

## REBIOFOAM at a Glance

REBIOFOAM is a Collaborative Project financially supported by the European Union Seventh Framework Programme (FP7) for Research. The project targets the development of a new 3D-shaped RENEWABLE BIO-polymer FOAMS to be applied as protective packaging material.

## Editorial

We welcome new and existing readers to this fourth issue of the REBIOFOAM Newsletter. The aim of the Newsletter is to keep readers across Europe informed of the activities of the REBIOFOAM project. The Newsletter has a 6-monthly issue and is available via the project website ([www.rebiofoam.eu](http://www.rebiofoam.eu)).

## The REBIOFOAM Project

REBIOFOAM (Development of a flexible and energy-efficient pressurised microwave heating process to produce 3D-shaped RENEWABLE BIO-polymer FOAMS for a novel generation of transportation packaging) is a project co-funded by the Seventh Framework Programme (FP7) for EU Research.



The project targets the development of a biodegradable RENEWABLE BIOpolymer FOAM to be applied as

protective packaging material. To this end, the project aims at developing an innovative expandable biopolymer that has a low environmental impact starting from renewable raw materials. Furthermore, it aims at developing a new environmentally sustainable manufacturing process for the production of biodegradable foamed 3D-shaped packaging material originating from expandable starch-based polymer pellets. In this new process, expansion of the pellets is driven by microwave technology and exploits the inner water content of the material to generate vapour, which triggers the foaming process.

The project was launched on the 1<sup>st</sup> February 2009 and will be running for 48 months, until the 31<sup>st</sup> January

2013. It involves 10 Consortium partners from 8 different countries and is coordinated by the Italian company, world leader in the production of starch-based biodegradable plastics, Novamont S.p.A.

Since the 1<sup>st</sup> February 2011, the project entered its third year. While its main focus within the first two years of activities has been on developing the enabling material and processing technologies, since several months the project has entered a second phase, aimed at demonstrating applicability of the developed material and processes through the manufacture of protective packaging demonstrators on the one side, as well as through the design and construction of a pilot foaming process on the other side.

## Advancements on the design of REBIOFOAM's pilot foaming process

Starting from the development of a prototype mould and a prototype microwave unit (assessed considering the simulations work), which allowed

extensive testing of applied materials on the one side (for the mould) and of processing conditions on the other side, scale up activities led to the

design and specification of a fully automated pilot foaming line consisting of storage and dosing unit for pellets, microwave system for pellets foaming,

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mould, extraction unit for the foamed product, and conditioning unit for the mould.

Following basic engineering activities, detail engineering is currently ongoing and will allow achieving the realization of a fully equipped and automated pilot foaming line by May next year.

The pilot line will be useful in order to confirm scalability of the developed processing technologies and as such prepare the ground for future industrialization.



## Evaluation of more complex 3D shapes for REBIOFOAM products on the way

Foamed products to be applied as cushioning elements to protect goods during handling and transportation come in different shapes, which need to adapt to the good being protected.



Nonetheless, project developments had to start with the evaluation of simple geometries such as a cube and a cylinder, which turned later on into a rather complex shape such as the shape of a demonstrator that had been selected at the beginning of the project. Once optimized material formulation as well as processing conditions had been clearly identified, however, a step forward had to be

made into the evaluation of more complex foam shapes.

Activities aimed at the evaluation of the foamability of pellets within more complex mould shapes are currently on the way. New moulds with more complex designs have been manufactured and will be subject to further investigation in the next period.

## REBIOFOAM presented at the European Packaging Symposium and at the launch conference of the PLASTiCE project

On the 18<sup>th</sup> and 19<sup>th</sup> October 2011, the European Packaging Symposium took place in Valencia, Spain. The Symposium, which takes place once a year, provides insight on the critical link between packaging and effective distribution of products, focusing on cost savings and delivering against sustainability requirements. There, the REBIOFOAM project was presented on the 19<sup>th</sup> October, within the session dealing with "New Materials for Packaging Distribution".

Furthermore, the project was presented

at "Europe for Sustainable Plastics", the first and launch international conference of the PLASTiCE project, which took place on the 24<sup>th</sup> and 25<sup>th</sup> October in Bologna, Italy.

PLASTiCE (PLASTics in Central Europe) is a project funded within the Central Europe Programme, which brings together 13 partners from 4 different Countries and aims at promoting best practices in the field of biodegradable plastics in Central Europe.

The goal of the conference was to convene key representatives of

European projects dealing with the broader issue of sustainable plastics. The event was attended by more than 70 participants from twelve Countries and more than 25 conference speakers (project coordinators, representatives of industry and associations), who shared their findings, views and work on the topic.

For more information please check PLASTiCE project official website: [www.plastice.org](http://www.plastice.org).

**The Consortium partners**

The consortium partners include Fraunhofer, Novamont, Com-Plas, C-Tech Innovation, RECTICEL, CHEMYK ITALIA, Electrolux, and ITENE.

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