

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 fifth 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).

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 1st February 2009 and will be running for 48 months, until the 31st 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 1st 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.

Commissioning and assembly of the REBIOFOAM's pilot plant for foaming process on the way

Starting from the detailed design finalised during last year, the commissioning and assembly of a semi-industrial pilot foaming line at

low pressure is ongoing. The different components of the line (storage and dosing unit for pellets, microwave system for pellets foaming, mould,

extraction unit for the foamed product, and conditioning unit for the mould) have been selected and will be available by the end of May, while

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the start up of assembling phase will begin in June. The final goal is to have an installed pilot line by the end of September. 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

The design of the packaging element to demonstrate the potential of REBIOFOAM material to be used as industrial products protection have been defined. A port-hole spacer to protect a particular part of a washing machine has been selected as main demonstrator: from the industrial exploitation point of view, it could already have a good potential in the market, thus paving the way for the introduction of REBIOFOAM cushion packaging items. In parallel, a new

packaging element with corner shape has been designed, characterized by different bearing surfaces which may be assembled in different ways to have elements with different shapes.

A test plan has been defined according to ASTM D991-89 (2010) standard in order to prove the performance of REBIOFOAM packaging. Tests will be carried out on packaging elements produced at laboratory level and will be available by next Fall.

The biodegradability of this new

foamed product has been investigated according to the standard (EN 13432). The preliminary results confirmed that the product is biodegradable and compostable.



First Life Cycle Analysis results available

The first Life Cycle Analysis (LCA) assessment was carried out to analyse the cradle-to-grave cycle of REBIOFOAM transport packaging products, and to compare the results with environmental impacts procured by competing technologies such as EPS packaging.

First results are now available: without

changing anything in the current waste collection and disposal procedures, the use of REBIOFOAM compostable transport packaging may improve recycling up to 41% and reduce landfill and incineration from more than 50% to 37% and from 47% to 21% respectively.

From a life cycle perspective,

REBIOFOAM packaging products resulted to have a lower impact (from -25 to -50%) compared to EPS packaging in terms of global warming potential, summer smog contribution, use of non renewable energy resources and acidification.

Next REBIOFOAM events

Name of the Event	Where?	When?
Narotech- International Symposium and Exhibition on Materials from Renewable Resources	Erfurt, Germany	5-6 September 2012
2012 ISTA-China Packaging Symposium	Suzhou City, China	18-20 September 2012
Ecomondo	Rimini, Italy	7-10 November 2012

The Consortium partners



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Contact

Roberto Lombi, Project Coordinator
Novamont S.p.A.
E-mail: info@rebiofoam.eu