

## **BioFoam®: the first PLA based product in the world with Cradle to Cradle certification**

Synbra has received the Cradle to Cradle certification for the production of BioFoam®. This is world's first Poly-Lactid Acid (PLA) based product and world's first bio-based foamed product to receive this certification.

Poly-Lactic Acid (PLA) is a bio-plastic made from bio-renewable raw materials like carbohydrates. It is made by ring opening polymerisation of L- and D-lactides. These lactides are supplied by Purac Biochem. The polymerisation process is based on technology developed by Sulzer Chemtech and Purac Biochem.

After successfully completing the pilot plant phase in Winterthur, Switzerland, the first commercial plant to demonstrate the Sulzer-Purac technology is currently being built by SYNBRA in the Netherlands for the production of BioFoam®; a foamed product made from this PLA, complementary to their wide range of polystyrene foam products offered today. The new plant with a capacity of 5.000 ton/year is targeted to be operational by the end of Q2 - 2010. Synbra intends to take a leading position in Europe as a supplier of biologically degradable polymers from renewable sources and anticipates further growth in the future, also in the field of high temperature resistant stereocomplex PLA.

The development of BioFoam was supported by Wageningen University (BBP-AFSG). By the beginning of 2010, a demonstration and product development technicum with several moulding machines will become operational in Etten Leur to mould BioFoam to meet various applications and suit customer demands of Synbra Group Company customers.

Being produced from the renewable resource PLA, BioFoam® is an environmentally friendly alternative for the polystyrene foam products offered today. After use, the BioFoam product can be remoulded to a new product or can be completely biodegraded. Being 'designed for environment' implies there is no chemical waste, which means that the product is designed according to the so called 'Cradle to Cradle' principles.

The Cradle to Cradle<sup>SM</sup> Design is founded by William Mc Donough and Michael Braungart. The latter is also the founder of EPEA, an international scientific research and consultancy institute that improves product quality, utility and environmental performance via eco-effectiveness. Together with their USA based sister company MBDC, EPEA is able to grant companies a Cradle to Cradle certificate for specific products. Tebodin has a cooperation treaty with EPEA, and supports companies in developing Cradle to Cradle strategies and solutions based on an effective design of processes, products, landscape, buildings etc.

Tebodin Consultants & Engineers was asked to prepare the application package for the Cradle to Cradle-certification of BioFoam®. Data was collected and compiled on material safety, water and energy utilization as well as information on the social responsibility of the applying company. Based on this information EPEA was able to execute an assessment study, which has resulting in BioFoam now officially being declared a Cradle to Cradle Certified<sup>CM</sup> material.

The use of both L and D lactides also enables the manufacture of stereo complex sc-PLA with unmatched temperature resistance. In parallel to BioFoam this sc-PLA is becoming available to enhance the temperature stability of PLA containing bioplastics compounds. The current polystyrene compounding factory in Etten-Leur will be gradually converted to enable compounding of several biobased materials.

### **About Synbra**

Synbra has a leading position in Europe regarding Expandable Polystyrene (EPS) for Sustainable Insulation Systems and Industrial Products & Solutions for a wide diversity of markets. Synbra Technology bv in Etten-Leur, The Netherlands, is the in-house polymerisation and R&D facility 'Technology & Innovation' and the centre of excellence in materials and product development. Recent examples of the Synbra group's innovations are Xire®, an incombustible insulation material and BioFoam®. For more Information [www.biofoam.nl](http://www.biofoam.nl), [www.synbratechnology.nl](http://www.synbratechnology.nl)

Synbra achieves a turnover of € 300 Million with about 1400 employees in The Netherlands, Germany, France, Denmark, the United Kingdom and Portugal.

### **About Tebodin**

Tebodin B.V. in The Hague (the Netherlands) is an independent, multidisciplinary consultancy and engineering firm with a turnover of € 232 million (2008). Tebodin offers her clients worldwide the knowledge and experience of over 3,000 experts in industry, health & nutrition, oil & gas, (petrol) chemicals, infra-structure, real estate, and energy & environment. The company has a network of around fifty offices in West, Central and Eastern Europe, the Middle East and Asia. Tebodin is an independent operating company of Royal BAM Group nv in Bunnik, the Netherlands. [www.tebodin.com](http://www.tebodin.com)

### **About EPEA**

EPEA Internationale Umweltforschung GmbH is an independent institute that works with clients worldwide to apply the Cradle to Cradle methodology to the design of new processes, products and services. To date there are 87 companies world wide that have Cradle to Cradle certified products, of which there are only 14 in Europe. [www.epea.com](http://www.epea.com)



**cradle to cradle**<sup>SM</sup>  
PRODUCT CERTIFICATION  
**BASIC**

IS HEREBY GRANTED FROM NOVEMBER 19, 2009 TO NOVEMBER 18, 2010

**Synbra Technology by  
BioFoam® Expandable Polylactic acid (PLA)**

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**MBDC** EPEA

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