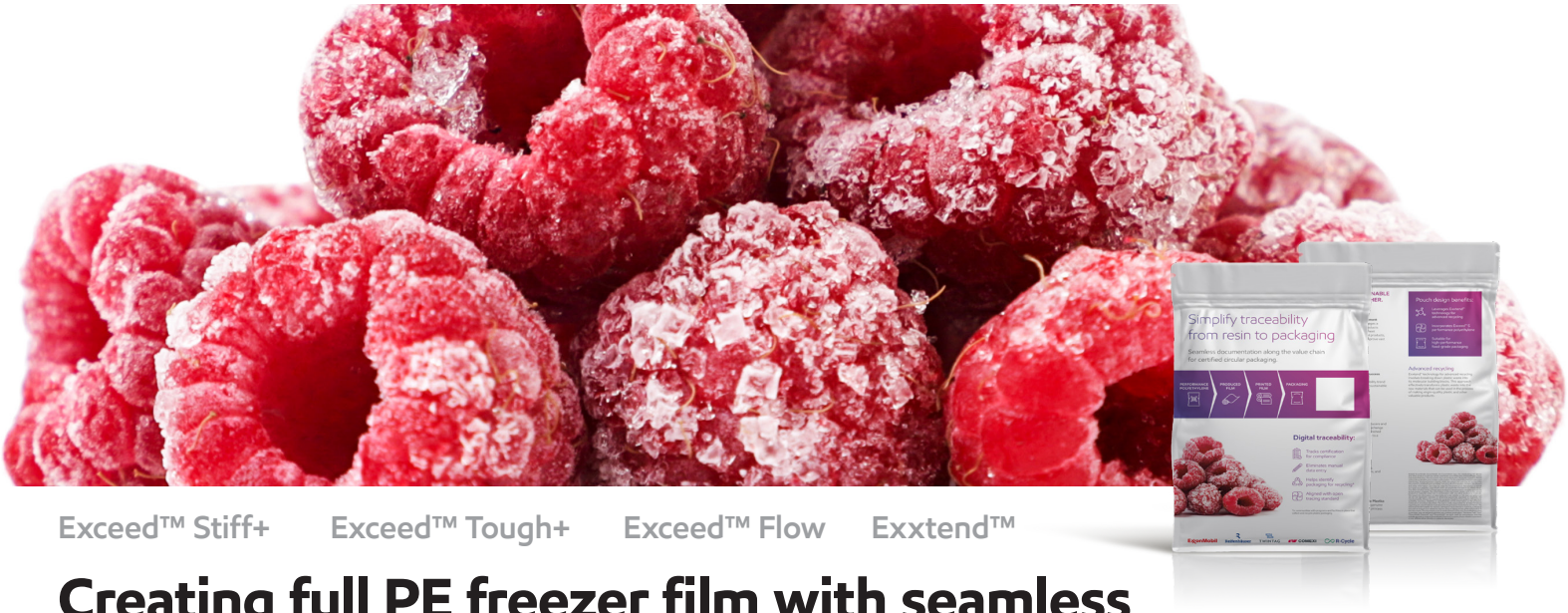
ExxonMobil Signature Polymers

Case study



Exceed™ Stiff+ Exceed™ Tough+ Exceed™ Flow Exxtend™

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

Uses recycled* content

Simplified traceability

Stiffness and tough

Data and results presented herein apply specifically to the noted application under this case study.
Your results may differ depending on factors such as operating conditions, equipment and materials used.
* via mass balance attribution

Challenge

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

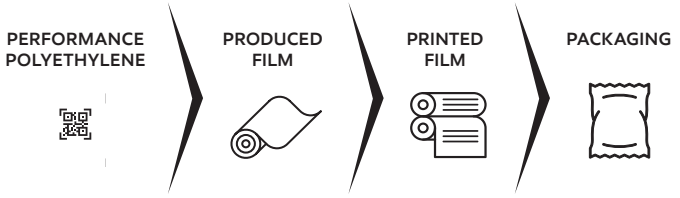
Responding to consumer requirements, the value chain is looking at using recycled content as part of packaging solutions. Certainly for food packaging it is still a challenge for convertors to find certified recycled food contact approved material.

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 certifed-circular content can be more easily identified.

Solution

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



ExxonMobil Signature Polymers · Reifenhäuser · TWINTAG · COMEXI · R-Cycle

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 QRcode 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™ Stiff+ performance 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™ Tough+, Exceed™ Stiff+ and Exceed™ Flow 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

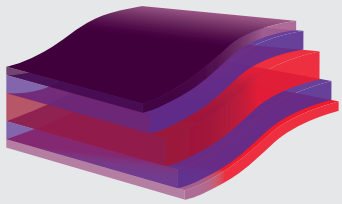
Results

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 Stiff+ 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™ Tough+ m 0814
- Exceed™ Flow m 0520
- Exceed™ Stiff+ m 0926
- ExxonMobil™ C4LL 1018
- ExxonMobil™ HD 6107FL



ExxonMobil Signature Polymers

Bring your impossible

ExxonMobil Signature Polymers was born from the belief that people fuel progress. From automotive and construction to packaging, agriculture, industrial, and beyond, we leverage the scale and reach of ExxonMobil to deliver the insights and innovations that empower our diverse, global partners to take their businesses to new heights. We continuously work to provide the listen-first, service-driven, game-changing collaboration that unlocks opportunities for our partners and advances and their business goals.

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