RecyClass

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Senoptica

RECYCLASS TECHNOLOGY APPROVAL

Brussels, 20 November 2023

DISCLAIMER

RecyClass recognition applies only to Senoptica 'HO3' technology reported in Annex I. The recyclability assessment therefore does not refer to the testing of a specific packaging using this ink sensor. Any specific packaging using this ink sensor 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 to carry out an assessment of the HO3 technology by Senoptica to verify its impact on the quality of recycled PE flexible packaging.

The technology is a responsive ink containing a specific ruthenium-based responsive pigment. The technology was tested applied on a monolayer LDPE film. The responsive ink represented about 0.02 % of the total weight of the film.

According to the results that were obtained from the laboratory test performed by Aimplas, carried out as per the Recyclability Evaluation Protocol for PE films, the Senoptica 'HO3' technology is considered to be limited compatible with PE flexibles recycling.

Based on these results, RecyClass acknowledges that Senoptica 'HO3' technology will have a limited impact on the current European PE flexibles recycling provided that PE flexible packaging using this technology are designed only under the following conditions[1]:

a) The density of the PE film is below 0.97 g/cm^3:
b) The responsive ink 'HO3' represents 0.02 % of the total weight of the film, or less;
c) Any components or attachments to the packaging should be preferably made of clear PE;
d) Any additional component or features (inks, adhesives, …) of the packaging must be compliant with the corresponding RecyClass Design for Recycling Guidelines.

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

RecyClass concludes that Senoptica 'HO3' technology as per current market conditions and knowledge, is limited 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 %[2].

In regard to RecyClass Recyclability Certification, the present limited compatibility with PE flexibles recycling approval delivered to Senoptica 'HO3' technology, means that a package based on a PE film containing the Senoptica 'HO3' technology, as mentioned in the aforementioned conditions, will be penalised with one Recyclability Class downgrade. Nevertheless, 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 B or C, respectively[3]. Also, it is noteworthy that the presence of additional packaging features, like inks, laminating adhesive or barrier material, could additionally 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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[2] Technology tested according to the RecyClass Recyclability Evaluation Protocol for PE films

[3] RecyClass Recyclability Certification

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Annex I

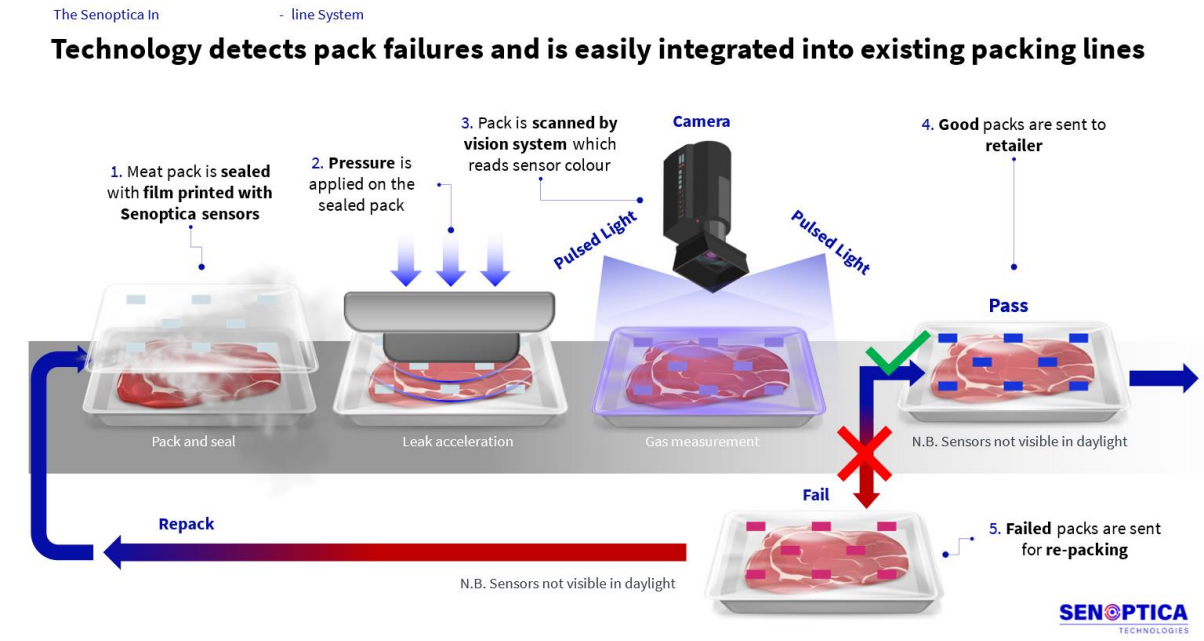

Figure 1. Senoptica HO3 *technology by Senoptica used as responsive ink*