

PRESS RELEASE

PRESS RELEASEApril 29, 2020 || Page 1 | 2

Fraunhofer IKTS expands development for transparent ceramics

As of April 1, 2021, the Fraunhofer Institute for Ceramic Technologies and Systems IKTS will take over the transparent ceramics division of the company CeramTec-ETEC, known for its brand name PERLUCOR®. The institute thus significantly expands its existing competencies in the development of transparent ceramics. The technical infrastructure gained in the acquisition enables the establishment of a research and development center for transparent ceramics at the IKTS site in Hermsdorf.

"We are very pleased to be able to consistently expand our decades-long and world-leading expertise in the field of transparent ceramics through this step. This will enable us to meet the requirements of our partners even better." institute Director Prof. Alexander Michaelis is confident. The transparent ceramics technology chain will be integrated at the IKTS site Hermsdorf, Thuringia in the next few months. It complements the existing facilities and enables the production of high-purity, transparent ceramics for optical systems, medical technology, and ballistic protection.

Performance leap for advanced ceramics in the region

With the financial support of the Free State of Thuringia in the amount of 2.5 million euros, a research and development center is being established at the Hermsdorf site of Fraunhofer IKTS, which will contribute to significantly expanding the current application scenarios of transparent ceramics with the most advanced technologies. "Transparent ceramics cover a wide range of applications, from optics and medical technology to Industry 4.0," said Thuringia's Minister of Economic Affairs Wolfgang Tiefensee. Examples, he said, include scratch-resistant displays and control surfaces, protective covers for optical and sensor systems used outdoors, safety glass and large-format scanner screens. "These are all applications and technology fields that will generate a high demand for transparent ceramics in the future. As a state, we therefore support Fraunhofer IKTS in Hermsdorf strengthening its expertise in this important and fast-growing market."

A complete ceramic technology chain consisting of equipment for conditioning high-purity powders, shaping, laser processing and ultra-precision finishing will be installed in Hermsdorf, providing a link between laboratory scale and industrial production. Ceramic technology in Hermsdorf will thus achieve a performance leap in transparent ceramics in terms of component size, degree of purity and innovative manufacturing. The

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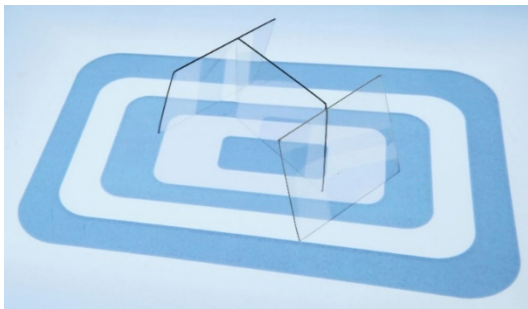
funding is an important foundation for future projects. It represents a real milestone in the development of East Thuringia into Europe's leading center for advanced ceramics.

PRESS RELEASE

April 29, 2020 || Page 2 | 2

Wide range of applications for transparent ceramics

The special optical and mechanical properties of transparent ceramics open up a wide range of applications. In addition to high transparency, the material is characterized by high strength and enormous hardness - it is about three to four times as hard as conventional glass. Transparent ceramics can therefore be used in optical and sensor systems (camera optics for driver assistance systems, lidar sensors for autonomous driving), in civil defense, in medical technology (endoscopes for human and veterinary diagnostics) or in displays and interfaces under harsh ambient conditions.



Transparent ceramics (here: spinel ceramics) can be used, for instance, for highly exposed displays of mobile devices. (Foto: Fraunhofer IKTS)



Fraunhofer IKTS is expanding its activities in the field of research and development of transparent ceramics. (Foto: Fraunhofer IKTS)
