Fraunhofer IGP

Fraunhofer Institute for Large Structures in Production Engineering IGP

Photo: Holger Mertens

Overview of services

Thermal Coating Systems

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Thermal Coating Systems

Work area

The growing demand for high-performance technical systems is increasing the requirements for materials and components worldwide. The production technology of thermal spraying offers unrivaled flexibility and scalability in the field of coating processes and is therefore of essential importance as a key component in meeting these requirements.

In addition to high-quality laboratory equipment, the Thermal Coating Systems department has a fully PLC-integrated coating center for the production of thermally sprayed coatings according to the latest quality standards as well as the associated integrated process monitoring. We offer customized solutions for complex coating systems based on years of expertise in process modification, coating analysis and quality assurance. Our work focuses on considering and continuously improving materialographic, mechanical-technological and process engineering aspects of thermal spraying as an overall system.

All at a glance

Would you like to find out more about thermal coating systems or do you need support with a project?
Then take a look at our website or contact us!

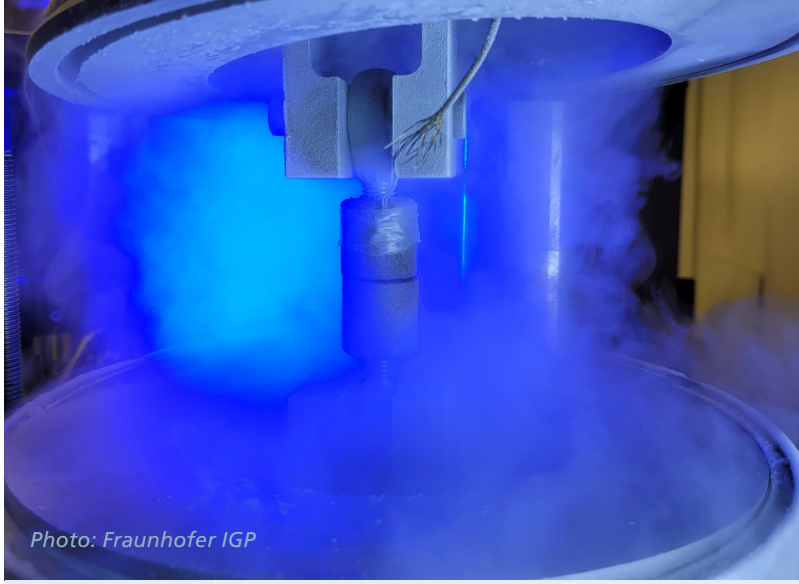

Photo: Fraunhofer IGP

Our services at a glance

- Development, automation and optimization of thermal coating processes in-house and with external partners
- Consulting services for coating development under consideration of technological, materialographic and design requirements
- Analysis and monitoring of thermal spray processes
- Small batch production for industrial customers / coatings as a service
- Development and qualification of coating materials
- Materialographic analyses of coating morphology and microstructure using optical reflected light (OM) and scanning electron microscopy (SEM)
- Chemical analyses e.g. energy dispersive X-ray analysis (EDX), spark emission spectrometry (OES), carrier gas extraction for determining O-, N-, H- contents
- Determination of mechanical-technological and functional properties of coatings, e.g. hardness, Youngs's modulus, adhesive tensile strength, electrical conductivity / resistivity, quasi-static tests (coating tensile strength) under ambient and cryogenic temperatures, dynamic tests
- Measurement of residual stresses in coatings using the hole-drilling method and ESPI