





## Thibaut HEREMANS

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# Hygromechanics of novel molded ligno-cellulosic materials for sustainable, renewable, recyclable and biodegradable packaging

## PhD @UCLouvain

#### Competition between fracture modes in high strength steel sheets

Wide mechanical campaign

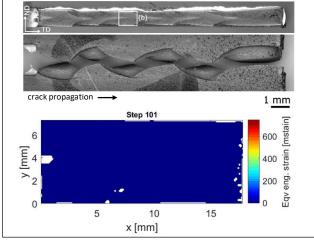
Tensile, notched tensile, double edge crack, Arcan







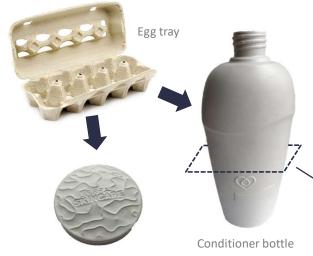
Digital Image correlation Complex strain distribution, crack tip monitoring



#### **Context**

## Moulded paper products as an affordable and eco-friendly packaging alternative for the cosmetic industry

Improved molding technology allows proper dimensional accuracy and surface finish



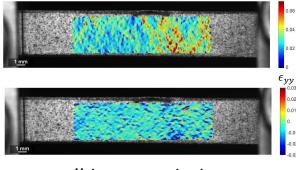
Skincare jar insert

- Mechanical performances and durability?
- Sorption properties?

### **Methods**

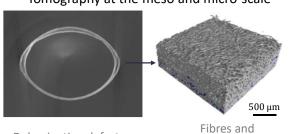
#### Mechanical testing under controlled moisture content and temperature

Experimental mechanical testing Tensile, creep, ... coupled with DIC



#### Heterogeneous structure

Tomography at the meso and micro-scale



Delamination defects

porosity network

 $\epsilon_{xx}$ 



