In the loop
Update PolyStyreneLoop
March 2018

The first-ever European Strategy for Plastics in a Circular Economy was adopted on January 16, 2018. It will transform the way plastic products are designed, used, produced and recycled in the EU. The Plastics Strategy is part of Europe’s transition towards a circular economy and will also contribute to reaching the Sustainable Development Goals, the global climate commitments and the EU’s industrial policy objectives. This strategy will help protect our environment, reduce marine litter, greenhouse gas emissions and dependence on imported fossil fuels. It will support more sustainable and safer consumption and production patterns for plastics.

We are extremely proud that the PolyStyreneLoop is mentioned twice in the Staff Working Documents as a positive example, observing: “A more promising approach consists in dissolving the plastic waste and separating the polymer from the (toxic) additive. A demo plant is applying this technique to recycle polystyrene waste that is contaminated with the banned flame retardant hexabromocyclododecane (HBCD), obtaining a clean polymer that can be used in the production of new plastics and a contaminated waste stream that has to be treated.” (p. 25) and dedicating a text box to it (p. 97).

This again acknowledges the fact that the PolyStyreneLoop Project is a viable solution for the recycling of PS Foams and contributes to the goals of the Plastics Strategy: ensuring that all plastic packaging is recyclable or reusable by 2030.

On May 22nd and 23rd the second PolyStyreneLoop Members meeting and Open General Assembly will take place. We will inform you about the progress made during these meetings.

We value the ever-increasing number of contributors and we will continue our efforts on behalf of you, of our value chain!
Update

Since our last update in December 2017, we have been making progress again in several fields of attention.

We signed the IP-contract with EPC Engineering & Technologies (including Fraunhofer-IVV). We arranged the use of the CreaSolv® Technology’s intellectual properties for the demo plant in Terneuzen as well as for the future additional full-scale plants to be built. Furthermore, the EPC-contract for the Basic and Detail Engineering was signed with the objective of being finalised this summer.

In the meantime, the permit application is ongoing and will take most of the time before we can start building.

The Working Group Collection and Pre-treatment had its first Kick-Off meetings in Cologne (Germany) and in Utrecht (Netherlands). In Germany we had the pleasure to listen to several fascinating presentations. After a general introduction about the current status of the PolyStyreneLoop demoplant by Ms. Alix Reichenecker, Mr. Moritz Grunow, a lawyer from “Andrea Versteyl Rechtstanwälte” confirmed that even though HBCD is a POP (EU Decision 2016/460), below a limit concentration of 3%, EPS waste with HBCD does not classify as hazardous waste if it does not contain any other contamination.

In Germany, EPS waste with HBCD has to comply to the monitoring regulation (POP-Abfall-Überwachungs Verordnung, 17.07.2017). Mr. Niklas Heller of the FH Münster presented his past research on ETICS systems and his future research projects. The work of FH Münster will allow us to get better insight into the necessary pre-treatment including time, cost and equipment to recycle EPS from ETICS systems at the PolyStyreneLoop demoplant. In addition, the presentation of Mr. Metin Ludwig gave a promising solution for pre-treatment of EPS from flatroofs with his Powerbrush machine. Mr. Mark Plate from Jackon concluded with a presentation on the challenges around XPS pertaining mainly to the CFCs and HCFCs.

During the Kick-Off in the Netherlands, a presentation was given on the volume and inventory of HBCD in EPS and XPS waste and products in the Netherlands. Furthermore, the presentations from Germany were reviewed. Both Kick-Off meetings ended with the formulation of clear working packages for the coming months and the division of labour. Both groups will convene again before the summer break.
LCA Analysis
On behalf of the PolyStyreneLoop consortium a Life Cycle Analysis (LCA) was conducted by TÜV Rheinland in cooperation with BASF to assess the influence on potential environmental aspects of different end of life options for External Thermal Insulation Composite System (ETICS) containing EPS with flame retardant HBCDD. Within this study incineration with energy recovery of ETICS and the PolyStyreneLoop process were compared to each other using the LCA methodology according to the ISO 14040 and 14044 standards. The study concluded that the PolyStyreneLoop process shows a lower environmental impact in most environmental categories in comparison to incineration with energy recovery. The study was critically reviewed by independent experts. A leaflet is obtainable via our website.

Introducing new members
Molpoly Benelux BV is an international trading company, specialising in the delivery of plastic granulates. More information from Molpoly in the paragraph “News from our allies” at the end of this newsletter.

BEWI Construction AB Sweden - BEWi Group is one of the largest players in the Nordic countries, developing and manufacturing expanded polystyrene (EPS), extruded polystyrene (XPS) and products made from expanded polypropylene. They specialise in customer adapted packaging solutions and components, insulation products, and innovative solutions for the construction industry.

Calendar

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<tr>
<td>2018-04-18</td>
<td>Polymers in Building Insulation, Cologne</td>
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<tr>
<td>2018-04-24</td>
<td>Plastic Recycling Show Europe, Amsterdam</td>
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<tr>
<td>2018-05-22</td>
<td>PolyStyreneLoop Members meeting (members/</td>
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<td></td>
<td>supporters)</td>
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<tr>
<td>2018-05-23</td>
<td>PolyStyreneLoop Open General Assembly</td>
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Communication

The PolyStyreneLoop brochure has been translated into German and Czech language and is available on the website, as well as the General High Level PS Loop presentation. Also the leaflet about the LCA study is available online.

Project Management and Life Grant

On 7 December 2017 the PolyStyreneLoop management received the External Monitoring Team from the EU at the office of Synbra in Etten-Leur (NL). In an enthusiastic session the progress of the project was discussed. The Monitoring Team supported PolyStyreneLoop with the preparation of the First Progress Report for the project, that was submitted to the EU on 3 January 2018.
On 7 March the EU reported to PolyStyreneLoop that the First Progress Report is approved. The next progress report is scheduled for June 2019.

For the monitoring of environmental and socio-economic results of the LIFE programme a Key Performance Indicator database (KPI database) was set up. In February 2018 PolyStyreneLoop filled this database with quantitative data on the actual situation of the environmental and socio-economic parameters that are relevant for the PolyStyreneLoop project. At the end of the project, in 2021, the KPI database will be filled with the adjusted data to demonstrate the contribution of the PolyStyreneLoop project to the environmental and socio-economic impact.

**Plant Management**

A land plot of appr 3,000 m² was purchased by PolyStyreneLoop BV from ICL-IP Terneuzen. An option was taken on an additional 1,300m² adjacent to the purchased plot for future expansion. In the meantime, shrubs and trees were cleared from the site revealing the Zeeland clay.

A public road to be build by local port authorities will enclose the plots, connecting the PolyStyreneLoop factory to the main road. Both North Sea Port, ICL-IP, TPT (neighbour company) and PolyStyreneLoop are participating to build and make use of this road.

2018 collected EPS materials for start-up purposes are scheduled to be stored with local parties. Final storage for day to day waste EPS needs is planned on PolyStyreneLoop’s premises after the factory has been built.
Technical Working Groups

We established several Working Groups, that will focus on the different aspects of the project: Engineering, Permits and Collection and Pre-Treatment. Alix Reichenecker is responsible for coordination of the Planning and Working Groups.

Engineering

The engineering work on the construction of the plant will start once legal contracts and Intellectual Property are finalised and contracts are signed. The Kick Off Meeting at EPC Alzenau (Germany) was very successful, gathering EPC project management and engineers together with PolyStyreneLoop plant management. Plant design details were set, latest updates for incoming material specifications were reviewed and shared. The process details were discussed and evaluated with a sharp eye towards energy usage and recovery.

Permits

Beginning of January 2018, the first permit pre-application (Environmental Effect analyses) was filed with the authorities (RUD). RUD’s comments and in-depth questions on expected emissions were answered; now we are awaiting approval mid-March.

During this application period, the environmental permit application was drafted and is due to be filed before the end of March. The final application is awaiting Basic Engineering data, scheduled to be available mid-March.

Collection and pre-treatment

The Kick-Off meetings in Cologne and Utrecht were very fruitful. Working Packages for the coming months have been defined and we are now looking forward to working with all of you to set the next steps.
Messages from our allies

Molpoly

The resources the earth can deliver are limited. Therefore, we should use them wisely. Circular Economy is a way to reduce the use of natural resources and increase ecological values. In other words: minimalising use of raw materials and reducing waste, optimise lifespan of products, and use waste as raw material.

A contribution to the Circular Economy is an investment in the future. Molpoly values the efforts of the PolyStyreneLoop Cooperative to recycle PS Foams. It demonstrates how the polystyrene value chain meets the fundamental requirements of a circular economy, by ensuring a technically, economically and environmentally sustainable closed-loop recycling system.

We are proud to be a member of this initiative,

Rob Klem  
General Manager