

SONAE MC Use Case

Paper-based food packaging



Objective:

Development of paper-based food packaging that can act as an alternative to existing plastic packaging, ensure a better performance of paper packaging (when compared to existing paper-based packaging) and ensure a better recyclability/ biodegradability of paper-based packaging.

Context

Currently, there are flexible paper with enhanced mechanical and barrier properties (against H₂O/O₂, mineral oil, grease resistant) and active functions (e.g., antimicrobial or antioxidant) extending shelflife of paper packed fresh food and helping replace plastic packaging for groceries. The synthetic waxes, plastics, or lacquer layers enhance barrier properties and enable direct food contact, but current coatings prevent recycling of package.

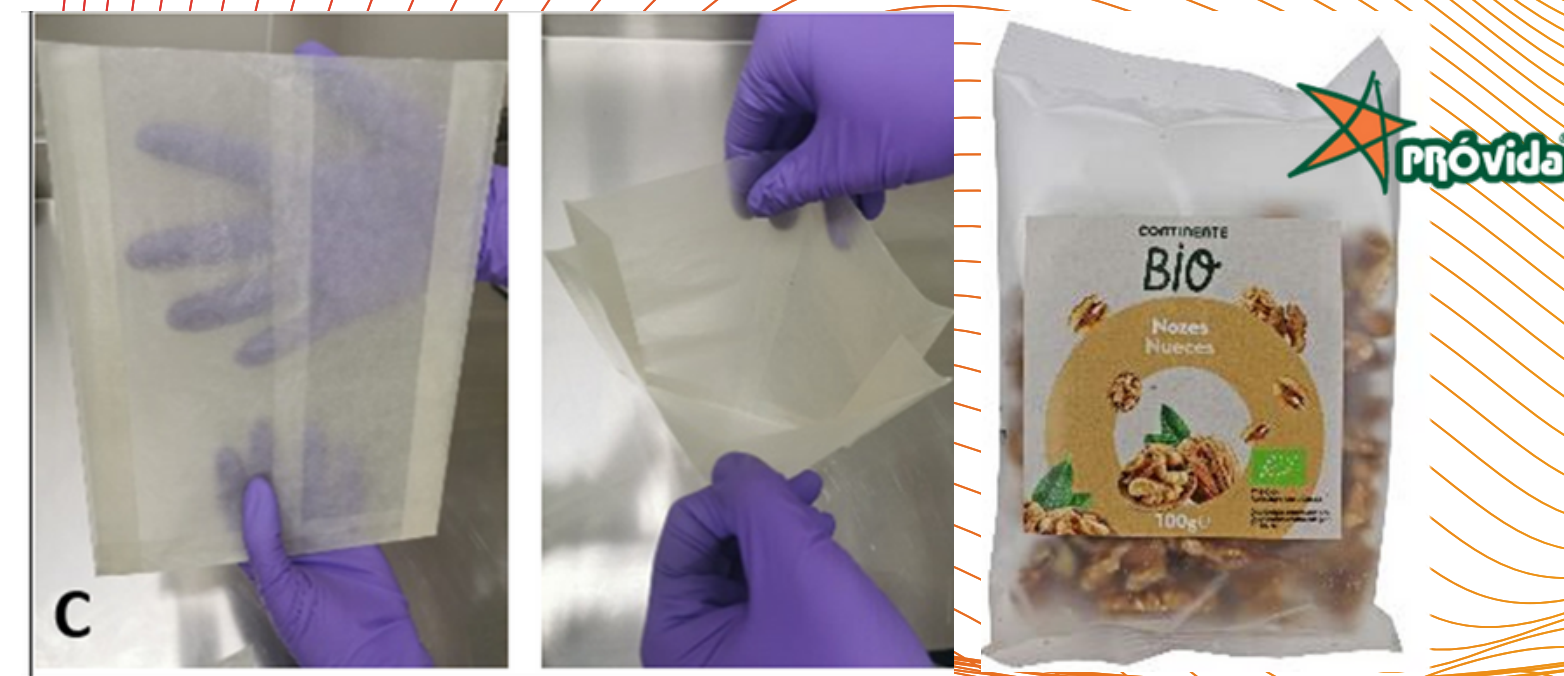
Our ambition

- Develop new paper-based food packaging to be tested in selected food items;
- Introduce “green” processes, e.g., electrohydrodynamic coating or ultrasonic atomisation for eco-friendly, active coatings based on nano-structured biopolymers, natural waxes and natural antimicrobial compounds;
- Demonstrate hydrophobic/ oleophobic, antibacterial surface on paper for extended shelf life of paper-packaged;

Intermediaries Results

- Shellac and PVOH coating formulations developed by INL;
- Spray coating process developed (upgrade to be finalized) and trials on transparent paper substrate by INL;
- Paper packaging (bags) for fresh food product (lettuce) produced and tested (barrier properties, food migration tests, mechanical properties, food quality assessment after refrigeration) by SONAE;

Example of current plastic based for fresh-food packaging at SONAE



Transparent glassine paper coated



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n°862156