

Foreword



30 years of IKTS.

Dear friends and partners of IKTS,

this time we look back not just on another successful year, but on our 30-year-long success story. Fraunhofer IKTS started out in 1992 with 84 employees and an operating budget of 8 million DM. IKTS was created from the renowned Central Institute for Solid State Physics and Materials Science ZFW of the Academy of Science in Dresden. Prof. Waldemar Hermel, founding director of IKTS, managed to assemble an outstanding team – a boon to our institute to this day. I was very fortunate to find the institute so well-positioned when I took over in 2004. At that point, the number of staff had already grown to 150 and the operating budget had reached approx. € 10 million.

This was followed in 2010 by the important milestone: the merger with the Hermsdorfer Institut für Technische Keramik e. V. (HITK). Successor to East Germany's most important manufacturing site for technical ceramics (Kombinat Keramische Werke Hermsdorf), HITK was founded in 1992 as an independent, business-friendly research institute by Dr. Bärbel Voigtsberger, who also assembled a great and highly successful team. The merger brought together two institutions that were basically meant for each other. The manufacturing Kombinat in Hermsdorf and the researchers from Dresden had been cooperating in an ideal partnership reaching back as far as the times of East Germany. IKTS then took another important step in 2014 by integrating the Dresden part of Fraunhofer Institute for Nondestructive Testing IFZP. The field of testing and monitoring technologies and associated digitization technologies across the complete product lifecycle offers enormous innovative potential in processes and products while striving to achieve sustainable economic development.

The integration measures mentioned here have done a lot to help Fraunhofer IKTS grow organically. They also meant that we were able to implement our strategy of covering the complete value chain of ceramic engineering, from the source material to the system and back (recycling). Thanks to this strategy, we can be a valuable partner for the manufacturers and users of technical ceramics.

In the recent reporting period, we continued to reach new heights, with a total budget of € 83,3 million and an operating budget of € 66 million. To our now more than 800 IKTS employees and to you as our partners: I cannot thank you enough. We were able to reach a total rate of return (third-party funds) of more than 87 %. Working with you, we were particularly successful in applying for and obtaining public funding. This also means that our direct industry income rate (rhoWi), as a percentage, has seen a moderate decline and stands at slightly below 30 %. We will be focusing more on increasing this rate in the future. We think it particularly noteworthy that we were able to invest a staggering € 18 million in our equipment. This benefited all IKTS departments, and therefore particularly you as our partners, since you can keep counting on top-level infrastructure when implementing projects with us. Please continue to use our infrastructure in the future. We look forward to talking with you to identify new ideas for projects.


You can find key highlights and developing trends from our business divisions in this report. In this context, I would personally like to point to the recent acquisition of the transparent ceramics manufacturing from CeramTec-Etec GmbH, well-known for their "PERLUCOR®" brand. Thanks to this step, we can unite our years of research knowledge with fresh manufacturing know-how, to develop higher performing and cost-optimized products. Furthermore, it helps us safeguard Germany's existing technological advantage as a location for business and investment. The production line is currently being set up in Hermsdorf, overseen by Dr. Sabine Begand. Hermsdorf is also the place where our Technical Center 4 went into operation. It is home, first and foremost, to our Na/NiCl₂ battery development work. Also, thanks to the strong support of the State of Thuringia (TMWWDG), we were able to acquire and develop our new site in Arnstadt. Under the management of Dr. Roland Weidl, a strong team of 30 employees got together in Arnstadt. The State of Thuringia contributed more than € 30 million over the past two years for the Arnstadt site alone, where we will continue to bolster our research and development resources on Li-ion batteries and hydrogen technologies, coordinated closely with our activities in Dresden. In Saxony, Dr. Mareike Partsch has led a successful effort to strongly expand operations in our Fraunhofer Technology Center High

Performance Materials THM, operated in collaboration with Fraunhofer IISB and focusing specifically on battery recycling. We are glad that Prof. Martin Bertau of TU Bergakademie Freiberg (TUBAF) agreed to support these activities and work with IKTS long-term. We intend to deepen our very fruitful collaboration with TUBAF even more in the future. This will also help to keep strengthening the subject area of the circular economy, including recycling and water resources management, which is of growing importance for IKTS.

For a particularly successful example, look no further than to a project from our department led by Jörg Adler: In collaboration with ESK-SiC GmbH, his team developed a new SiC recycling process, which significantly diminishes the amount of energy required to manufacture SiC, thus reducing the associated CO₂ emissions by more than the factor 5. If this process were to be used globally, more CO₂ could be saved worldwide than is emitted by the whole of Germany's ceramics industry (more than 2.6 million metric tons CO₂ p.a.) – an example of economics and ecology working together optimally.

I hope you will enjoy perusing this report and find it a source of inspiration for new project ideas. We are always available for a conversation and the whole team of IKTS is looking forward to our cooperation.

Yours,



Alexander Michaelis
April 2022