Plastics Strategy for the Styrenics Value Chain

PolyStyreneLoop / General Assembly
7th November 2017 – Amsterdam

Christian Block
Who we are

PlasticsEurope is a pan European organisation. We represent the plastics industry at the EU, regional and national level.
Global Plastic Materials Production

Global Plastic Materials Production
337.4 million tonnes

*: Source: Polyglobe 2017
European Plastics demand by sectors

Total demand
49 million tonnes

**3.3%**  
AGRICULTURE

**5.8%**  
ELECTRICAL & ELECTRIC

**8.9%**  
AUTOMOTIVE

**19.7%**  
BUILDING & CONSTRUCTION

**39.9%**  
PACKAGING

**22.4%**  
OTHERS

Consumers & household goods, furniture, sport, health & safety, etc.

Data: 2015. Sources: PlasticsEurope Market Research Group (PEMRG) / Consultic / myCeppi
EU market demand 2016*

ABS / SAN

Expanded Polystyrene

Polystyrene

Volume [mt]
Polystyrene - applications

![Bar chart showing applications of polystyrene with Packaging as the largest category and Others as the second largest.](image)

*PlasticsEurope – facts + figures (preliminary)
Styrenics – top seller

ABS / SAN (Transportation)

EPS (Packaging)

PS (Packaging)

EPS (B&C)

Volumes [mt]
EU Circular Economy Package

The concept of the Circular Economy was introduced in 1989 by David W. Pearce and R. Kerry Turner.

- Develop a sustainable, resource efficient economy
- Transform Europe’s economy and generate competitive advantages
- Maintain value of products, materials and resources for as long as possible while minimising waste generation
Circular Economy: The Package Overview

**Legislative**
- Waste Framework Directive
- Packaging and Packaging Waste Directive
- Landfill Directive
- Others
- WEEE
- ELV
- Batteries

**Non-legislative**

**Action Plan**
- Plastics Strategy
- Interface between chemicals, product & waste legislation

WEEE: Waste Electrical and Electronic Equipment
ELV: End of Life Vehicles
Packaging: how to choose the right material

Customized designs to meet functionality + aesthetics requirements

Form and material follows function

Packaging often makes the difference
Major recycling options for Polystyrene

**PCR regranulation =>**
Polymer waste is regranulated, blended with virgin material or additives, sometimes reprocessed to enhance quality

**Solvolysis =>**
Polymer waste is dissolved in special selective solvent

**De-Polymerization =>**
PS is heated (various reactor types possible) and depolymerized into monomers and oligomers (Pyrowave™ / Agilyx™ (Polystyrene –to Styrene Monomer))
Major recycling options for Polystyrene

Plastics-to-oil =>
Depolymerisation of polymer waste to waxes and oils e.g. composites: pyrolysis, fiber + feedstock recovery

Energy Recovery =>
Cologne, waste-to-energy plant
Recyclability
- is not an inherent material property
- depends on design / shape / size / material
- depends on the composition of waste streams
- sensitive against contamination, impurities
Projects Portfolio – Status July 2017

Packaging Working Group

Plastics Focus

Polyolefins Initiative*

Styrenics Initiative

PVC Initiative

Challenged Items (tbd)

Items Focus
What strategy for plastics in the circular economy

Work together to raise awareness and stimulate behavioural change. Work on proper waste management!
What strategy for plastics in the circular economy

Harness the full potential of plastics in the circular economy through full life cycle thinking.
What strategy for plastics in the circular economy

Continue to ensure that the plastics we produce are safe for applications in which they are used
Conclusions for the Styrenics Value Chain

- “One-solution-fits-all” does not exist
- Our opportunities will be developed through partnerships along the value chain, and...
- ... inter-sectorial cooperations
- Thinking from the end
- Collecting & Sorting, specifically for household waste streams, is key.
- Finding marine litter solutions is paramount
Thank you for your attention