

# Mechanical Testing and Accelerated Ageing

The Mechanical Testing and Accelerated Ageing Facility is mainly dedicated to:

- › the determination of mechanical properties,
- › the evaluation of the long-term effects under expected levels of short-term stress.

On one hand, the development of this facility met industry needs for providing tests results according to standards or customers' specifications before the introduction of goods onto the market.

On the other hand, the growing research activities related to the durability of polymers and polymer-based composites developed by LIST led the facility being completely kitted out with the instrumentation necessary for the study of advanced mechanical properties in the most severe environmental conditions.

Thus, mechanical performances of materials or products can be evaluated after **many kinds of artificial ageing**, under controlled temperatures when required, and with the ability to provide advanced properties like true stress or true strain.

Accelerated ageing tests can also be combined with **mechanical or electrical stresses**.

## Equipment

- › Static Universal Testing Machine
- › Dynamic Universal Testing Machine
- › Impact tester
- › Climatic Chambers
- › Artificial Light Chambers
- › Salt Spray Chamber

This facility is suitable for the **building, packaging, automotive, and aeronautic industries, at different steps of a product's life, such as development, validation and quality control.**



## Expertise and possible applications

- › Evolution of mechanical performances of materials with temperature;
- › Evolution of mechanical performances of materials with load rate;
- › Validation of simulation results;
- › Evaluation of adhesion performances under required environmental conditions;
- › Evaluation of endurance of defrosting system of rear windshield under cyclic environmental conditions;
- › Post-mortem analyses in combination with characterization methods;
- › Understanding of fracture mechanics.

## Examples of analyses



◀ Salt spray test on chain



◀ Flexural test on polymer



▶ Shear test on adhesive



▶ UV ageing of textiles

## Contact



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