

Avery Dennison

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 24 August 2021

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DISCLAIMER

RecyClass recognition applies only to Avery Dennison 'PE top white with Acrylic adhesive' technology reported in Annex I. It, therefore, does not concern to a recyclability assessment of specific packaging using this Pressure-Sensitive-Label.

Any specific packaging using this Pressure-Sensitive Label 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 HDPE containers, and that it is sorted in the HDPE rigid 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 HDPE Technical Committee was requested to carry out an assessment of the technology 'PE top white with Acrylic adhesive' by Avery Dennison to verify its impact on the quality of recycled HDPE containers.

The technology is white LDPE Pressure-Sensitive Labels applied unprinted on a HDPE bottle, provided without cap. The Pressure-Sensitive Label is composed by a LDPE facestock and a general-purpose permanent emulsion acrylic adhesive, covering about 40 % of the total surface of the bottle. Adhesive represents about 1.2 % of the total weight of the tested bottle.

According to the results that were obtained from the laboratory tests done by the Institut für Kunststofftechnologie und -recycling (IKTR), carried out as per the Recyclability Evaluation Protocol for HDPE containers, 'PE top white with Acrylic adhesive' technology is considered to be limited compatible with coloured HDPE recycling.

Based on these results, RecyClass acknowledges that Avery Dennison 'PE top white with Acrylic adhesive' technology will have a limited impact on the current European coloured HDPE containers recycling and provided that the full packaging using this Pressure-Sensitive Label is designed under the following conditions:

- a) The packaging is made of PE, with a prevalence of HDPE;

- b) The facestock of the Pressure-Sensitive Label applied on the packaging is made of clear or white LDPE;
- c) The coverage of the Pressure-Sensitive Labels represents 6.35 cm²/g of bottle (equivalent to 40 % of the packaging surface here), or less;
- d) The amount of acrylic adhesive represents 1.2 % of the total weight of the packaging, or less;
- e) The final density of the packaging is lower than 1 g/cm³;
- f) Any additional components, such as closure system, are made of PE preferably clear or white;
- g) 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. printing is limited as much as possible, using preferably light colours.

RecyClass concludes that Avery Dennison 'PE top white with Acrylic adhesive' technology as per current market conditions and knowledge, is limited compatible with the existing European industrial recycling processes for coloured HDPE containers. Indeed, the recycled plastic generated after the recycling process was successfully tested in high-value application such as HDPE bottles up to 100 % concentration¹.

It should be noteworthy that application of extensive printing on the non-separable Pressure Sensitive Label reduces the quality of recycled plastic generated by the container, by limiting its compatibility with HDPE recycling. Therefore, the applicant is encouraged to improve the Pressure-Sensitive Label construction to allow its removal during the recycling process, based on RecyClass HDPE Technical Committee recommendation.

¹ [Recyclability Evaluation Protocol for HDPE containers](#)

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.

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Annex I



Figure 1. PE top white with Acrylic adhesive by Avery Dennison without cap and unprinted.