With the versatile material platform and our know-how, we want to inspire the implementation of new ideas".

The secret of NEXTREMA® lies in the intelligent microstructure of the material. The glass-ceramic all-rounder has a thermal expansion close to zero and can withstand rapid temperature changes. The temperature shock resistance varies depending on the type and can be up to 820 °C. The high heat resistance also permits use at temperatures of up to 950 °C for short periods. From six different optical transmission profiles - from transparent or translucent white, blue-grey, or black to opaque white or grey - users can select the glass-ceramic suitable for their project. NEXTREMA® is also chemically resistant to acids and bases - making it reliable for use in aggressive environments.

In which industrial areas is the SCHOTT material used?
When manufacturing AMOLED (Active Matrix Organic Light Emitting Diode) displays, several heating and processing steps have to be carried out in one furnace. It requires particularly robust components. NEXTREMA® offers a solution. Due to its almost zero thermal expansion, high thermal shock resistance and robustness at high

temperatures, the glass-ceramic is an ideal material for carrier plates.

The high transmission of some NEXTREMA® types in the infrared range also makes it a highly useful material in infrared heating and drying processes. IR heaters used in industrial paint drying or food processing require covers that transfer heat and protect heating elements from mechanical influences or environmental particles. The combination of high-temperature resistance and IR transparency combined with a pore-free, smooth, easy-to-clean surface makes SCHOTT glass-ceramic the material of choice.

Specific NEXTREMA® grades are also used as a tiling or cladding material for high-temperature ovens. The thermal robustness ensures that the cladding can withstand high temperatures over a more extended period, while the almost zero thermal expansion prevents expansion during the temperature process. The transparent version of the high-tech material can also be applied for viewing windows, for example.

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Figure captions

(SCHOTT-NEXTREMA_1_2020.jpg)

For extreme conditions, SCHOTT has developed the versatile NEXTREMA® material platform. It offers engineers, product designers and developers a wide range of options for implementing their ideas

(SCHOTT-NEXTREMA_2_2020.jpg)

M-80576: NEXTREMA® has various material properties that can be combined: near-zero thermal expansion, high heat resistance, thermal shock resistance, chemical resistance and different transmission profiles

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