



acticospack

**Active Packaging
solution
for more natural
cosmetics products**

EXTENDED COSMETICS' SHELF LIFE

USING PACKAGING TECHNOLOGY

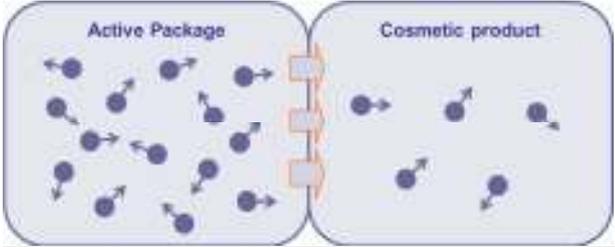
General Overview

Assuring the quality and safety of cosmetic products	Several factors affect the quality and safety and hence the shelf life of the cosmetic products such as the oxygen, the light, the humidity or the growth of microorganisms, among others. In this sense, microbial contamination of cosmetic products is a matter of great importance to the cosmetic industry. Chemical preservatives are active ingredients added to the cosmetics products able to prevent the growth of spoiling and pathogenic bacteria and fungi (yeast and moulds).
Need of reducing the levels of preservatives in Cosmetics	Preservatives are used nowadays in a high number of cosmetic products. Of all of them, the most used are the para-hydroxy-benzoates or parabens which are currently under revision in Europe. In this sense, some of them will be restricted and forbidden in the cosmetic legislation in the near future.
Innovation to response the consumers	Nowadays, the cosmetic market is driven by a constant innovation in response to the changing consumer demands which move towards more natural and preservative free cosmetics.
Active Packaging to EXTEND Cosmetics' SHELF LIFE	ACTICOSPACK focuses in the development of active packaging solutions for reducing the levels of preservatives in the cosmetic products while keeping a high level of preservation.

OBJECTIVE

ACTICOSPACK seeks for a technological solution able to reduce the content of preservatives in the cosmetic products while maintaining the quality and safety for the same or even longer shelf life.

THE CONCEPT

<p>The active packaging technology is based on the interaction between the package and the cosmetic product. In this sense, the cosmetic preservatives are included into the package instead of into the cosmetics thus acting as a reservoir of preservatives. This innovative active package will release the preservatives into the cosmetic products due to the mass transfer (migration) properties given by many polymeric materials like those used in packaging.</p>	
<p>In order to achieve a high level of quality and microbial safety along the shelf life of the cosmetic product, the content of the preservatives need to be above a minimum effective concentration (MEC). As the preservatives are consumed and/or degraded along time, the cosmetic formulations need to be initially overdosed in order to maintain the content of preservatives above MEC as long as possible.</p> <p>Using the active packaging technology two benefits are obtained;</p> <p>i) a lower content of preservative is needed in the cosmetic product since the quantity lost by consumption/degradation is continuously recovered due to the migration phenomena. (dark blue line)</p> <p>ii) the preservative effect is maintained for a longer time till the preservative in the packaging material is totally consumed.</p>	
<p>ACTICOSPACK is focused in the development of active packages for the preservation of three common cosmetic products:</p> <ul style="list-style-type: none">• Active bottle based on PET for shampoo	

- Active bottle based on PP or HDPE for sun lotion
- Active pot based on PP or HDPE for skin care cream



PROJECT MOTIVATION

Europe is the world's flagship producer and mass market of cosmetic products, as well as being a regulatory model for other regions around the world. Maintaining this position depends on the ability of the European industry to continue innovating. In concrete, the European cosmetics industry involves more than 4,000 manufacturers of which more than 3,000 are small and medium enterprises (SMEs). Through innovation, cosmetic manufacturers provide better products while ensuring that consumer safety remains their highest priority.

A TECHNOLOGICAL CHALLENGE

The reduction of chemical preservatives like the parabens is a technological challenge since they are widely used in the industry and have a greater performance in cosmetics than other preservatives, including natural ones:

- The use of alternative natural preservatives which generally have a lower antimicrobial potency than parabens requires that higher amounts are needed in the formulations.
- In addition, natural preservatives have a relative higher price, so more expensive cosmetics are obtained.
- A shorter cosmetic shelf life is normally achieved.

ACTICOSPACK PACKAGING PROPERTIES

The new active packaging will not release preservatives until their content in the cosmetic product is lower than the required minimum effective one. So, with *the proposed technology*:

- A lower content of preservative is needed in the cosmetic product (ideally equal to the minimum effective concentration).
- The preservative effect is maintained for a longer time till the preservative in the packaging material is totally consumed.
- This allows making less potent preservatives (as natural ones) more effective, even in the event of being in the cosmetic product in a lower content than parabens.

CONSORTIUM

ACTICOSPACK project consortium is based on a group of 5 SMEs, with expertise in cosmetics manufacture and packaging production. Two research centres are involved in the project providing specific research capabilities:



More information:



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