

Corporate Communications

CeramTec corporate contact:
Christoph Hermes
Head of Communication
Phone +49 (0) 7153 611-803
E-mail: pr@ceramtec.de

Press contact echolot pr:
Barbara Geier
Phone +44 (0)7983 242 195
E-mail: geier@echolot-pr.de

Press Information

Research in space: CeramTec part of project consortium

Advanced Ceramics in Research

Southampton/Plochingen, 5 July 2021 – As a leading international manufacturer of advanced ceramics, the CeramTec Group has once again successfully produced ceramic sample containers for a space experiment facility on the ISS.

In the course of this and previous joint product developments, CeramTec, together with Airbus Defence & Space and other partners* in a project consortium, developed sample containers for experiments as complex components and manufactured them at the Plochingen site in Germany.

The pot sample holders and cage sample holders are made of silicon nitride and were first installed in the International Space Station (ISS) back in 2017. They are used in the so-called Electro Magnetic Levitator (EML), a multi-purpose research facility for natural science experiments on board the ISS. The EML and its predecessors can already look back on more than four decades of successful research work by international teams from Germany, the USA, Italy, Russia, and other nations. In the EML, the sample containers are inserted into a coil in which metal alloy samples are fixed all around in a contact-free

Corporate Communications

CeramTec corporate contact:
Christoph Hermes
Head of Communication
Phone +49 (0) 7153 611-803
E-mail: pr@ceramtec.de

Press contact echolot pr:
Barbara Geier
Phone +44 (0)7983 242 195
E-mail: geier@echolot-pr.de

Press Information

manner by electromagnetic fields while suspended in zero gravity. For analysis, the samples are melted, cooled in the liquid state and then solidified again. These precision measurements of certain thermophysical properties of metals, alloys and semiconductors, which are not possible on Earth, make it possible to analyse the early phases of the formation of material structures and to expand our understanding of transition processes, atomic structures and material properties.

The "mundane" objective here is to improve production and casting processes on Earth thanks to the material properties measured in space, in order to achieve an increase in quality while reducing the cost of high-tech castings (e.g., engine blocks). This will allow manufacturing methods to be refined and materials and products to be improved and redeveloped. This basic research is being realized in a collaboration between Airbus Defence & Space, the European Space Agency ESA (Contract 21788/08/NL/BJ [EML (Electro-Magnetic Levitator) Phase B2/C/D Development; Contract Change Notice 45 [EML Experiment Infrastructure (EXI) for Batch 3]) and the Space Agency of the German Aerospace Center (DLR) (Contract 50WP0505, 50WP0606, 50WP0808), among others.

Corporate Communications

CeramTec corporate contact:
Christoph Hermes
Head of Communication
Phone +49 (0) 7153 611-803
E-mail: pr@ceramtec.de

Press contact echolot pr:
Barbara Geier
Phone +44 (0)7983 242 195
E-mail: geier@echolot-pr.de

Press Information

Silicon nitride with ideal properties

The ceramic material silicon nitride (Si₃N₄) is particularly suitable for this purpose due to its non-existent electrical conductivity, which prevents external influences on the measurements, as well as the required high heat resistance as the measurement cycles take place in temperature ranges between 500 and 2100°C. This, in combination with the absolute reliability and consistently high product quality, have once again convinced the project consortium to use CeramTec advanced ceramics for what is probably the most demanding application in the universe.

The sample containers of this latest generation started their journey into space with the SpaceX-22 in June 2021 and will significantly support further research activities there.

**The view expressed herein can in no way be taken to reflect the official opinion of the European Space Agency nor of the German Space Agency*

ENDS

Corporate Communications

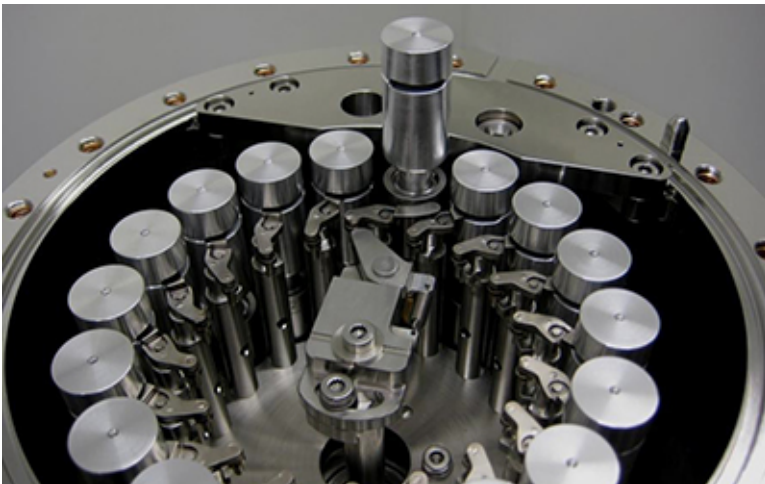
CeramTec corporate contact:
Christoph Hermes
Head of Communication
Phone +49 (0) 7153 611-803
E-mail: pr@ceramtec.de

Press contact echolot pr:
Barbara Geier
Phone +44 (0)7983 242 195
E-mail: geier@echolot-pr.de

Press Information

Notes to the editor

Images



Caption: The sample chamber with sample holders
Copyright: Airbus



Caption: ISS sample containers
Copyright: CeramTec GmbH

Corporate Communications

CeramTec corporate contact:
Christoph Hermes
Head of Communication
Phone +49 (0) 7153 611-803
E-mail: pr@ceramtec.de

Press contact echolot pr:
Barbara Geier
Phone +44 (0)7983 242 195
E-mail: geier@echolot-pr.de

Press Information

About CeramTec GmbH

CeramTec is a world-leading manufacturer of technical ceramics and is specialised in the development, manufacturing and sale of parts, components and products made from ceramic materials. With over a century of developmental and production experience, CeramTec is a global leader in the manufacturing of advanced ceramics and engineers these materials for use in a wide variety of applications. Advanced ceramics from CeramTec are used in a range of industries, including medical engineering, the automotive industry, electronics, energy and environmental engineering, as well as equipment and mechanical engineering. The current portfolio comprises well over 10,000 products, components and parts made from technical ceramics, along with a wide variety of ceramic materials.

With production sites and subsidiaries in Europe, the UK, North and South America as well as Asia, CeramTec maintains its presence around the globe as a manufacturer and supplier. The company is headquartered in Plochingen, near Stuttgart. In 2020, CeramTec generated close to €553 million in revenues. CeramTec employs more than 3,500 staff worldwide, around 2,000 of which are in Germany.

CeramTec GmbH
CeramTec-Platz 1-9
73207 Plochingen
Germany

CeramTec UK Limited
Antelope Park, Bursledon Road
Thornhill, Southampton
Hampshire, SO19 7TG
United Kingdom

www.ceramtec-group.com/en/
www.ceramtec.com/linkedin
www.ceramtec.com/twitter