

Kim Pack

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 06 May 2022

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DISCLAIMER

RecyClass recognition applies only to Kim Pack 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' technology reported in Annex I. The recyclability assessment therefore does not refer to the testing of a specific packaging using this tube.

Any specific packaging using this tube 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 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' by Kim Pack to verify its impact on the quality of recycled HDPE containers.

The technology is a laminated tube, provided with HDPE shoulders but without cap. The tube is metallized and direct printed (ink + varnish) on the total surface of the tube (i.e. 1 % of the total weight). The EVOH barrier concentration is about 3.0 % of the tube body, while the laminating adhesive represents about 1 % of the total weight of the packaging.

According to the results that were obtained from the laboratory test by Plastics Forming Enterprises (PFE), carried out as per the APR HDPE-A-01 Application Guidance¹, the 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' technology is **fully compatible with coloured HDPE recycling**. Additionally, the sortability of the packaging has been successfully tested by CIRCPACK following the RecyClass Sorting Protocol².

Based on these results, RecyClass acknowledges that Kim Pack 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' will have no negative impact on the current European HDPE containers recycling and provided that the packaging is designed under the following conditions:

¹ [APR HDPE-A-01 Application Guidance](#)

² [Sorting Evaluation Protocol for Plastic Packaging](#)

- a) The tube and its shoulders are made of clear or white HDPE;
- b) The maximum EVOH concentration is below 3.0 % respect to the tube total weight;
- c) EVOH is compatibilized with LDPE tie layers grafted with maleic anhydride, with an EVOH: tie layer ratio lower than 1.5:1;
- d) The density of the finished tube is lower than 1 g/cm³;
- e) The laminating adhesive is polyurethane-based and solvent based, and represents less than 1% of the total weight of the tube;
- f) The metallized layer has an optical density of 2.35, or less, representing 0.02 wt% or less of the total tube weight;
- g) The UV-acrylic ink and varnish combined represent less than 1 % by weight of the total tube weight;
- h) Any additional component or features (e.g. inks, adhesives, etc) of the packaging must be compliant with the corresponding RecyClass Design for Recycling Guidelines³.

RecyClass concludes that Kim Pack 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' as per current market conditions and knowledge, is fully 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 25 % concentration⁴.

In regard to RecyClass Recyclability Certification, the present full compatibility with HDPE containers recycling approval delivered to Kim Pack 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' technology, means that a packaging containing this technology, as mentioned in the aforementioned conditions will not be penalised with any Recyclability Class downgrade. Moreover, the amount of recyclable PE will impact the final Recyclability Class obtained during Recyclability Certification and should be kept above 95 % or 90 % in the final packaging to maximise chances to get a Recyclability Certificate with a Class A or B, respectively ⁵. Also, it is noteworthy that the presence of additional packaging features could impact the certification process.

³ [Design for Recycling Guidelines - RecyClass](#)

⁴ [APR HDPE-A-01 Application Guidance](#)

⁵ [RecyClass Recyclability Certification](#)

Similar executions of 'Kim Pai Go Green Metallized HDPE 380 Laminate Tube' technology with the only modification of artworks would not have to be tested again as long as the direct printing decoration amount and the components proportion remain the same.

It should be noteworthy that the use of PE cap remains the favoured option in the case of HDPE tubes, in order not to reduce the quality of recycled plastic generated by the tube.

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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Annex I



Figure 1: Kim Pai Go Green Metallized HDPE 380 Laminate Tube without cap by Kim Pack.