RecyClass

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Constantia Flexibles

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 04 October 2022

DISCLAIMER

RecyClass recognition applies only to Constantia Flexibles 'PERPETUA ALTA' technology reported in Annex I. The recyclability assessment therefore does not refer to the testing of a specific packaging using this barrier technology. Any specific packaging using this technology would need to be tested individually to demonstrate that the system of resin, adjuvants, label, closure, and printing conforms to the RecyClass Recyclability Evaluation Protocol for PP films, and that it is sorted in the PP flexible stream at the state-of-art sorting plants in Europe.

Publication of results of testing of this technology MUST clearly include all the conditions listed in the approval letter. Partial reporting of the conditions is forbidden.
Additionally, any change in the formulation of the technology must be communicated to the Technical Committee which will reassess the approval of the technology.

The RecyClass PO films Technical Committee was requested to carry out an assessment of the technology 'PERPETUA ALTA' by Constantia Flexibles to verify its impact on the quality of recycled PP flexible packaging.

The technology is a PP-based multilayer laminated film with barrier properties conferred by the presence of EVOH and metallisation. The EVOH represents less than 0.8% of the total weight of the film. The two PP layers are laminated with a two-component solvent-based aromatic polyurethane laminating adhesive representing 2.8% of the film. The film is metallised and direct printed on its entire surface.

According to the results that were obtained from the laboratory test by Aimplas, carried out as per the Recyclability Evaluation Protocol for PP films, the 'PERPETUA ALTA' technology is considered to be fully compatible with coloured PP flexibles recycling. Additionally, the sortability of the packaging has been evaluated by NTCP following the RecyClass Sorting Protocol and showed that 91% of pouches present in the light fractions were sorted as PP Flexibles[1].

[1] Sorting Evaluation Protocol for Plastic Packaging

Based on these results, RecyClass acknowledges that Constantia Flexibles 'PERPETUA ALTA' technology will have no impact on the current European coloured PP flexibles recycling provided that PP flexible films using this technology are designed only under the following conditions:

a) The density of the film is below 0.97 g/cm^3;
b) PP represents at least 96.3% of the total weight of the packaging;
c) The maximum EVOH concentration is below 0.8% respect to the film total weight;
d) The laminating adhesive is a two-component solvent-based aromatic polyurethane and represents less than 2.8% of the total weight of the film;
e) The metallised layer has an optical density of 3, or less;
f) Ink and varnish combined represent less than 0.08% by weight of the total film weight;
g) The format of the flexible packaging made of the 'PERPETUA ALTA' must not prevent the packaging to get sorted in the PP flexible recycling stream;
h) Applied printing technology is compatible with recycling; since several printing options are possible, it is the responsibility of the end-user to choose an appropriate combination of inks and printing process to ensure that:

    i. the inks are non-bleeding;
    ii. the inks comply with the European Legislation (e.g. Packaging and Packaging Waste Directive on the heavy metal concentration levels) and are EUPIA compliant;
    iii. direct printing is limited as much as possible;

RecyClass concludes that Constantia Flexibles 'PERPETUA ALTA' technology as per current market conditions and knowledge, is fully compatible with the existing European industrial recycling processes for coloured PP flexibles. The plastic generated by the recycling process may be used in high quality applications such as PP cast films up to 25%[2].

In regard to RecyClass Recyclability Certification, the present full compatibility with coloured PP flexibles recycling approval delivered to Constantia Flexibles 'PERPETUA ALTA' technology, means that a packaging containing the Constantia Flexibles 'PERPETUA ALTA' as mentioned in the conditions will not be penalised with a Recyclability Class downgrade. Nevertheless, the amount of recyclable PP, as

[2] Technology tested according to the RecyClass Recyclability Evaluation Protocol for PP films

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well as the sorting efficiency and the Design for Recycling incompatibilities (metallisation – 1 class deduction), will impact the final Recyclability Class obtained during Recyclability Certification[3]. Also, it should be noteworthy that the presence of additional packaging features could impact the certification process.

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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[3] RecyClass Recyclability Certification

Annex I

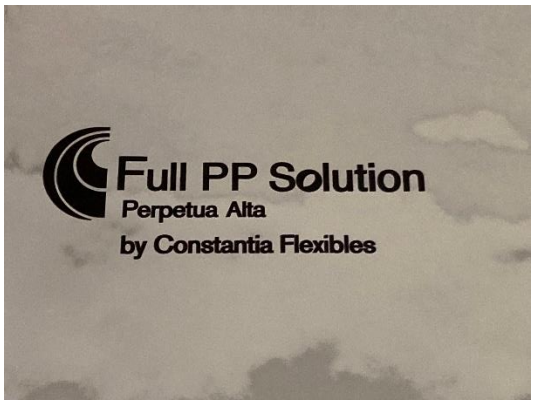

Figure 1 'PERPETUA ALTA' *technology by Constantia Flexibles*