SERVICE
OFFER

RECENDT
RESEARCH CENTER NON DESTRUCTIVE TESTING

# Services for Non-Destructive Testing (NDT) & Characterization

## Let us measure what others can't!

**Conventional sensor technology is often not sufficient to measure material or process parameters non-destructively and with the required precision. We are happy to solve this for you – based on our diverse expertise and technological capabilities.**
**Our broad portfolio of measurement technologies and many years of experience enable us to develop new specialized solutions for your challenges. Measurement services can be performed in our laboratories or at your site directly in the production process.**

**We also look beneath the surface and provide the data you need.**

Based on our expertise in acoustic and optical non-destructive sensing technologies, we offer the following services:

### [1] Characterization of materials

- Chemical/spectroscopic investigations & material characterization.
- Characterization of highly specific samples (hot, cold, dangerous, very sensitive, very small...)
- Non-contact temperature measurement
- Characterization of thin films and coatings including layer thickness measurement down to nanometer structures
- Determination of the hardening depth of thermally hardened metals
- Characterization of 3-dimensional (layered) micrometer structures
- Detection and imaging of structures under the surface of different materials
- Measurement of elastic properties and anisotropy effects
- Observation of microstructural changes during thermal treatment of metals
- Characterize time series of changes and dynamic processes on a microscopic scale

### [2] Detection of defects, flaws, delamination, contaminations, etc.

- Testing of metals, polymers, semiconductors, ceramics, composites, ...
- Testing of highly specific samples (hot, cold, dangerous, very sensitive, very small...).
- Detection of delamination - e.g., in composites/CFRP, silicon wafers, coatings, adhesive joints
- Non-destructive evaluation of bonded joints
- Quality control of welds and spot welds

### Facts/Key-Values/ Features & Benefits

- Non-destructive
- Non-contact
- Detection of flaws
- Novel sensing technologies – enabling new insights
- Measurement of physical & chemical properties

### Potential Users & Fields of Application

- Metals
- Polymers
- Composites
- (Bio-)Chemical processes and materials
- Medical and biological samples and examinations
- Food & Pharma
- Glass
- Ceramics
- etc.

### Status – what do we offer?

- Measurements and analysis in RECENDT-labs
- Measurements and analysis on-site
- Materials modelling
- Technological support
- Feasibility Studies
- Consulting

### Contact data

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- Detection and imaging of defects under the surface of various materials
- Ultrasonic testing (UT) for defect detection
- Acoustic emission measurements in the high-frequency ultrasonic range

## [3] Imaging

- 3D imaging of internal structures at micrometer resolution
- Chemical 2D imaging by spectroscopy/ Hyper-Spectral Imaging (HSI)

## [4] Technical support

- 3D printing service in polymer FDM technology
- Electronic design services for custom component development (for research/ product development)
- Prototype development for specialized (sensor) solutions

## [5] Consulting in NDT/ZfP, PAT and sensor technologies

- Ultrasound expertise and consulting, acoustic modeling.
- Optics expertise and consulting
- Characterization and length measurement of optical fibers
- Development of process analytical technologies (PAT) and measurement routines
- Evaluation of cost-effective PAT solutions

## [6] In-line analytics/process analytics (PAT – Process Analytical Technologies)

- Reduction or complete elimination of sampling in the running process
- Quality assurance in process streams (chemicals, food, polymers, metals, ...)
- Real-time information as a basis for process control
- Information extraction from sensor data using machine learning, including multivariate data analysis
- Raw material and energy savings (e.g., optimized drying processes and reaction kinetics)
- Many years of expertise in the use of cost-effective, compact, and robust measurement technologies for industrial applications

**Give us a call to discuss the best way how we can meet your requirements and solve your challenges!**

Member of UAR INNOVATION NETWORK

upper austria

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