RecyClass

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

Phone: +32 2 786 39 08
info@recyclass.eu
www.recyclass.eu

Gizeh

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 30 July 2024

DISCLAIMER

RecyClass recognition applies only to Gizeh "Maya 136" technology reported in Annex I. The recyclability assessment therefore does not refer to the testing of a specific commercial 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 PP containers, and that it is sorted in the PP 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 PP Technical Committee was requested to carry out an assessment of the technology 'Maya 136' by Gizeh to verify its impact on the quality of recycled PP containers.

The technology is a white PP cup, provided unprinted and without lid. The EVOH-barrier layer is 9.5 wt% of the total weight and it is compatibilized by the presence of 3.5 wt% PP layers grafted with maleic anhydride (PP-g-MAH). A white masterbatch represents a total quantity of 5 wt% and another additive combining compatibilizer and thermal stabiliser effect is also used up to 2 wt% in total. A final quantity of about 11.4 wt% of a PP-based additive is also present in the packaging in order to reduce the amount of EVOH used. PP regrind layers are also incorporated in the cup structure.

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 PP containers (version 4.0), 'Maya 136' technology is limited compatible with white and coloured PP recycling.

Based on these results, RecyClass certifies that Gizeh 'Maya 136' technology will have a limited impact on the current European white and coloured PP containers recycling and provided that the full packaging using this cup as the body is designed under the following conditions[1]:

a) The cup is made of white PP;
b) The cup is provided with an EVOH layer representing 9.5 wt% of the total weight, or less;

[1] **PP Rigids designed under conditions other than those indicated need to be tested to assess their compliance with RecyClass Recyclability Evaluation Protocol for PP containers.**

c) The EVOH is compatibilized with at least 3.5 wt% PP tie layers grafted with maleic anhydride;
d) The amount of mineral fillers represents 1.9 wt%, or less;
e) Other additive combining compatibilizer and thermal stabiliser effect is used up to a total amount of 2 wt%, or less;
f) A PP-based additive represents 11.4 wt% in total, or less;
g) The cup contains PP regrind layers including EVOH reaching an overall maximum concentration equal to 19 wt%;
h) The density of the finished cup is lower than 1 g/cm^3;
i) Any additional component or features (e.g., inks, adhesives, etc.) of the packaging must be compliant with the corresponding RecyClass Design for Recycling Guidelines[2].

RecyClass concludes that Gizeh 'Maya 136' technology as per current market conditions and knowledge, is limited compatible with the existing European industrial recycling processes for white and coloured PP containers. Indeed, the recycled plastic generated after the recycling process was successfully tested in sheet extrusion applications up to a concentration of 25 % innovation[3].

In regard to RecyClass Recyclability Certification, the present limited compatibility with white and coloured PP containers recycling delivered to Gizeh 'Maya 136' technology, means that a packaging containing this technology, as mentioned in the aforementioned conditions, will be penalised with one recyclability class downgrade. Moreover, the amount of recyclable PP 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 B or C, respectively[4]. Also, it is noteworthy that the presence of additional packaging features, like inks, 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

Follow the latest news on RecyClass channels: LinkedIn | Twitter | YouTube

Contact : Jean-Emile.Potaufeux@plasticsrecyclers.eu, www.recyclass.eu

[2] Design for Recycling Guidelines - RecyClass

[3] Recyclability Evaluation Protocol for PP containers

[4] RecyClass Recyclability Certification

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

Phone : +32 2 786 39 08
info@recyclass.eu
www.recyclass.eu

RecyClass

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

Phone: +32 2 786 39 08
info@recyclass.eu
www.recyclass.eu

Annex I

Figure 1: 'Maya 136' technology by Gizeh.