

# In the loop

Update PolyStyreneLoop  
December 2018

## Editorial

The best Christmas present, PolyStyreneLoop could have hoped for. On December 13, the permit was published and is now available for inspection until 24 January. As we do not expect to any objections, in practice this means that construction work of the PolyStyreneLoop demonstration plant can finally start end of January 2019!

Looking back at 2018, we should be proud with the progress made; especially because everything we do is new and often confronts us with new challenges. The cooperation with the PolyStyreneLoop team, all supporters, members and stakeholders has been excellent, we are proud to represent our PS value chain!

The PolyStyreneLoop project has reached the milestone, were most preparations are finalised, and the value chain can step in now. The months November and December have been like a rollercoaster, just when we thought we were there we faced additional challenges. We got great support via Eumeps, and we installed an Executive Board besides the Steering Committee. Additional funding was raised, including support for collecting EPS foam waste in Germany and the transport to the Netherlands.

An overview of other tasks accomplished is described in the sections "Engineering", "Permits" and "Collection and Pre-treatment".

The efforts of the PolyStyreneLoop team during the last year, made it possible to be where we are today. Thank you for your endless energy and good spirits!

*"A dream doesn't become reality through magic; it takes sweat, determination, and hard work."* --[Colin Powell](#)

*Lein Tange, Jan Noordegraaf, Directors PolyStyreneLoop*



---

## Update

---

### *Accomplished from 2015 up until now*

The organisational set-up of the PolyStyreneLoop team was realised, involving the European PS value chain either as a member or via sponsorship. We were able to get full support of the initiative by European policy makers.

After establishing the project team, we installed working groups for the pre-treatment and collection of HBCD waste in Belgium, the Netherlands and Germany.

We were able to raise € 2,5 million from our 60+ members and supporters, and a loan from the RABO bank of € 4,5 million plus the Life Grant from the EU Commission, worth € 2,7 million.

The project team finalised the LCA for PolyStyreneLoop, and our cooperative became the centerpiece of the EUMEPS and Styrenics Circular Solution pledge, in which the Plastics Industry ensures that the beneficial properties of EPS are leveraged throughout its lifecycle and that current recycling initiatives will be accelerated and extended to ensure circularity aligned with EU objectives by 2030. PolyStyreneLoop registered as member of “Plastics Recycle Europe” as PS recycler.

### *The way forward*

On 13 December 2018 the permit for the demonstration plant was published. This means that 6 weeks from now, end of January 2019 we will finally be able to start with the building of the plant.

The stream of material to PolyStyreneLoop from Germany is taking shape. The first HUBs have been identified and their membership and other administrative aspects are to be finalised in the next months. This is a great start, however, much more HUBs will be needed to have sufficient material to keep the plant running. This is crucial to guarantee our viability. In the next weeks we will approach the current members of the “waste/recycle” group and ask them to sign a letter of intent for the tonnage they expect to supply in 2019. This will help us identify the material we are still missing. In Germany there is a lot of potential with more than 40.000 mttons of construction waste in 2017 (Conversio, 2018). A formal supply agreement will also be drawn up with the HUBs and PolyStyreneLoop.

---

## Calendar

---

### *2019*

- February 24-27 World Resources Forum
- March 7-8 Idenitplast (PSLoop present)
- March tbd Meeting of the German PolyStyreneLoop Working group pre-treatment & collection
- April 10 Plastics Recycling Award

---

## Communication

---

### *Frequently asked Questions*



“Why do we need PolyStyreneLoop?” .... “What’s new.. dissolution processes are available for more than a decade!” .. “What is the environmental performance of the PS Loop initiative compared to incineration with energy recovery?”

These, and many more questions have been asked to us since the start of the project. We have selected some of the most frequently asked questions and categorised them on our [website](#) for easy access. Select one of the links to view the questions and answers for that topic.

---

## Project Management and Life Grant

---



### *Promising product specifications*

Recently there was good news from the research of the Fraunhofer Institute with their pilot plant installation. From a sample of EPS waste that was taken from our showcase demolition project in Vilsbiburg (see photo) in May 2018, Fraunhofer produced a sample of polystyrene recyclate with the CreaSolv® Process of PolyStyreneLoop. This sample was tested by Bewi Synbra on the parameters that are relevant for EPS producers. The recyclate had taken some of the dark coloured carbon material that was present in the EPS waste but its physical chemical characteristics appeared to be very similar to virgin general purpose polystyrene and the flame retardant HBCD was effectively removed. A promising result for the PolyStyreneLoop initiative indeed!

### *LIFE GRANT*

At the end of September 2018 a quarterly update was sent to the European Agency for Small and Medium-sized Enterprises (EASME) on the progress in the LIFE Grant project. We informed them of the challenges we face in the collection and transport of EPS waste. Another quarterly update will follow at the end of December. In March 2019 EASME will have an meeting with the Management Team of PolyStyreneLoop to prepare the mid-term LIFE grant report that is due in June 2019.



---

## Technical Working Groups

---

The PolyStyreneLoop Working Groups focus on the different aspects of the project *Engineering and Permits* (Toine Janssen) and *Collection and Pre-Treatment* (Alix Reichenecker).

---

### Engineering

---



#### *Civil Engineering*

The construction of the building is ready and quotations from building companies can be asked for. The building layout has been updated recently because the EPS pre-drying equipment must have its place. For this a new 6-meter floor was constructed in the warehouse. With an open eye for the future, we optimized the warehouse layout as well. The warehouse floor and roof levels are now in line with the CreaSolv® building resulting in a more simplified structure. The warehouse has enough space for future XPS extension.

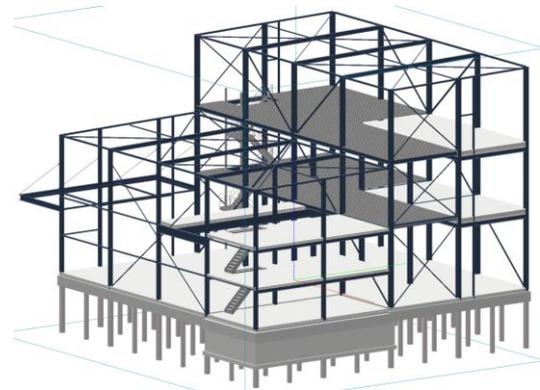
The tender procedure for building construction started and documents were submitted to three major construction parties active in this part of the Netherlands. We expect questions and first quotes late December. Pricing for the infrastructure works were asked for as well. Our intent is to start building in Q1 2019 however on hold at the moment.

#### *Plant Systems*

The Basic Engineering is ready. Only one process step and the equipment for this step is still in the BE-phase. After receiving the final package, we are able to partially start tender procedures.

The PS-Gel drying engineering and detailed engineering have been slowed down due to one process step not being complete yet.

With the best information at this moment the testing and test water runs of the plant are expected in Q4-2019 if we can start in January 2019.



---

## Permits

---



### *Import permit for material from Germany*

In the past months different options have been explored for the storage and the transport of material across the border. With the support of the Dutch Ministry we have now decided to start up the notification procedure by one of the (potential) HUBs in Germany. This process will help us to better understand the necessary information required, and this learning will hopefully speed up future notification procedures. The notification procedure has to be submitted by each exporter individually.

### *XPS permit for CFC's and HCFC's (Freon)*

In the environmental permit for EPS there is enough “room” for testing the plant with different input streams. This might also be XPS. We will use the testing period to gain experience in order to smoothly apply for an extension of the permit to allow treating XPS. Even more important will be the collection and pre-treatment to avoid emissions of CFC's and HCFC's in the environment.

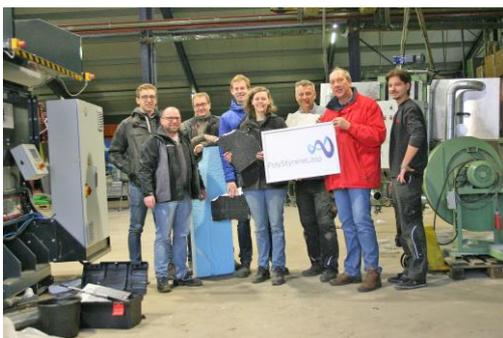
### *Road building permit*

The Road building tender procedure was completed resulting in 3 “best price” quotes. With some effort we managed to lower prices. PSLoop standard tender evaluation was used to select the company to build the road. With is information on hand we now have a close look on total road building cost. The road building project is ready for execution awaiting a Management Go.

---

## Collection and pre-treatment

---



On 15 December we had a showcase for the EPS Powerbrush and a mobile compactor. Kathöfer, a local recycler in Rietberg welcomed us on their terrain to test EPS material with bitumen from a demolition project. The material came from the roof of a hall that had been “doubled-up”. This means there was a layer of EPS without bitumen and at a later moment the roof had been insulated with a subsequent layer of EPS with bitumen. The first layer of bitumen-free material was relatively dry and clean and could easily be compacted. The mobile compactor worked well with the aggregate that was hired but we concluded that the crusher should be more powerful and thus the output higher.

The second layer of EPS with bitumen was somewhat wet. For the EPS Powerbrush to take off the remaining bitumen and glue adhesions, the bituminous sheeting had to be removed manually after which the EPS Powerbrush cleaned the material successfully. While in theory bituminous sheeting and EPS should already be separated on the demolition site this is not yet practice everywhere. The conclusion for the EPS Powerbrush was that further development is required to cut-down on preparation work and to increase the put-through.

During the showcase samples of each process step have been taken and will now be further analysed by Fraunhofer. We thank Brohlburg for the co-organisation of the showcase and all those who participated for their time and the good atmosphere.

The Working Groups Collection and Pre-treatment for Germany, The Netherlands and Belgium are currently convening regularly via GoTo conference calls. Every 6 to 8 weeks calls are planned for the entire Working Group and the individual working packages. This allows us to remain in contact regularly, quickly define the next action points to take and keep everyone informed. In spring next year, we plan to schedule new physical meetings.

The focus in all the Working Groups is setting up the flow of material streams in order to have sufficient stock once the plant is operational and thereafter have a continuous stream of material coming in.

---

## Messages from our allies

---



Poredo is involved in PolyStyreneLoop as a specialized EPS recycler. Because the recycling of EPS with HBCD is a challenge for the entire industry, it is great to see that all parties involved are joining forces to revitalize EPS in a responsible manner. In this way they underline the importance of the material in the chain and ensure a responsible reuse of (E)PS. This gives a positive signal, not only in Europe but also globally. In addition to the existing recycling methods, PolyStyreneLoop is an asset for the regeneration of valuable raw materials.

*Bart de Wijs, Co-Owner and operations manager*