

Mechanical Testing Service

Who are we?

Alemnis develops micro and nano mechanical testing systems with 15 years of experience. During this time, we have benefited from many joint projects between EPFL (Swiss Federal Institute of Technology, Lausanne) and Empa (Swiss Federal Laboratories of Material Science and Technology, Thun).

What do we offer?

Alemnis offers testing service to investigate mechanical properties of materials.

What can we measure?

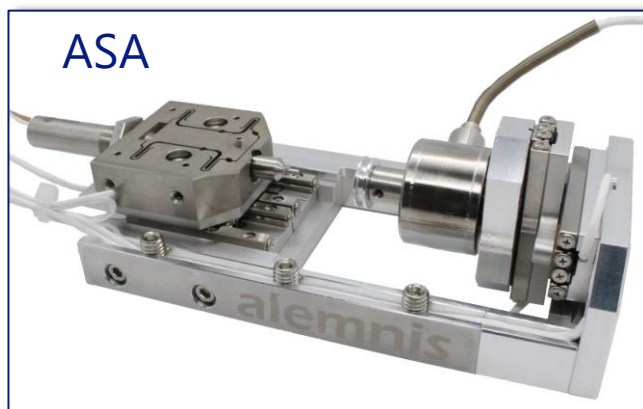
- Axial and lateral forces and displacements as a function of time.
- Tensile and compressive load from 100 μN to 4 N.
- Elastic, elastoplastic and viscoelastic mechanical characterization, including gradients of mechanical properties.

What Materials?

- Metallic, ceramic, polymeric and composite materials and joints.
- Bulk materials, coatings, dispersed materials, fibres, powders, capsules and small architecture structures

What can you do with results?

- R&D projects
- Quality control
- Failure analysis
- Scientific Research
- Input and validation of FEM simulation



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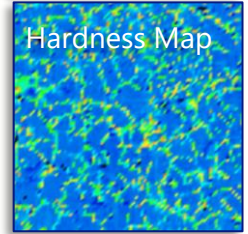
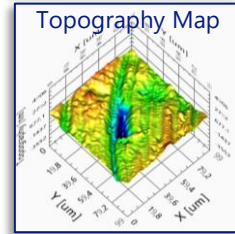
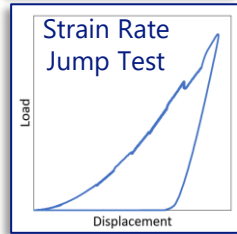
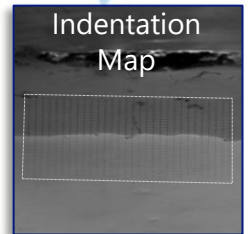
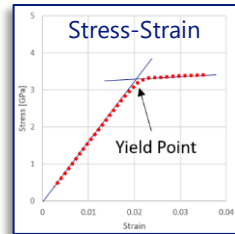
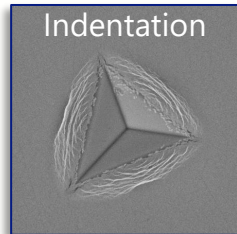


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Examples on next page...

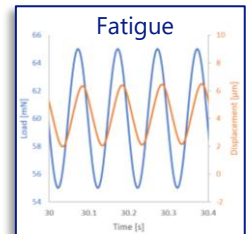
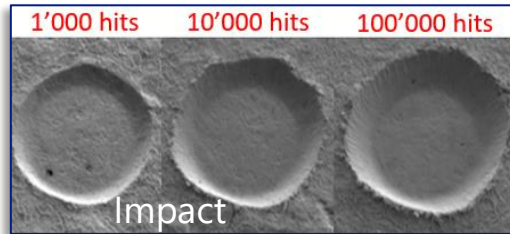
Indentation Test and Map

- Hardness
- Young Modulus
- Indentation Energies
- Topography Map
- Fracture Toughness
- Gradient of Mechanical Properties
- Strain Rate Sensitivity
- Yield Stress/Strain
- Creep and Stress Relaxation



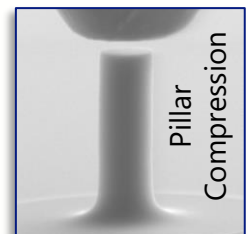
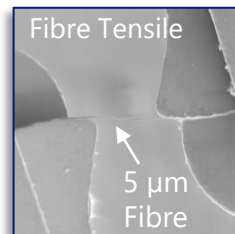
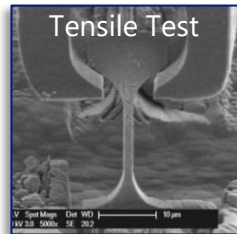
Dynamic Tests

- Fatigue Test
- Impact Test
- Storage/Loss Modulus



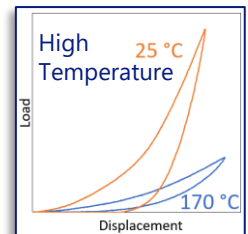
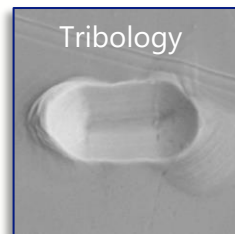
Tensile and Compression Tests

- Pillars
- Single Filament
- Yield Stress/Strain
- UTS
- Ductility



Scratch and Tribology Tests

- Friction Coefficient
- Wear Resistance
- Coating Adhesion



Environments

- In-situ SEM or Ex-situ
- Relative Humidity Chamber
- Liquid Cell and Biological
- Low Temperature (-150 °C)
- High Temperature (1000 °C)
- Gas Control and Vacuum

See more
on our website:
www.alemnis.com