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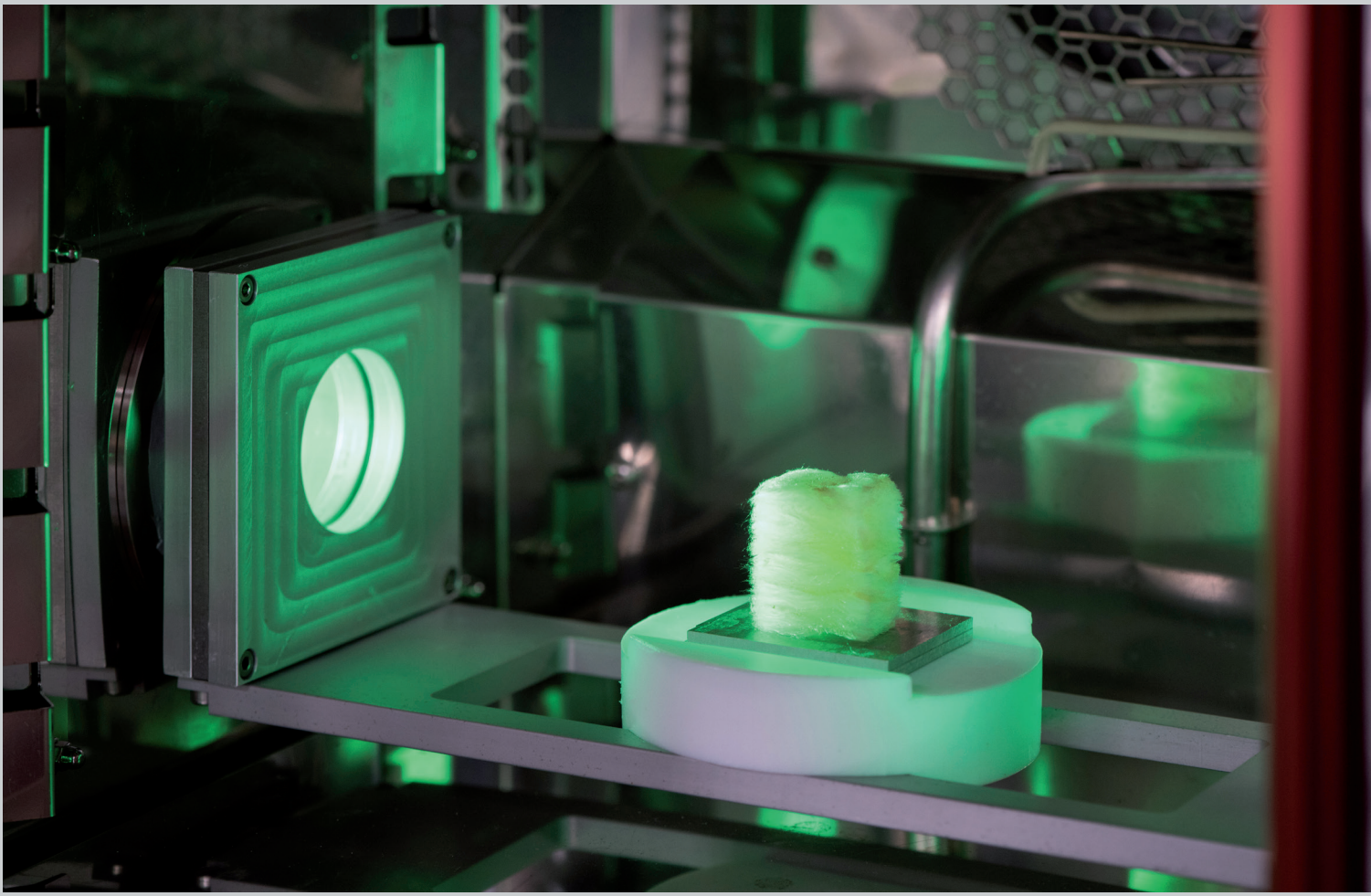
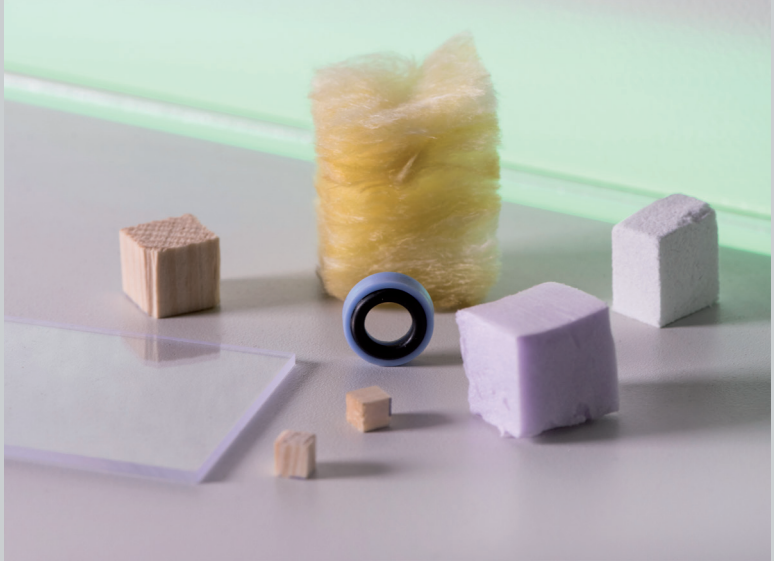
KLIMATOM





KLIMATOM – In-situ characterization of materials with climate change conditions

The Fraunhofer ISC´s Center for Device Development CeDeD has evolved a new analytical device for in-situ characterization of materials and material combinations with climate change conditions: KLIMATOM.

In a unique way the KLIMATOM enables a non-contact and non-destructive contour analysis of different materials, whereby the shadow image of the sample is investigated. Furthermore, it is possible to analyze in-situ material changes of transparent and translucent surfaces using transmitted light. In this occasion dimensional changes within defined temperature and humidity ranges can be measured and images in high-resolution CMOS technology can be obtained.

General benefit of KLIMATOM

- On-line investigation of heat and/or cold effects
- In-situ characterization of expansion, swelling and bending
- On-line characterization of damage caused by extreme climatic conditions
- Analysis of material combinations with different expansion coefficients
- Determination of moisture sensitivity
- Investigation of crystallization processes (e. g. precipitation in aqueous solutions)

Benefit of KLIMATOM for plastics

- On-line characterization of plastics under changing and extreme climatic conditions
- Analysis of plastic composites combining materials with different expansion coefficients
- In-situ alteration and on-line comparison of separate plastic components

Benefit of KLIMATOM for building materials

- Characterization of swelling and shrinking behavior of insulation materials, concrete and composite materials
- Analysis of bending fracture and deflection under climatic conditions
- Climatic stability test of insulation materials depending on the binder content
- Examination of the functionality of different surface finishing processes

Benefit of KLIMATOM for coatings

- Surface characterization of coatings for quality control of layer application and functionality (e. g. anti-fog, anti-ice, anti-dust)
- Analysis of wetting behavior
- Delamination of varnish systems under influence of temperature and/or humidity

Motivation of using KLIMATOM

- You understand what happens with your material under climatic conditions
- You are able to recognize inconsistencies just in time of the production process
- You have the possibility to start the optimization of your products immediately

Our services for you

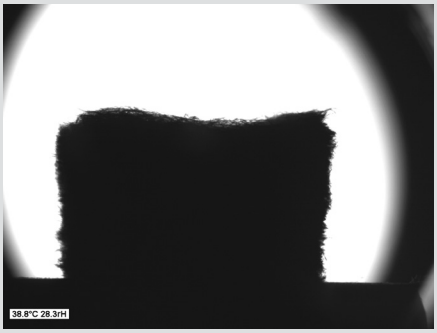
- Performing reliable tests of your materials or products
- Scientific support for understanding the material behavior
- Consulting for product optimization
- Individual factoring of KLIMATOM devices

TECHNICAL DATA OF KLIMATOM

Temperature range	-40°C to +160°C
Humidity range	30% to 95% r. h.
CMOS camera system	resolution of 0.3 µm and 20 images per second
Lighting	100 W LED array (wavelength selective)

Implemented measurement algorithm

Analysis/evaluation of height, width, area and volume



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