New high gas barrier cellulose 3D container for cosmetic cream packaging

Aziza MNALLAH - Master 2 Internship

INSA Tunis (Tunisie)

Cellulose Valley

BY FONDATION GRENOBLE INP

Context

This project aims to meet the requirements of the **anti-waste law** and the European directive on single-use plastics (AGEC, law SUP) by offering an alternative solution to reduce the production of plastic waste. The objective of this project is to develop an alternative with **high gas barrier properties**, biodegradable and of biological origin for the packaging of cosmetic products. Barrier properties are developed through **innovative** coating techniques.

Raw Material

Wet and Dry Molded Cellulose (WMF and DMF)

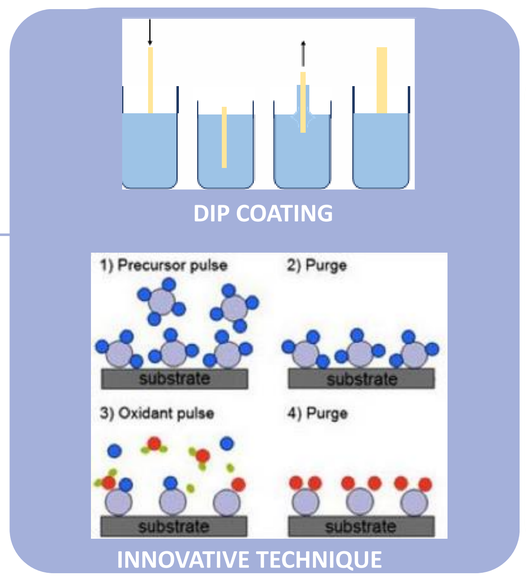
Paper

Barrier proprieties for:

- Gas: air permeation
- Water vapour: WVTR
- Oygen: OTR
- Water: Cobb water
- Grease: Cobb oil

LID AND TRAY CARACTERIZATION

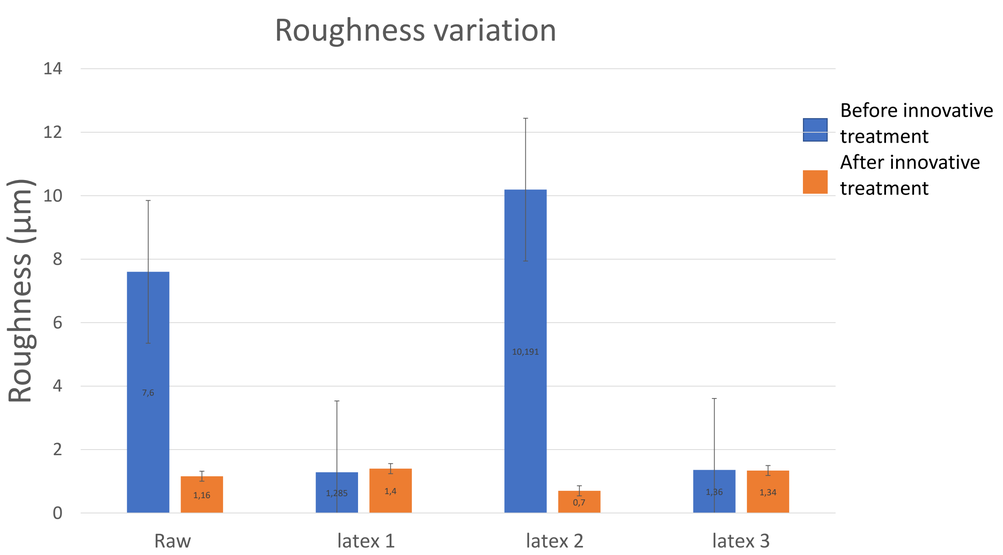
PROCESSING

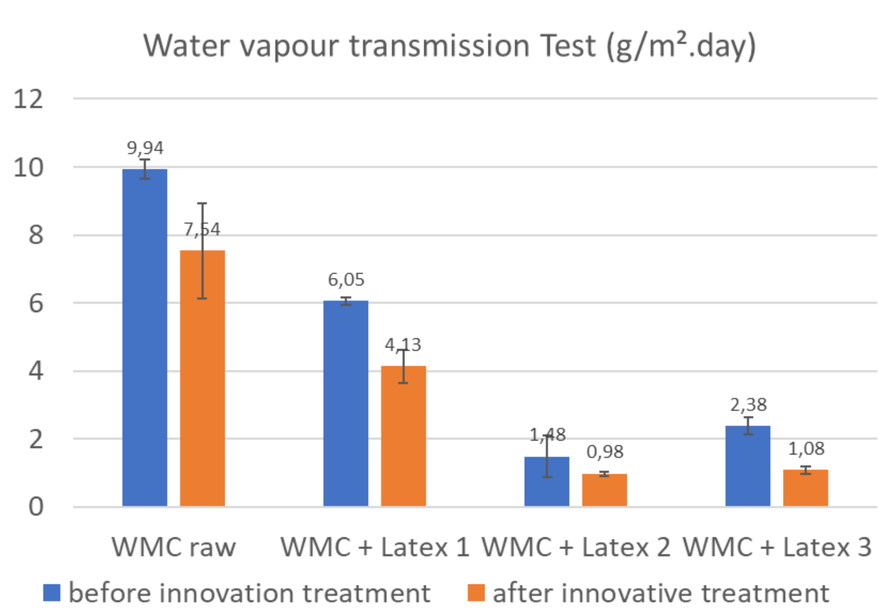


LID AND TRAY CARACTERIZATION

Dip coating :

- 4 polymer Latex
- Different time of dipping
- Monolayer approach





Conclusion and perpectives

- New treatment increases water vapour barrier of molded cellulose
- Good resistance to water and grease
- Choosing the best coating Latex
- Recycling test following Aticelca norm
- Aging Test