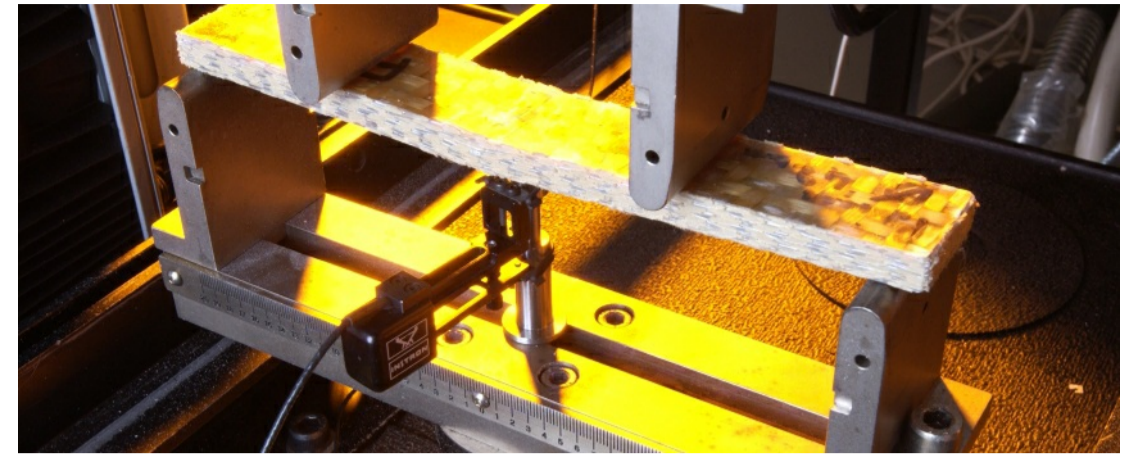


TESTING AND ANALYSING POLYMER/COMPOSITE MATERIALS

The advice of multi-skilled experts to implement an alternative to metals



Your expectations

As part of the design or development of your products, you need to:

Characterise and qualify composite, plastic and elastomer materials according the expected applications
Validate the behaviour predicted by the calculation of your parts or structures including these materials

Our solutions

Our experts provide you an overall support to characterise and analyse the behaviour of composite, plastic and elastomer materials

Definition of test protocols according to materials and expected functions

Characterisation of materials, determination of behaviour laws using innovative methods, special fixtures (such as compression and shear), impact tests, etc.

Standardised tests

Mechanical and physical-chemical tests

Estimation of services lives and ageing tests (climatic, creep, fatigue, etc.)

Use of advance simulation equipment in order to establish calculation/tests correlations

Material health control

ZOOM ON HYDROGEN

[HyMEET](#), our technological platform dedicated to H2, provides mechanical engineering with resources and skills needed to master low-carbon hydrogen production, distribution, storage and utilization technologies. HyMEET combines an ambitious R&D program with a €25 million investment in resources dedicated to characterization and validation tests (up to 1000 bar and in a range of temperatures from deep cryogenics to high temperatures) as well as consulting and training.

Its activities are dedicated to:

Characterizing the behavior of materials in contact with hydrogen

Development of specific test methods

Characterization of specific mechanical equipment and systems in severe hydrogen environments.

Our equipment enables:

Mechanical characterization of materials using fatigue machines in a high-pressure hydrogen environment

Control of sealing systems and plant containment, with test benches developed to study gas diffusion

phenomena, resistance to rapid decompression and sealing performance under severe conditions
The study of the ageing of test specimens in high-pressure autoclaves
Tests under cryogenic conditions for the use of hydrogen in liquid form, with several cryostats fed by a helium-hydrogen liquefier
Multiphysics tests with pressure, temperature and cycling.
Manufacture of thermoplastic composite parts (tanks, tubes) by in-situ deposition and consolidation (in real time, with no further steps required) using our HySPIDE TP robotized cell.

Our specific services for testing thermoplastic composites:

H2 permeation tests
Characterisation of behaviour in H2 environment and over a wide temperature range (from 20K)
Thermomechanical characterisation of materials (-269°C to 220°C)

Your benefits

Cetim's multiple competences associate the characterising and testing approach with expertise in design or redesign, failure analysis, as well as the consideration of severe environments and the development of multi-material parts or structures (composite, plastic, elastomer, metal, etc.).



Question and Answer Service
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