

Packaging

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SIG's range of liquid cartons, pouch with spout and bag-in-box – p44

ExxonMobil, Dow Chemical, Sabic, and BASF show polymers and rPacks for food safe packaging at Interpack 2023 – p20



Food pouches made of ocean plastic and bioplastics by Sabic at Interpack

ExxonMobil's Mono PE recyclable pouch

ExxonMobil, Dow Chemical, Sabic, and BASF show rPacks for human consumption

Chemical recycling offers additional source of food-safe packaging

In addition to mono materials with barrier properties, more and more food packaging will soon be introduced after chemical recycling (also called advanced recycling) of packaging waste. In addition, even contaminated, non-food packaging of mixed plastics can be turned into clean food packaging. Oil companies and chemical giants are leading the way. This couldn't be overlooked at the interpack event, held from 4 to 10 May 2023 in Düsseldorf. Veteran packaging industry reporter Erik Kruisselbrink reports.

One of the major players that is firmly committed to chemical recycling is ExxonMobil. In addition to being an oil company, this company has been active in the packaging market as a foil supplier for a long time. One of the developments in this area is the trend towards mono materials with barrier properties for fresh food. Whereas until recently this type of packaging consisted of laminates of composite plastics, more and more variants are appearing on the market in which all the different layers consist of the same type of plastic. Mostly polyethylene (PE). Thanks to technical innovations — for example, by stretching the plastic in different directions — new barriers have been discovered against water vapor and oxygen permeation that cause product spoilage.

At the recent K show in October 2022, various products from various major film manufacturers were already on display showing mono-PE food packaging. However, mono materials are not a suitable solution for all products and a composite laminate will be the only solution against product spoilage in quite a few cases.

Chemical recycling has been developed to give packaging that was not recyclable until recently a new, second life as a raw material. It is a much more expensive method than mechanical recycling, but it may be the only option if we want to further reduce the amount of plastic waste that can only be landfilled or incinerated. It is no longer just theory, but various large buyers have and spend the money to use this packaging material. Which in turn makes it possible to underline their sustainability ambitions.

New ExxonMobil facility in Rotterdam in 2024

Following the launch in Baytown, Texas, USA, of an advanced recycling plant for mixed composite plastics that cannot be mechanically recycled a plant will also be opened in Rotterdam in the middle of next year and in Antwerp at the end of next year — in addition to other, similar factories in other continents.

ExxonMobil uses patented technology to break down hard-to-recycle plastics and convert them into raw materials for new products. It is capable of processing more than 80 million kilograms of plastic waste per year. ExxonMobil plans to recycle 500 million pounds (approximately 225 million kilograms) of used plastics annually by the end of 2026.

Since the start of pilot operations in Baytown last year, ExxonMobil has recycled nearly 6.8 million kilograms of plastic waste. Patented Exxtend technology enables the breakdown of plastic waste previously destined for landfills — from synthetic athletic fields to bubble wrap and motor oil bottles.



In addition to its plans in the field of chemical recycling, Dow showed various mono-PE applications with a barrier.



Marketer Surechal showed a chemical recycled food pouch.

The company helped found Cyclyx International, a joint venture with Agilyx to collect and sort large volumes of plastic waste, and then invested in a plastic waste processing facility in Houston to supply ExxonMobil's advanced recycling facility in Baytown.

■ Ahold Delhaize USA

To accelerate advanced recycling, ExxonMobil is a founding member of the Houston Recycling Collaboration, which brings government and industry together to increase access to recycling programs and expand infrastructure for mechanical and advanced recycling technologies.

ExxonMobil is also working with third parties to assess the potential for large-scale implementation of advanced recycling technologies and opportunities to support improvements to plastic waste collection and sorting in Malaysia and Indonesia.

ExxonMobil has commercial contracts to sell certified circular plastics to customers around the world for use in food-safe plastic packaging, including partnerships with Sealed Air (now known as SEE) and Ahold Delhaize USA, Berry Global, and Amcor.

At Interpack, Barek Plastics showed an application in the form of a stand-up pouch for food, but animal feed and other applications are of course also possible.

■ Exceed S Performance PE

With Exceed S Performance, ExxonMobil demonstrated a new PE film in several variants, each of which has its own additional properties in a composite mono-PE and therefore recyclable film. For example, Exceed S can be used in bag-in-box liquid packaging, fully PE-laminated food packaging, and heavy bags for polymer granulate.

As part of the preparations for a possible market introduction, 80 projects are being tested on a commercial scale. Properties that Exceed S adds according to ExxonMobil are stiffness, toughness, and easy processing thanks to a low melting temperature and thus increased output.

According to the manufacturer, with the addition of this new PE film, the total thickness can be reduced and the amount of high-density polyethylene (HDPE) in a package can be reduced or even eliminated. ExxonMobil claims to improve sustainability because packaging contains less material.



Exceed S Performance-PE is a mono-polyethylene (PE) from ExxonMobil that is available in different variants depending on the application.