

Creating full PE freezer film with seamless documentation along the value chain for certified circular packaging



Uses recycled* content



Simplified traceability



Stiffness and tough

*via mass balance attribution

Challenge:

Simplify traceability from resin to packaging for recyclable pouch creation with certified-circular materials.

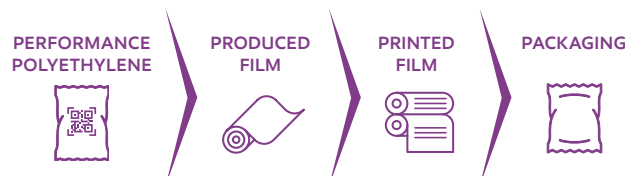
Responding to consumer requirements, the value chain is looking at using recycled content as part of packaging solutions. Certainly for food packaging it is still a challenge for converters to find certified recycled food contact approved material.

To help customers meet their goals to create more sustainable packaging solutions, ExxonMobil worked to support the production of full PE packaging containing certified-circular material. Together with our partners we also wanted to demonstrate the feasibility of implementing digital traceability from resin to packaging and beyond.

In creating sustainable solutions, one of the challenges is to ensure open information transfer throughout the value chain. Because the combination of virgin materials selected in the design phase of the package will have a large impact on final performance of the package, its perceived environmental impact and its recyclability, it is crucial to have the relevant information convey with the materials throughout the value chain. By doing so, certifications for compliance can be easily tracked and packages with certified-circular content can be more easily identified.

Solution:

**Collaborating across the value chain from resin to packaging
Collaborating together.**



One simple scan of the R-code on the virgin resin bags was the start of a seamless documentation along the value chain for the production of full PE freezer bags containing 66% certified-circular PE. Applying a QR-code on the virgin material bags containing all relevant information eliminated the need for time consuming manual data entry. Films produced on the EVO Blown Film Line are TwinTag-ged to ensure smooth data transfer for printing of the films by Comexi. The digital product passport ensures smooth data transfer between value chain partners and ensures certification for compliance through the entire production chain. Product information can be exchanged from source to finished product and beyond, supporting the path of circular economy.

Creating a full PE pouch

Whereas several industry associations are working towards a data driven definition for recyclability, it is clear that a shift towards more mono-material based solutions facilitates the sorting process and benefits recyclability. Full PE pouches can be recycled where programs and facilities to collect and recycle plastic films exist. By doing so materials can be kept in the value chain longer, helping to reduce waste.

Exceed™ S Polyethylene

In creating mono-material solutions with a minimum thickness for a given application, it is important to shift towards high performance polyethylene grades. Exceed™ XP, Exceed S and Enable™ performance polymers.

Exxtend™ technology for advanced recycling

Whereas mechanical recycled material offers a solution for the production of non-food contact application with recycled content, to date these materials still fall short from a food contact approval perspective. Exxtend technology for advanced recycling breaks down plastic to its molecular building blocks. These secondary raw materials come with the required food contact certificates and can safely be introduced in food packaging again.

Benefits of digital traceability



Tracks certification for compliance



Eliminates manual data entry



Helps identify packaging for recycling*



Aligned with open tracing standard



Increased logistics and supply chain efficiency

*In communities with programs and facilities in place that collect and recycle plastic packaging

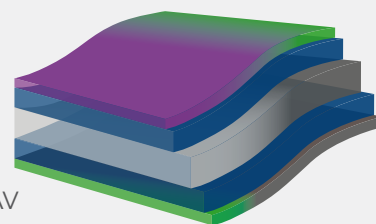
Results:

The result of this collaboration is a fully recyclable freezer film pouch that is suitable for high performance food-grade packaging with 66% certified recycled content that is both stiff and tough thanks to Exceed S performance polyethylene. Leveraging Exxtend technology for advanced recycling, this pouch delivers the same performance as film pouches made from conventional feedstock, so customers can be confident when using them in existing applications. Customers get peace of mind thanks to seamless documentation along the value chain for certified circular packaging.

5-layer film structure.

Thickness: 45µm

- Exceed XP 8784 MK
- Enable 2005 ME
- Exceed S 9243ML
- ExxonMobil LL1001AV
- ExxonMobil HTA108



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