

# FRESH-PACK

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## **Publieke samenvatting / Public summary**

### **Aanleiding**

Avantium's Polyethylene Furanoate (PEF) is a 100% biobased polyester with excellent barrier properties. It has great potential for mechanical recycling in the current recycling systems (industrial, closed-loop and post-consumer). It is an ideal candidate for the packaging market, with high potential to replace fossil-based polyethylene terephthalate (PET), and replace multilayer packaging by monolayer packaging. The largest supermarket in the Netherlands (Albert Heijn) has committed to be the first to introduce PEF in its shelves. The use of PEF in bottles for carbonated drinks has been demonstrated. Bottles for fresh juices and thermoformed trays for salads can also benefit from the outstanding properties of PEF. Demonstrating, on industrially relevant scales, the processing of PEF in current packaging lines, its performance compared to fossil-based counterparts and its effects in current collection and recycling systems, could be the key for wide acceptance. In this project, participants from the entire value chain will work towards the introduction of innovative PEF packaging products and recycling systems, focussing on the technical performance.

### **Doelstelling**

The goal of this project is to demonstrate the opportunities and challenges of PEF in the packaging of perishable goods. Two cases will be addressed: bottles for fresh pressed juices and thermoformed trays for salads. The production and use of these packaging materials at industrially relevant scales is new and can be the breakthrough for wide acceptance of PEF in the market. The

### **Projectinformatie / Project information**

#### **Projectnummer / Project number**

EKOBBBC25-03835144

#### **Subsidiebedrag / Grant amount**

€ 388.830,00

### **Algemene informatie / General information**

#### **Penvoerder / Secretariat**

Stichting Wageningen Research

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recyclability of these two products is key for achieving circularity by design, therefore determining the maximum amount of recycled content that can be used for stable production and acceptable performance is one of the goals of the project. Addressing recyclability of PEF products within the current PET mechanical recycling systems and acceptance of PEF by stakeholders within the value chain is crucial for a smooth transition from fossil-based PET to bio-based PEF.

### **Korte omschrijving**

The project is divided in four work packages (WP) which cover topics from the entire value circle: WP1 Production of packaging materials under industrially relevant conditions: using bio-based PEF for the production of thermoformed salad trays. WP2 Packaging of perishable products, use and market phase. Focus on the following topics a) use of the produced packages in automatic inline filling machines/ packaging lines; b) the performance of the packaging during use; and c) an outlook of the strategic market entrance of PEF. Two cases: Case 1: Packaging of fresh cut salads and Case 2: Bottles for fresh pressed juices WP3 Mechanical recycling: lab scale tests of combinations of PEF/recycled PEF and evaluating the effect of PEF in rPET and rPET in PEF. First indication of NIAS. WP4 Scientific project management, communication and dissemination

The conversion of PEF at industrially relevant conditions aims to reveal the required technical innovations in e.g. processing, conversion, packaging design, shelf life consequences etc. These technical innovations are the basis of this project.

### **Resultaat**

The results of this project will be mainly testing reports of trials at industrially relevant conditions, demonstration products such as: 100% PEF based demo trays that can be used for packaging salads, and 100% PEF bottles that can be used to pack fresh juices. Demonstration that goods can be packed in the produced packages and a report showing the advantages and challenges of using PEF in production lines when compared to PET.

Specifically, the technical innovations needed to enable industrial production are addressed. The potential for PEF recyclability based on experimental results and discussions with stakeholders will also be part of the results and is used to create a transition strategy. It is expected that part of the knowledge generated can be published (peer reviewed journal) or presented at a relevant conference. The results of this project can be used to build up follow up activities including the manufacturing of PEF packages containing recycled content.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

Voor meer informatie over de Topsector Energie, ga naar [www.topsectorenergie.nl](http://www.topsectorenergie.nl).

Voor meer informatie over de TSE / Energie-Innovatie regelingen die RVO aanbiedt, ga naar [www.rvo.nl/tse](http://www.rvo.nl/tse).