

*Enhance Technologies*

RECYCLASS TECHNOLOGY APPROVAL

*Brussels, 27 April 2020*

*Reviewed: Brussels, 19 December 2023*

## DISCLAIMER

*RecyClass recognition applies only to Enhance Technologies 'Enkase™ Fluorinated HDPE bottle' technology. The recyclability assessment therefore does not refer to the testing of a specific 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 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 'Enkase™ Fluorinated HDPE bottle' by Enhance Technologies to verify its impact on the quality of recycled HDPE containers.

The technology is a HDPE bottle with a fluorinated barrier surface layer. The fluorinated barrier layer represents 0.1 wt% or less of the total packaging.

According to the results that were obtained from the laboratory tests done by Plastics Forming Enterprise (PFE), carried out as per the APR HDPE Critical Guidance Document testing protocols and the Bottle-to-Bottle Protocol, 'Enkase™ Fluorinated HDPE bottle' technology is considered to be **fully compatible with HDPE recycling**.

Based on the results, RecyClass acknowledges that Enhance Technologies 'Enkase™ Fluorinated HDPE bottle' technology will not have a negative impact on the current European HDPE containers recycling and provided that the packaging using this technology is designed under the following conditions<sup>1</sup>:

- a) The body is made of PE, with a prevalence of HDPE;
- b) No functional barriers are included in the body (i.e. EVOH, PA, PVDC);
- c) The fluorinated barrier layer represents 0.1 wt% or less;

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<sup>1</sup> HDPE containers designed under conditions other than those indicated need to be tested to assess their compliance with RecyClass Recyclability Evaluation Protocol for HDPE containers.

- d) The density of the finished packaging is lower than 1 g/cm<sup>3</sup>;
- e) Any additional component or features (e.g. inks, adhesives, etc) of the packaging must be compliant with the corresponding RecyClass Design for Recycling Guidelines<sup>2</sup>;
- f) Closures, liners, seals and valves, as well as any other components are made with PE.

RecyClass concludes that Inhance Technologies 'Enkase™ Fluorinated HDPE bottle' technology as per current market conditions and knowledge, is 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 50 % concentration<sup>3</sup>.

In regard to RecyClass Recyclability Certification, the present full compatibility with HDPE containers recycling approval delivered to Inhance Technologies 'Enkase™ Fluorinated HDPE bottle' technology, means that a packaging containing the Inhance Technologies 'Enkase™ Fluorinated HDPE bottle' 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 <sup>4</sup>. Also, it is noteworthy that the presence of additional packaging features 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.

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<sup>2</sup> [Design for Recycling Guidelines - RecyClass](#)

<sup>3</sup> [Recyclability Evaluation Protocol for HDPE containers](#)

<sup>4</sup> [RecyClass Recyclability Certification](#)