

VOID Technologies

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 22 July 2022

DISCLAIMER

RecyClass recognition applies only to VOID Technologies 'VO+ PE masterbatch' technology reported in Annex I. 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 PE films, and that it is sorted in the PE flexible 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 PO films Technical Committee was requested by VOID Technologies to carry out an assessment of its 'VO+ PE Masterbatch' technology to verify its impact on the quality of recycled PE flexible packaging.

The technology tested was a VO+ MDO cavitated PE-based three-layer coextruded film. This film contains 'VO+ PE masterbatch' in the internal layer alongside additional LLDPE resin, with the internal layer comprising 70% of the structure. In this film, the masterbatch represents 15% of the internal layer, meaning 10.5% of the total weight of the film. The masterbatch contained 40 wt% of LLDPE and 60 wt% of VO+ additives. In total, the amount of additive represents 6.3wt% of the total film structure. The film has been tested unprinted.

According to the results that were obtained from the laboratory test done by Plastic Forming Enterprises (PFE), carried out as per the Recyclability Evaluation Protocol for PE films, the 'VO+ PE masterbatch' technology is considered to be **fully compatible with PE flexibles recycling**.

Based on these results, RecyClass certifies that VOID Technologies 'VO+ PE masterbatch' technology will have no negative impact on the current European PE flexibles recycling provided that PE flexible films using this technology are designed only under the following conditions:

- a) The density of the film is below 0.97 g/cm³;
- b) The 'VO+ PE masterbatch' represents less than 10.5% of the total weight of the film;
- c) The ethylene monomer concentration in the structure is higher than 93.5 wt%;
- d) The amount of VO+ additives represents less than 6.3% of the total weight of the film;

- 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;

RecyClass concludes that VOID Technologies 'VO+ PE masterbatch' technology as per current market conditions and knowledge, is fully compatible with the existing European industrial recycling processes for PE flexibles. The plastic generated by the recycling process may be used in high quality applications such as PE blown films up to 50%¹.

In regard to RecyClass Recyclability Certification, the present full compatibility with PE flexibles recycling approval delivered to 'VO+ PE masterbatch' technology, means that a package based on MDO-PE film produced with the 'VO+ PE masterbatch' technology, as mentioned in the aforementioned conditions, will not be penalised with a Recyclability Class downgrade. Nevertheless, the amount of recyclable PE (here PE<95%) will impact the final Recyclability Class obtained during Recyclability Certification². Also, it should be noteworthy that the presence of additional packaging features will 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](#)

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¹ Technology tested according to the RecyClass [Recyclability Evaluation Protocol for PE films](#)

² [RecyClass Recyclability Certification](#)

Annex I

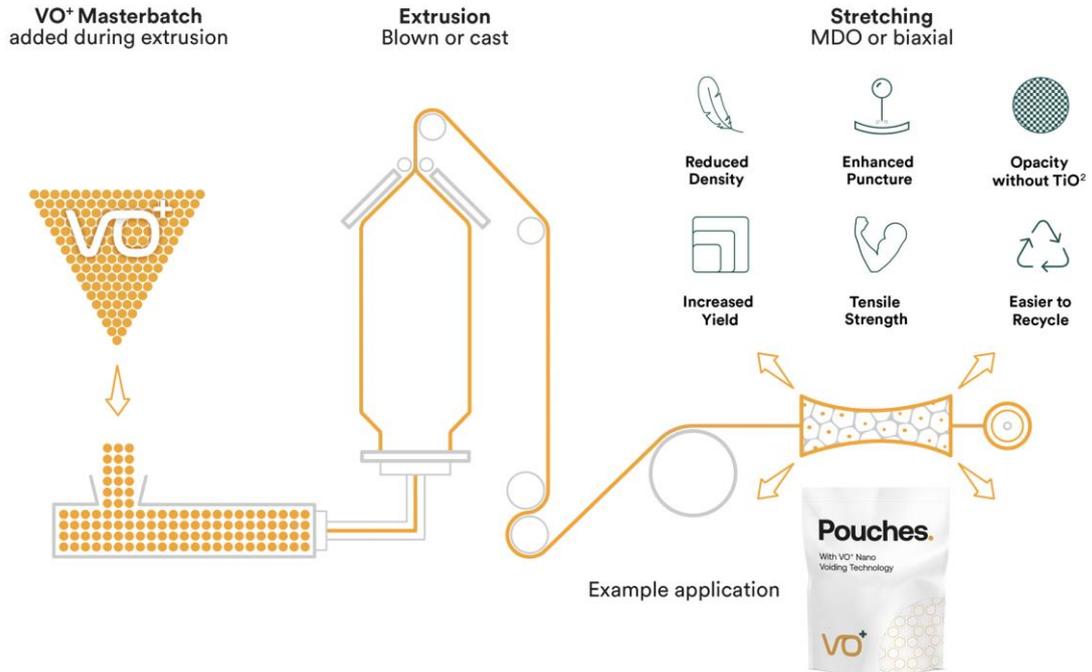


Figure 1 'VO+ PE masterbatch' technology by VOID Technologies