Eco-friendly Plastics and Composites (e-PLASCOM)

Centre Català del Plàstic

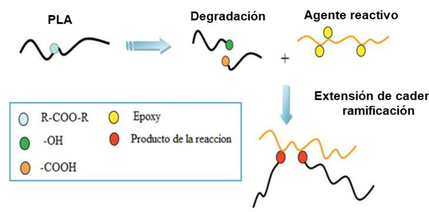
Departament de Ciència dels Materials i Enginyeria Metal·lúrgica
UNIVERSITAT POLITÈCNICA DE CATALUNYA

EEIGM

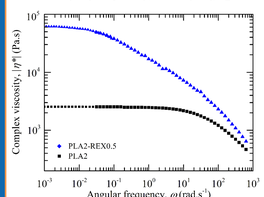
The group's main objective is the reduction of the environmental impact of plastic products, using recycled or renewable raw materials, as well as using sustainable manufacturing technologies.

Materials: "Green" plastics

- **PLA modification by reactive extrusion (REX-PLA)**



Dynamic Rheological Analysis (Frequency sweep, def: 2% (LVR), N_2)



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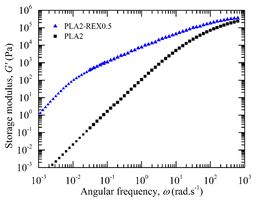
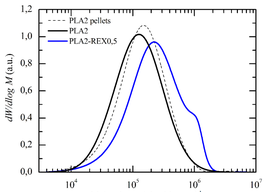


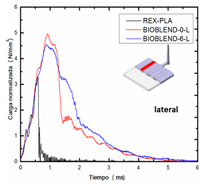
Size-exclusión chromatography (Calibration: PMMA, Tps: 30°C)

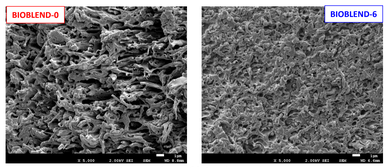


Increase of the complex viscosity associated with an **increase of the molecular weight** and the presence of **ramifications**.

- **Bioblends of REX–PLA /ABS**

Charpy instrumented impact test carried out on SENB specimen geometry
(Pendulum: 25J, Speed rate: 1m.s^{-1}, Sharp notch)



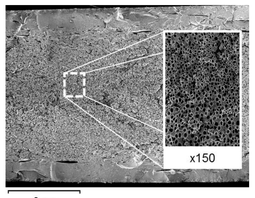


Fracture surface of lateral samples

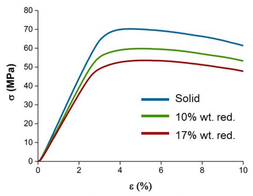
Design and processing: light structures

- **Characterization of microcellular plastics for weight reduction in automotive interior parts**

Victory 110 ENGEL injection molding machine

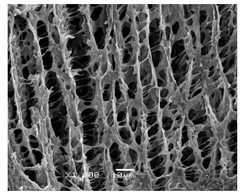


Morphology analysis

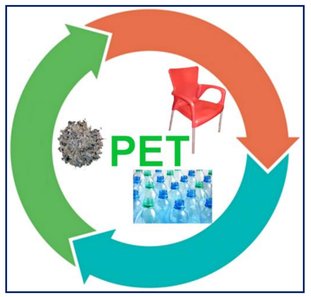


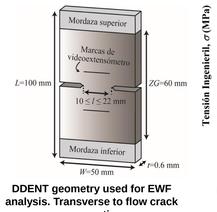
Flexural behaviour

- **Aerogels based on biodegradable polymer and clay**

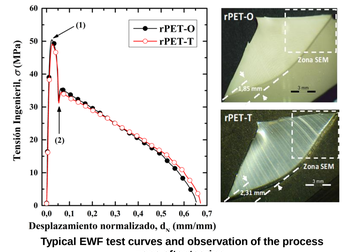


Plastic in the circular economy: from waste to resource





DDENT geometry used for EWF analysis. Transverse to flow crack propagation



Typical EWF test curves and observation of the process zone after tearing.

Teachers/Researchers involved

M Lluisa Maspoch
Expertise :
Fracture behaviour of polymers. Blends and composites.

Orlando Santana
Expertise :
Thermal and rehological properties of polymers.

Miguel Ángel Sánchez
Expertise :
Design, manufacturing and advanced processing of polymers.

Teaching subjects:

- Structure and properties of Polymers
- Technology of plastic materials
- Polymer composites
- Design, Ecodesign and recycling
- Adhesives
- Failure analysis