

# Table of contents

<b>Foreword</b> .....	<b>2</b>
<b>Table of contents</b> .....	<b>4</b>
<b>Fraunhofer IKTS in profile</b> .....	<b>6</b>
Portrait .....	6
Organizational chart .....	8
Fraunhofer IKTS in figures .....	10
Board of trustees .....	12
The Fraunhofer-Gesellschaft .....	13
Retrospective .....	14
<b>The business divisions of Fraunhofer IKTS</b> .....	<b>19</b>
<b>In interview</b> .....	<b>20</b>
Fraunhofer IKTS strengthens activities in Saxony-Anhalt .....	20
Strengthening German-Korean cooperative research .....	22
<b>Materials and Processes</b> .....	<b>24</b>
Titanium oxides as an innovation basis for electrodes, varistors and heating conductors ..	24
Pilot production of polymerceramic injection-moldable granules in stable quality .....	25
Ceramic microchannel pores for innovative filtration applications .....	26
Crucibles made of recycled ceramic powders .....	27
Forming of thermoplastic ceramic tapes .....	28
<b>Water</b> .....	<b>29</b>
Photocatalytic purification of problematic waters with TiO <sub>2</sub> components .....	29
Electrochemical destruction of PFAS .....	30
Recycling of laundry wastewater using ceramic nanofiltration (ReWaMem) .....	31
Technical kidney – bio-inspired membranes for water treatment .....	32
<b>Electronics and Microsystems</b> .....	<b>33</b>
PTC materials for highvoltage heating systems in electric vehicles .....	33
Integrated overvoltage protection for improved reliability of LTCC microsystems .....	34
Lead-free piezoceramics with improved temperature stability for precise actuators .....	35

<b>Energy</b>	<b>36</b>
In-line quality assurance in lithium-ion electrode manufacturing	36
Safeguarding a critical raw material base in Europe by closing the loop:	
The DiLiRec project	37
Research group "ThüNaBsE": The Thuringian Forest Battery	38
SOE technology on its way to the industry	39
Electrode processes of alkaline and AEM water electrolysis	40
Ultra-thin ceramic electrolyte substrates for sodium solid-state batteries	41
<b>Bio- and Medical Technology</b>	<b>42</b>
Project STOP: Preventing the transmission of pathogens	42
Cold sintering of bioceramics for embedded conductive lines	43
Electrochemical detection of cardiac biomarkers in point-of-care diagnostics	44
Evaluation of functional coatings on ceramic dental crowns	45
<b>Non-Destructive Testing and Monitoring</b>	<b>46</b>
Micro-acoustics for condition monitoring of trees	46
Quality inspection of battery slurries	47
AI-based evaluation of technical, biological and speech data	48
<b>Environmental and Process Engineering</b>	<b>49</b>
Reducing emissions from wood burning with ceramic filters and catalysts	49
Continuous gas drying using membrane technology	50
Rethinking preventive fire protection: flexible silicate-based film laminates	51
New value chains for green steelmaking	52
Bioethanol fuel from wastewater and residues from breweries	53
<b>Materials and Process Analysis</b>	<b>54</b>
Determining the homogeneity of ceramic structures	54
Quality enhancement for spray granulation with design of experiments	55
Material characterization down to ppm range by elemental analysis	56
Automated testing of the electrical properties of thermally sprayed insulating oxide coatings	57
<b>Cooperation and memberships</b>	<b>58</b>
<b>Names, dates, events</b>	<b>65</b>
<b>Events and trade fairs in 2025</b>	<b>66</b>
<b>Contact</b>	<b>69</b>