

ESWET Position Paper
EU Strategy on Plastics

07.09.2017

ESWET welcomes the Commission's initiative to create an EU Strategy on Plastics. From packaging protecting food from rotting (and humans – from food poisoning) to pipes in our homes, plastics have proven their usefulness and versatility. They are light and durable and can be moulded into different shapes. In an ideal world, we would be able to recycle all of these materials infinite number of times.

However, a reality check shows that in certain cases energy recovery is a better solution due to several recycling constraints. We can mention:

- presence of substances of concern (for example brominated flame retardants, phthalate plasticisers, cadmium and lead-based stabilisers);
- gradually degrading quality of polymers
- eco-efficiency.

As a result, a share of plastic is not suitable for recycling. In addition, in the EU around 30% of plastic waste ends in landfills. It means that it is lost as a resource, while it could have been transformed into a new product or energy in Waste-to-Energy plants, increasing resource efficiency.

In the sections below we explain in more details why sometimes recycling of plastic is either not possible or not the best option from the environmental point of view.

Presence of substances of concern

International and EU legislation is trying to ensure that manufactured products are safe for humans and the environment. However, the list of unwanted substances is evolving, so a substance that is restricted now might have been widely used in the past. For example, under the Stockholm Convention on Persistent Organic Pollutants from 2001¹ the manufacture, sale and use of certain chemicals, i.a. hexabromocyclododecane (HBCD or HBCDD), should be

¹ The text of the Convention is available here:

<http://chm.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>

banned or limited². The EU is party to the Convention and transposed it into the EU law through the POPs Regulation ((EC) No 850/2004)³.

HBCD has been used as a flame retardant, for instance in expanded and extruded polystyrene foam insulation. The amendment to the Convention adding it to the list of POPs entered into force in 2015. The chemical is also classified as a substance of a very high concern under the EU REACH Regulation. Its use is banned for nearly all application, but there is an exception for insulation materials. As the lifetime of products containing HBCD is long, for years to come there will be a question of managing waste containing this substance.

According to the art. 7(2) of the POPs Regulation waste containing POPs must be '*disposed of or recovered (...) in such a way as to ensure that the persistent organic pollutant content is destroyed or irreversibly transformed*'. Thermal treatment of such waste is therefore indicated as a sound management option for HBCD. It ensures that the pollutants are removed from the eco-cycle thanks to the treatment in high temperature and state-of-the-art flue gas cleaning systems⁴. As environmental performance of incineration plants has been improving throughout the years, they currently guarantee air emissions levels close to zero.

'Cascading' use of plastics

Plastics degrade over the number of times they are recycled, as polymer networks are compromised with age. It results in plastic material becoming fragile and eventually not suitable for recycling⁵. This can to some extent be countered by adding virgin material or additives, and ESWET supports efforts to increase recyclability of products.

However, when after several cycles of recycling the material's quality decreases substantially, energy recovery should be the next step in the 'cascading' use of plastic. Such an approach enhances resource efficiency, because it entails recovering energy from material that is not suitable for any alternative purpose. Hence, Waste-to-Energy is also a better option than landfilling, since the latter only buries available energy.

Eco-efficiency

By eco-efficiency we mean the comparison between costs and environmental impact of a given activity, including the use of natural resources and energy. An eco-efficient recycling should also result in a recycle of good quality that can be marketed.

²The full list of POPs is available here:

<http://chm.pops.int/Convention/ThePOPs/ListingofPOPs/tabid/2509/Default.aspx>

³ The text of the Regulation is available here: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004R0850>

⁴ Destruction of the flame retardant hexabromocyclododecane in a full-scale municipal solid waste incinerator, Mark F. E., Vehlou J., Dresch H., Dima B., Grüttner W. and Horn J., Waste Management & Research 2015, Vol. 33(2), p. 165–174, available here:

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.828.2282&rep=rep1&type=pdf>

⁵Hazardous substances in plastic materials, COWI and Danish Technological Institute, 2013, p. 20, available at: <http://miljodirektoratet.no/old/klif/publikasjoner/3017/ta3017.pdf>

Whereas homogenous streams of plastic waste prove to be an eco-efficient source of secondary materials, the case of recycling of certain mixed plastic materials may be problematic⁶. In addition to problems mentioned in previous points, i.e. presence of substances of concern and gradually degrading quality, there are additional issues such as costs of sorting, cleaning and treating mixed plastics. Hence, although it is of course possible that recycling of mixed plastics is a viable option, it is important to check which treatment will be the best choice from environmental and societal perspective in a given case.

Integrated approach

In ESWET we believe that proper waste management should be based on integrated solutions. By default plastic recycling seems to be the best option for environment until the material is not suitable for recycling any more. However, in this paper we presented also situations where energy recovery of plastics proves to be a better waste treatment method. This approach is clearly endorsed in the EU legislation, as according to the Waste Framework Directive options delivering best environmental outcomes should be encouraged, regardless of the waste hierarchy (art. 4(2)).

In conclusion, ESWET's advice is: when dealing with plastics, assess the environmental and health impact before choosing the best waste treatment method. In certain cases, it is Waste-to-Energy that is this best option, as it deals with plastics not suitable for recycling, it removes pollutants from the eco-cycle and recovers energy. A truly circular economy maximises the value of resources by using them and recycling as long as it is possible, and then by sourcing their energy content.

Contact

For more information on Waste-to-Energy, please contact:

Natalia Walczak, Policy Officer

Tel.: +32 2 743 2988

n.walczak@eswet.eu

ESWET - European Suppliers of Waste-to-Energy Technology

Avenue Adolphe Lacomblé 59/8

BE - 1030 Brussels

⁶Criteria for eco-efficient (sustainable) plastic recycling and waste management, Denkstatt, 2014, p. 22
http://denkstatt.at/wp-content/uploads/2016/06/study_criteria-for-eco-efficient-sustainable-plastic-recycling-and-waste-management.pdf

About ESWET:

ESWET - The European Suppliers of Waste-to-Energy Technology is the European Association representing manufacturers in the field of Waste-to-Energy technology.

The main purpose of ESWET is to foster the development and the dissemination of Waste-to-Energy technology.

ESWET also seeks to raise the awareness of the positive implications of the technology in terms of better waste management, energy and for the environment.