

Procter & Gamble

RECYCLASS PRODUCT APPROVAL

Brussels, 16 November 2020

The RecyClass HDPE Technical Committee was requested to carry out an assessment of the product 'Toothpaste Tubes with cap' by Procter & Gamble to verify its impact on the quality of recycled HDPE containers.

The product is a laminated white-coloured tube, direct printed, provided with HDPE shoulders and a PP cap. The EVOH barrier concentration is below 5% of the total weight of the tube with shoulders, with more than 2% PE tie layers grafted with at least 0,1 % maleic anhydride.

According to the results that were obtained from the laboratory test by the Institut für Kunststofftechnologie und -recycling (IKTR), carried out as per the Recyclability Evaluation Protocol for HDPE containers, the 'Toothpaste Tubes with cap' product is considered to be compatible with HDPE recycling. Also the sortability of the packaging has been successfully tested by Suez.Circpack® following the RecyClass sorting protocol.

Based on these results, RecyClass certifies that Procter & Gamble 'Toothpaste Tubes with cap' product will not have a negative impact on the current European HDPE containers recycling provided the product is designed under the following conditions:

- a) The tube and its shoulders are made of clear or white PE;
- b) The maximum EVOH concentration is below 5% by weight and provided by more than 2% PE tie layers, grafted with a minimum concentration of 0,1% of maleic anydryde;
- c) The density of the finished tube is lower than 1g/cm³;
- d) Liners, seals and valves, as well as any other components are made of PE;
- e) The PP concentration doesn't exceed 40% of the total weight of the full packaging;
- f) The PP cap, tested successfully without any additional component, is 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. direct printing is limited as much as possible (see Annex I);

RecyClass concludes that Procter & Gamble 'Toothpaste Tubes with cap' product as per current market conditions and knowledge, is compatible with the existing European industrial recycling processes for HDPE containers. The plastic generated by the recycling process may be used in high quality applications such as HDPE bottles, providing that the full package market penetration is limited to 5% maximum of the HDPE market¹. This market penetration and the approval are granted for a period of 2 years, during which the applicant will endeavor to change the PP cap by a PE cap.

Outside of above conditions, the package may not allow to reach high recycling quality standards. In particular, RecyClass recommends:

- to review and further reduce the direct printing applied on the tube. Direct printing is to be avoided, as it leads to colouring of the recycle and enhance its further applications.

RecyClass recognition applies only to Procter & Gamble 'Toothpaste Tubes with cap' product reported in Annex I and is not a recyclability assessment of specific packaging using this tube as body. Any specific packaging using this tube as body would need to be tested individually to demonstrate the system of resin, adjuvants, label, and closure conformed to the RecyClass Recyclability Evaluation Protocol for HDPE containers, and that it is sorted in the HDPE stream at the state of art sorting plants in Europe. However, similar executions with the only modification of artworks would not have to be tested again as long as the ink coverage remain the same.

Any change on the formulation of the product must be communicated to the Technical Committee which will reassess the approval of the product.

About

RecyClass is a comprehensive cross-industry initiative that works to advance plastic packaging recyclability within Europe. RecyClass assesses recyclability and provides specific recommendations on how to improve packaging design to fit current recycling technologies. Activities within RecyClass include the development of Recyclability Evaluation Protocols and testing of innovative materials. Findings are used to update the RecyClass Design for Recycling guidelines and the online free tool.

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¹ The market penetration is not specific to the brands, but is related to the overall HDPE tubes market containing PP cap: $Market\ penetration\ for\ tubes = \frac{\sum_{vol} HDPE\ tubes\ with\ PP\ cap\ market}{\sum_{vol} HDPE\ packaging\ EU\ market}$

Annex I



Figure 1 Toothpaste HDPE tube with cap by Procter & Gamble