RecyClass

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RECYCLASS TECHNICAL REVIEW

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The RecyClass PO Films Technical Committee (TC) investigated the impact of the size of small flexible packaging on sorting. This test campaign was performed with Circpack, at the Veolia industrial sorting centre of Ochtendung (Germany). With the result of this test campaign, the RecyClass PO Films Technical Committee amended the Design for Recycling Guidelines for PE and PP films with more accurate design criteria, emphasizing the risk for some small flexible packaging not to be correctly sorted at scale.

When addressing the sorting behaviour of plastic packaging, the size and shape of the flexible packaging is mainly having an impact at the sieving step, which is performed before material separation and NIR sorting. For this reason, the RecyClass PO Films TC decided to collect several batches of waste that did not pass through the sieve drum (**≥** 50 mm diameter), or that passed through the sieve drum but not through the vibrating sieve (**≥** 30 mm diameter). These fractions were respectively called “Large” and “Small”. Any very small packaging going through the vibrating sieve would end up in a residue fraction, which will most probably end up into incineration. From the waste collected in the Large and Small fractions, only flexible packaging was kept, in order to do an analysis of the size of the collected packaging in their compacted state but also when flattened. Note that no characterisations of the nature of the polymer and composition of the packaging were done.

The analyses of the batches showed a high concentration of candy and chocolate wrappers and dishwasher tabs in the Small fraction (see Annex I), while only few bigger packaging (pouches, bags) could be found in this fraction. Other small flexibles use for tissues or for snacks were found in both Small and Large fractions. Focusing on the size of the products found several times in the Small fraction, the surface of the compacted packaging varied from 4 to 60 cm^2, while it varied from 30 to 110 cm^2 once flattened (see Annex II). These results highlighted that below a flattened surface of 30 cm^2, a packaging would most likely go through the vibrating sieve and end up in the residual fraction. Above 100 cm^2, chances are that the packaging will end up in the large fraction which will then be separated into different monomaterial streams. As a summary and according to the results that were obtained from this test campaign, the RecyClass PO Films Technical Committee defined the following design for recycling recommendations for the size of flexible packaging[1]:

[1] Design for Recycling Guidelines for PE films

- Full compatible: Packaging with a flattened surface[2] superior to 100 cm^2
- Limited compatible: Packaging with a flattened surface[2] between 30 and 100 cm^2
- Low compatible: Packaging with a flattened surface[2] below 30 cm^2

Note that these recommendations **can be challenged by a sorting test by following the procedures described in the RecyClass Sorting Evaluation Protocol for Plastic Packaging[3].** Results of such sorting evaluation of a specific packaging will prevail on the Design for Recycling Guidelines.

As the size of a packaging is inherent to the product that is packed, RecyClass PO Films TC recognised that the size of a packaging cannot strongly vary for the same product. Therefore, **the recommendations aforementioned will not lead to any penalty during RecyClass Recyclability Certification audits for Letter of Compatibility or Design for Recycling Certification.** These recommendations are here to inform the value chain about the risk for some flexible packaging not to be correctly sorted, and therefore not recycled.

While this test campaign was performed in a specific sorting centre, it is established that currently most of the sorting facilities in Europe will not be capable of recovering packaging smaller than 30 cm^2. Therefore, these packaging will most likely be ending up in the residue fraction in all sorting centres.

While RecyClass is currently settling these recommendations on the size of flexible packaging, improvement in sorting waste management, may enable smaller packaging to be sorted more efficiently into a specific monomaterial fraction. Therefore, the RecyClass PO Films TC will be reconsidering these recommendations in the future, based on the progress and improvements of European sorting plants.

About RecyClass

RecyClass is a non-profit, cross-industry initiative advancing recyclability, bringing transparency to the origin of plastic waste and establishing a harmonized approach toward recycled plastic calculation & traceability in Europe. RecyClass develops Recyclability Evaluation Protocols and scientific testing methods for innovative plastic packaging materials which serve as the base for the Design for Recycling Guidelines and the RecyClass Online Tool. RecyClass established Recyclability Certifications for plastic packaging, Recycling Process Certification and Recycled Plastics Traceability Certification for plastic products.

RecyClass – Plastic Future is Circular

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[2] **Flattened surface: Surface covered by a packaging when unfold, or when opened only on one side**

[3] RecyClass Sorting Evaluation Protocol for Plastic Packaging

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Annex I

Figure 1: Example of flexible packaging found in the Small fraction.

Annex II

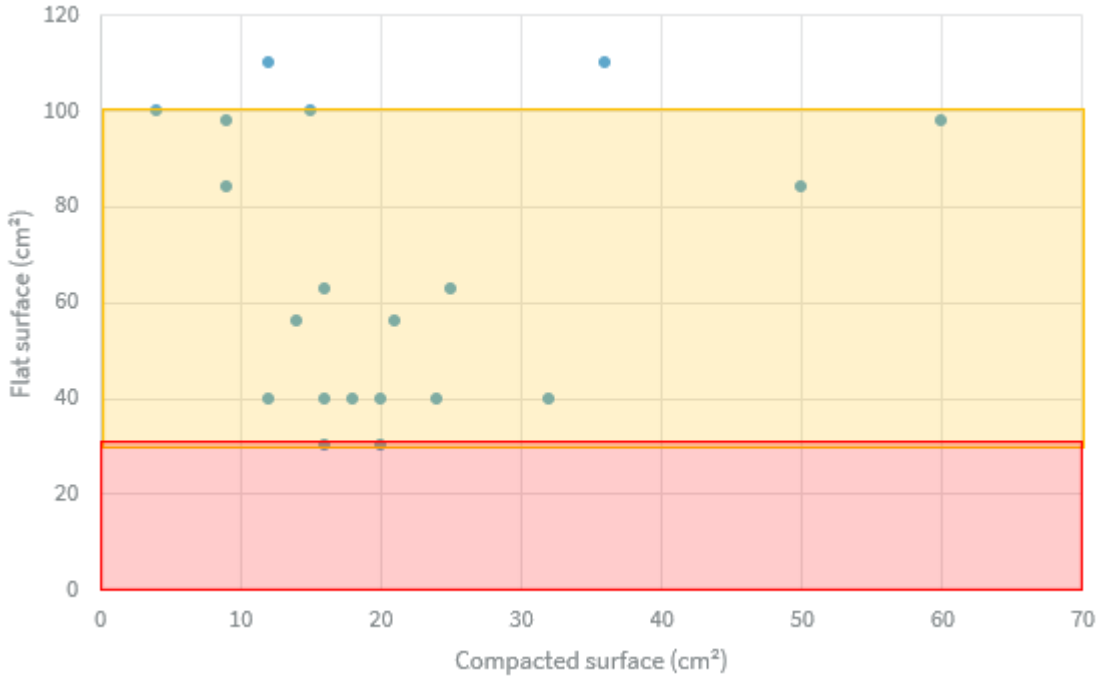

Figure 2: Variation of surfaces (compacted and flat) of the most common flexible packaging collected in the Small fraction

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