RecyClass

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Dow

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 25 April 2023

DISCLAIMER

RecyClass recognition applies only to Dow 'RecycleReady' technology reported in Annex I. The recyclability assessment therefore does not refer to the testing of a specific packaging using this 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 PE films, and that it is sorted in the PE 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 'RecycleReady' by Dow to verify its impact on the quality of recycled PE flexible packaging.

The technology is a PE coextruded film produced with barrier properties conferred by the presence of EVOH. The tested structure consisted in a multilayer film made of various PE grades with 9.5 % of EVOH and 9.2 % of PE-based tie layer compared to the total weight of the packaging respectively. In addition to this, the film contains 4.5 % of RETAIN 3000 compatibilizer compared to the total weight of the film. The film has been tested unprinted.

According to the results that were obtained from the laboratory test performed by Aimplas, carried out as per the Recyclability Evaluation Protocol for PE films, the 'RecycleReady' technology is considered to be fully compatible with PE flexibles recycling under specific conditions limiting the amount of EVOH to 4.75wt%.

Based on these results, RecyClass acknowledges that Dow 'RecycleReady' technology will have no impact on the current European PE flexibles recycling provided that PE flexible films using this technology are designed only under the following conditions:

a) The density of the PE film is below 0,97 g/cm^3:
b) The EVOH represents 4.75% of the total weight of the film, or less;
c) The RETAIN 3000 compatibilizer represents 2.25% of the total weight of the film, or less;
d) EVOH is compatibilized with both:

i. PE-based tie layer grafted with maleic anhydride, with an EVOH: tie layer ratio lower than 1;

ii. RETAIN 3000 compatibilizer, ethylene copolymer grafted with more than 1wt% maleic anhydride, with an EVOH: compatibilizer ratio not higher than 2:1

e) 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 Dow 'RecycleReady' technology as per current market conditions and knowledge, is fully compatible with the existing European industrial recycling processes for PE flexibles. The plastic generated by the recycling process, for a structure respecting the aforementioned conditions, may be used in high quality applications such as PE blown films up to 25%[1].

In regard to RecyClass Recyclability Certification, the present full compatibility with PE flexibles recycling approval delivered to 'RecycleReady' technology, means that a package based on PE film containing the 'RecycleReady' technology, as mentioned in the aforementioned conditions, will not be penalised with a Recyclability Class downgrade. Nevertheless, the amount of recyclable PE will impact the final Recyclability Class obtained during Recyclability Certification[2]. 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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[1] Technology tested according to the RecyClass Recyclability Evaluation Protocol for PE films

[2] RecyClass Recyclability Certification

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Annex I

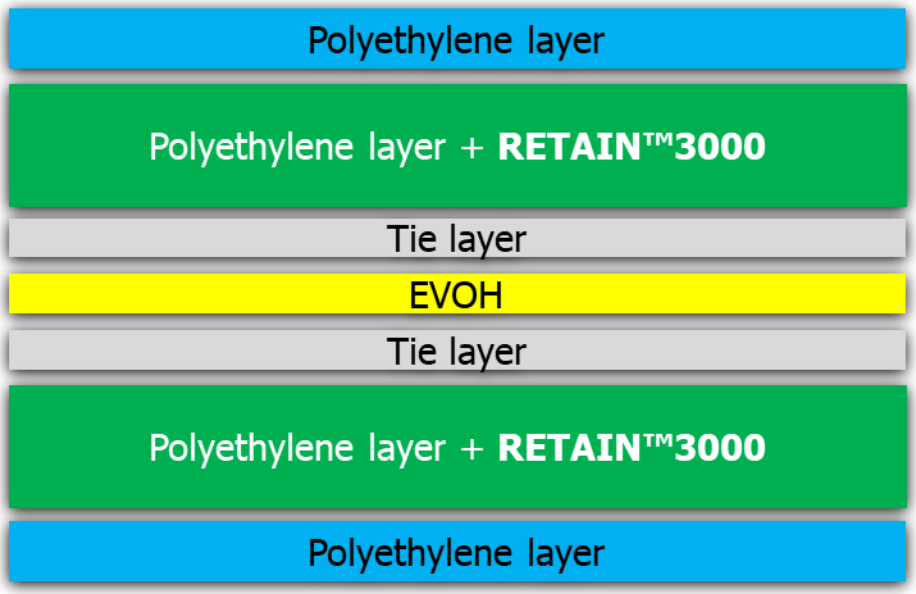

Figure 1 'RecycleReady' *technology by Dow*