Towards a unified Styrenics Chain strategy.
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EU circular economy strategy

- Common EU target for recycling 65% municipal waste (2030);
- Common EU target for recycling 75% of packaging waste by 2030 (55% of plastic packaging);
- A binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030;
- Concrete measures to promote re-use and stimulate industrial symbiosis
- Economic incentives for producers to put greener products on the market and support recovery and recycling schemes (e.g. for packaging)
EU: Outcomes of New PE economy

- “Ellen MacArthur Foundation is not the policy maker”
- “Individual plastics will not be named”
- Focus on applications, in particular: “on the go” and single use packaging
- Marine litter an EU priority
- EPR: producers must take their responsibility
- Clarity of recycling rate measurement
- Value of LCA for material selection
- Incentives for national recycling schemes
- PolyStyreneLoop highlighted
Outcomes of New PE economy

Existing schemes

New schemes

Future developments
Existing (E)PS Recycling activities

Normpack PS trays
EPS garden trays (1992)
Styref (1993) Fishbox recycling
Fisher Group, DeVries, Kras, Traxpo, Baumgarten, Poredo, Ecofill.
Existing (E)PS Recycling activities

Best practice: Community yard Collection
  • Disseminating Stybenex practice
  • Salaried yard visitation and training  YOY growth 100%
Possible separation at community yard

Packaging shapes

Construction plates
Possible separation at community yard
New EPS Recycling initiatives

**POLYSTYRENE LOOP**
- Major industry investment in innovative and entrepreneurial technology to recycle insulation foam waste and generate recycled raw material
- Supported by the EU Life program
- In partnership with industry associations, businesses and NGOs
- Plant due to start operation in 2018

**GRØNT PUNKT NORGE: VOLUNTARY COLLECTION SCHEME**
- Norway has a voluntary EPS collection and recycling scheme in place since 1995 as part of the Grønt Punkt Norge (GPN) system.
- Both industry and municipalities participate in this collection system.
- GPN facilitates collaboration with several regional entrepreneurs with compression systems, and municipalities with collection at manned recycling stations (about 400 prospective nationwide).
- Remuneration from GPN in both cases: 272 Euro per ton. This in addition to the achieved selling price on the market of 320–540 Euro per ton.

**EPS SURE PROJECT: UPCYCLING FISHBOXES.**
- Fish boxes represent 50% of EPS packaging in Spain, which is similar to other European countries with a large fishing industry.
- There are opportunities to improve collection, pre-treatment and recycling of EPS fishboxes to produce a high value and product suitable for food use.
- A cross-industry pilot project, with investment of 1.3 million, is running from 2017–2019 to develop a solution to close the loop.

**INNOVATIVE COLLECTION INITIATIVE IN BELGIUM**
- Recycling rates in Belgium are above the European average but the industry is always looking for ways to improve on this.
- To reduce logistics costs for collection, the industry is putting a new collection opportunity to trial which could potentially be implemented at 20,000 businesses in Belgium.
- Tests with woven collection bags and a communication package for businesses have proved successful so that a pilot with 70 companies has been launched.
LIFE: 10 year roll-out strategy of PSLoop ® recycling plants

more plants after 2030
Construction waste: Preparing for the future

Development of EPS construction waste

- EPS construction waste
- Production PS Loop plants

Kilo Tons

2009 2015 2020 2025 2030 2040 2050 2060 2080 2090 2100
Future investment

Replicability, sustainability and a unique value chain responsibility

**Strategy**: Construction of 3000 tpa demonstration recycling facility and collection and pre-treatment system. Techno-economic analysis and development of business case. In 10 years planned replication in 10 other locations (EU wide).

Possible Financing /roll out:

- The 3 kt plant costs 6.5 mil€, pays off a loan of 4.5 mil€ in 5 years. IRR 20%
- Next phase is 6-10 kt, Capex 7-8mil€, pays off its loan in 4 years.
- 10 plants: Capex 70-80mil€, thereafter growing to 1000ktona, multitude of smaller (10 kt) and 20 off (50 kt/20 mil€) bigger plants after 2030 (400mil€)
New technologies beyond 2020 depolymerisation and waste/prime blending

Agilyx Corporation and INEOS Styrolution sign joint development agreement for polystyrene recycling in the USA

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TOTAL EXPLORES NEW ROUTES FOR POST-CONSUMER RECYCLED POLYSTYRENE IN THE CIRCULAR ECONOMY WORLD
The styrenics chain strategy: Disseminate, roll out and invest

Integrated waste management

- invest in new technologies
  - depolymerisation
  - blending
  - new ecosystems
  - 2020 and beyond

- cooperate
  - collect and segregate

- disseminate proven recycling schemes
  - into other EU countries
  - gardentarys
  - 1990-20xx

- roll out PSLoop factories
  - construction waste and XPS
  - 2017-2030
The circular economy in action

CLOSED-LOOP RECOVERY
OF POLYSTYRENE FOAM AND BROMINE