



Active and biodegradable multilayer structure for dehydrated or dried food packaging applications

Acronym: BIOACTIVELAYER

WP 5. Evaluation of final packaging

Deliverable 5.1 Prototype of final packaging

Project funded by the European Commission within the Seventh Framework Programme		
Dissemination level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Index

1. Introduction	2
2. Objectives.....	2
3. Materials	2
3.1. Applied techniques.....	2
3.2. Evaluated structures.	3

1. Introduction

The development of biodegradable multilayer packaging at BIOACTIVELAYER project is based on the processing of different layers with improved properties, providing an enhanced solution for dried food packaging.

For this purpose, and to provide required properties (oxygen and moisture barrier mainly), to overall package structure, different processing techniques and materials have been evaluated during previous work packages. In work package 5, the packaging trials based on developed structures were carried out. Packaging trials required the selection of most suitable structures and its production in sufficient quantities to be processed at industrial scale.

This objective has been reached, and in this deliverable is showed the developed prototype.

2. Objectives

The target of this task was to develop a multilayer structure for the envisaged packaging application. The main objective was to define guidelines for processing and converting a multilayer structure. These materials have been selected and developed in previous workpackages (1-4).

3. Materials

3.1. Applied techniques.

Films are commonly processed by extrusion. It is usual that packaging structures require properties not available in one material, like oxygen and moisture barrier properties. When considering this approach, co-extrusion is a quite powerful technique to improve material properties, and has been applied within this development. This technique combines two or more molten polymer layers into a composite extruded web which provides enhanced properties when compared to monolayer materials.

Lamination is other applied technique in the project. It is based on the joining two or more flexible packaging webs together using a bonding agent. Both techniques along with other converting techniques have been considered in the project research.

3.2. Evaluated structures.

Based on the techniques and developed materials within the project, most promising structures were proposed and two were evaluated at industrial scale for subsequent packaging of dried food. These samples were compared with conventional packaging material used at Belourthe during shelf life trials conducted in the project. Below is described on Figure 1, the structure of both passive (blank material), and active packaging material.

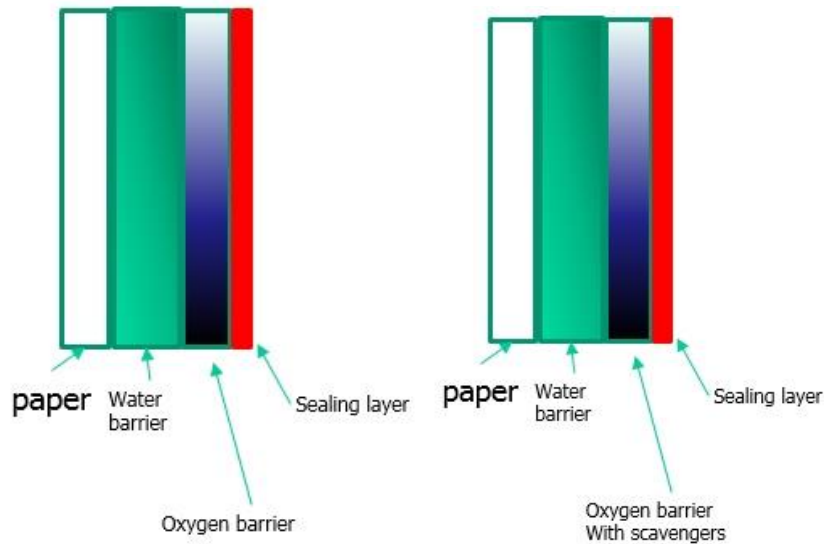


Figure 1. Description of multilayer structure arrangement. Left: passive, right, active packaging structure.

As a result of the processing of these structures, converting steps were carried out on partners facilities, and prototypes were developed, as can be observed in figure 2, where are compared to current oil-derived Belourthe's structure used nowadays.



Figure 2. Comparison of the different packaging formats evaluated. Left: conventional packaging, middle: project developed structure (passive), and right: active packaging structure.