RecyClass™

c/o Plastics Recyclers Europe
Avenue de Broqueville 12
1150 Brussels, Brussels

Phone: +32 2 315 24 60
info@recyclass.eu
www.recyclass.eu

Procter & Gamble

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 16 November 2020

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

The technology is a laminated white-coloured tube, direct printed, provided with HDPE shoulders, excluding cap. The EVOH barrier concentration is below 5% of the total weight of the packaging, 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 tube' technology is considered to be fully compatible with HDPE recycling.

Based on these results, RecyClass certifies that Procter & Gamble 'Toothpaste tube' technology will not have a negative impact on the current European HDPE containers recycling and provided the full packaging using this tube as the body 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 1 g/cm^3;
d) Closures, liners, seals and valves, as well as any other components are made of PE;
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 (see Annex I);

RecyClass concludes that Procter & Gamble 'Toothpaste tube' technology as per current market conditions and knowledge, is fully compatible with the existing European industrial recycling processes

for HDPE containers. Indeed, the recycled plastic generated after the recycling process was successfully tested in high-value application such as HDPE bottles up to 25% concentration[1].

However, 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 recyclate, limiting its further applications.

RecyClass recognition applies only to Procter & Gamble 'Toothpaste tube' technology 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 technology must be communicated to the Technical Committee which will reassess the approval of the technology.

[1] Recyclability Evaluation Protocol for HDPE containers

c/o Plastics Recyclers Europe
Avenue de Broqueville 12
1150 Brussels, Brussels

Phone : +32 2 315 24 60
info@recyclass.eu
www.recyclass.eu

c/o Plastics Recyclers Europe
Avenue de Broqueville 12
1150 Brussels, Brussels

Phone: +32 2 315 24 60
info@recyclass.eu
www.recyclass.eu

Annex I

Figure 1 Toothpaste HDPE tube without cap by Procter & Gamble