Versalis view on Styrenics Circular Economy

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The ambitions of the new plastics economy

Source: The new plastics economy – rethinking the future of plastics
Ellen Macarthur Foundation 2016
In "Linear Economy" it all starts from styrene.

Monomer

Raw polymers

Items

Items have a value for:
- Food preservation
- Goods preservation
- Hygiene
- Energy saving
In "Linear Economy" it all starts from styrene....

Monomer

Raw polymers

Items

...and ends into waste
Remark

- Applications are so well optimized and widespread that the challenge will be not to lose their advantages.

- Their advantages are mainly environmental ones, as it is widely demonstrated by LCA studies: this is achievable only thanks to the high specialization of polymers in applications.

- Styrenics have a multiplicity of applications, circularity can be exploited also from one application to another one rather than strictly to itself.
In "Circular Economy" we can go back through different paths:

- From waste to monomer:
  - Chemical recycling
  - In the future

- From waste to items:
  - Mechanical recycling, possible today

- From waste to raw polymers:
  - Physical recycling (dissolution, extrusion)
  - Possible tomorrow
Since January 2017 Versalis promoted a working group in Plastics Europe Italia for EOL of Polystyrene.

"Plasmix": set of heterogeneous plastics included in post-consumer packaging and not recovered as single polymers
Laboratory scale development: use of "second life PS" into EPS, a first result from Versalis
Polymer recycling: Disposable Tableware in Sicily

According to JRC report "Marine Beach Litter in Europe – Top Items" the first item found on Mediterranean beaches is cutlery/trays/straws, i.e. disposable tableware. Versalis is supporting a COREPLA project aiming to mechanical recycling of tableware from households separate collection in Sicily, as a representative region of the Mediterranean Sea. We already found and involved one local sorting and one local recycling companies. An awareness-raising campaign is under preparation.
Conclusions

- Versalis is active in all the possible recycling paths, developing projects by testing different technologies, both on its own and in cooperation with other industry partners and associations (Eumeps, Polystyrene Loop, Styrenics Circular Solutions).
- Circular Economy requires a concerted action of all the value chain, from the chemical industry down to the recyclers: the Polystyrene Loop is a valuable example.
- The chemical industry has a central role in changing the paradigm from linear to circular economy.