

## THERMOMECHANICAL PLATFORM

Thermomechanical analyses and formulation of structured materials

### SCIENTIFIC EXPERTISE

- Physicochemical formulation
- Nano/Micro structured materials, composite materials
- Liquids, pasties, gelled structures
- Critical analysis of raw data linked to final applications
- Choice of optimal experimental tools, development of best fitted experimental protocols

### APPLICATIONS

Multiple sectors expertise: aeronautic, civil engineering, construction and coating materials, cosmetic, pharmacy, medicine, biotechnology, food, energy

### TRACK RECORD

- Studies of concentrated emulsions for cosmetics.
- Investigation of fluid, gelled materials for pharmaceutical laboratories
- Studies of composite materials for civil engineering
- Studies of food products

### PUBLICATIONS

A. Ponton et al. *Rheologica Acta* 49, 953-960 (2010)

L. C. Pham Trong et al. *Journal of Colloid and Interface Science* 328, 278-287 (2008)

A. Ponton et al. *Journal of Rheology* 45, 521-526 (2001)

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Rheology ■ Thermomechanical analysis ■ Formulation - Deformation  
Viscoelasticity measurement ■ Flow measurement ■ Nanomaterials

### SERVICE DESCRIPTION

Most of the formulated products are obtained by an optimal mixing of several components. Flow properties for fluids or viscoelastic properties for pasty materials are then essential for their final conditions of use (e.g. applying a paint on a solid surface or a cosmetic product on the skin under shear) or for the development of stimulated materials by change of pH, temperature, electrical or magnetic field, UV radiation, etc. These properties are connected to physicochemical properties of raw materials and final products. It is therefore essential for producers to have good knowledge of these physicochemical properties in order to achieve the best formulation and process of production.

This platform is an experimental and comprehensive tool to help in the formulation of structured materials and the study of their thermomechanical properties. The platform is composed of a set of controlled strain or torque rheometers with different geometries (double cylinders, cone/plate, plate/plate), texture analyzers, nano-sized and charged particles surface potential measuring devices, optical microscopes, a differential scanning micro-calorimeter, an UV visible spectrometer and a fluorescence spectrometer. It allows flow measurements, viscoelasticity measurements, compression and expansion analysis, isothermal calorimetry analysis or dynamic scanning calorimetry, microscopic observations and optical density measurements.

### OFFER

- **Material testing services** : formulation/deformation studies, thermomechanical analysis, dynamic and structural property evaluations, flow measurements and viscoelasticity measurements
- **Product development services** : idea generation, composite material testing, performance evaluation, production improvements
- **Customized synthesis services** : production process evaluation/optimization, raw material quality analysis, new formulation seeking
- **Training** : continuous training seminars, intracorporate training, tailor-made training, consulting service