

View Paper On Mechanical and Organic Recycling

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PlasticsEurope believes that both mechanical and organic recycling¹ of plastic waste, among other recovery options, have a role to play for the purpose of efficient waste management.

The European plastics manufacturing industry aims at providing sustainable solutions and strives to increase the performance of its products while at the same time provide innovative solutions for their end-of-life in order to make an efficient and optimised use of resources within the economy. Both mechanical recycling and organic recycling of conventional and biodegradable plastics have a great contribution to make in this regard.

- 1. To turn plastic waste into a resource, the right waste management options need to be in place**
- 2. European and international standards are important means to support an optimised and qualified waste management**
- 3. There are example applications which consider mechanical and organic recycling as sustainable end-of-life solutions**
- 4. Increased awareness and education on proper use and sound waste management practices for plastics should be supported and promoted**

1. To turn plastic waste into a resource, the right waste management options need to be in place

While waste prevention should remain *the* priority and quite rightly placed at the top of the waste hierarchy one of the preconditions for making a more circular economy is to turn the products which do end up as waste, into valuable resources. This is a first requirement when researching the development of resource efficient plastics products as well recovering their valuable resources at their end of life. The mechanical recycling of conventional plastics is already well-known and practiced throughout Europe and with the improvement of collection, sorting and recycling processes is set to develop further in the coming years. Organic recycling of biodegradable plastics is a newer type of waste management option available for applications where biodegradability offers tangible advantages (e.g. if plastics get soiled because of contact with food or soil).

In order to achieve an economically and ecologically viable management of both conventional plastic and biodegradable plastic waste streams, it is crucial that every waste management option remains available. While mechanical recycling is currently the preferred option for conventional plastics (as long as appropriate collection, sorting and treatment systems are in place to make it sustainable), organic recycling (i.e. composting or digestion) together with other bio-waste, is the

¹ According to the definition in the Packaging and Packaging Waste Directive 9462

preferred recycling option for biodegradable plastics. It is a way of turning bio-waste² together with biodegradable plastic waste into compost under controlled conditions. For this to happen, however, it is important to use biodegradable plastics in applications which can be recovered and processed after use. PlasticsEurope is therefore calling for the mandatory separate collection of bio-waste together with waste which has similar biodegradability and composability properties.

2. European and international standards are important means to support an optimised and qualified waste management

European standards such as EN15342 to EN 15348 are available for recycled plastics of PE, PP, PVC, PET and PS recyclates, the characterisation of plastic waste and the traceability³. European certification schemes like e.g. EuCertPlast offer additionally safeguarding of the necessary quality and suitability for the treatment of post-consumer plastics recyclates.

Biodegradable plastics have to meet European harmonised standards confirming biodegradability and composability of materials and products e.g. according to the mandated standard EN 13432⁴ for compostable packaging. Related guidelines for characterisation, labelling and identifications are currently being developed. Not only should all biodegradable plastics comply with the relevant and appropriate standards, but the resulting compost should comply with appropriate standards for complete compostability and plant safety as well.

3. There are example applications which consider mechanical and organic recycling as sustainable end-of-life solutions.

It is important to briefly highlight that plastics are truly versatile materials enabling a multitude of applications. They ensure electrical, thermal and acoustic insulation. They are waterproof and resistant to mould and bacteria. They are lightweight, durable and facilitate the transport of goods. Plastic packaging also preserves food, avoiding unnecessary waste.

Waste has to be effectively collected and managed. In doing so, plastics at the end of their life are increasingly becoming a new secondary raw material that is invaluable for making quality products in the most diverse sectors. Both mechanical recycling and organic recycling of conventional and biodegradable plastics make this possible.

Biodegradable plastics are typically used in applications where the biodegradable characteristics offer tangible advantages. Biodegradable plastics can for instance be used to make food waste bags for the collection of food waste, allowing the bag to be composted together with its biodegradable content. This simplifies and makes separate collection systems of food waste more effective providing hygienic solutions and ease of handling for its recovery.

In addition, in the agriculture sector, both conventional mulch films as well as biodegradable mulch films offer sustainable end-of-life solutions. Those films are used to minimise water loss and the need for pesticides and also help control the spreading of weeds. Conventional plastic mulch films should never be left on land after their useful life. Their sustainable end-of-life solution is to collect and mechanically recycle the film. To facilitate this purpose, the European Standard EN 13655 is currently being updated. This standard covers plastics – thermoplastic mulch films recoverable after use, for use in agriculture and horticulture. Once finalised, this standard should serve as a reference. Several factors influence the ease of fully recovering a mulch film after use, such as the

² Bio-waste as defined in the European Waste Framework Directive

³ European Standard EN 15342 to EN 15348 on "Plastics. Recycled Plastics"

⁴ European Standard EN 13432 on "Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging"

crop, farming practice, soil, the duration and the thickness. When a full recovery of the conventional mulch film cannot be ensured (e.g. because of a film thickness of less than 25 microns, use in crops such as corn with adjacent roots coming through the film, film heavily damaged into pieces during harvest) then certified biodegradable mulch films⁵ offer an alternative solution. Such films can be left on the field as they completely biodegrade in soil, leaving only biomass, CO₂ and water.

4. Increased awareness and education on proper use and sound waste management practices for plastics should be supported and promoted

While standards are the first step to ensuring a uniformly harmonised system, it is crucial for consumers to be informed about the proper way to dispose of conventional and biodegradable plastics to be part of a proper and qualified waste management. Appropriate labelling and certification schemes will help to facilitate proper waste management, be it for the recycling of conventional plastics or the organic recycling of biodegradable plastics together with bio-waste.

For further information, please contact:

[Sabine Lindner](#) and [Hervé Millet](#)

⁵ A European standard EN 17033 is expected in 2017 which will specify requirements.