



Brussels, January 2022

Interim endorsement expiring June 30<sup>th</sup>, 2025

The Technical Committee of the European PET Bottle Platform (EPBP) was requested by Avantium Renewable Polymers BV to conduct an evaluation of the effect of poly(ethylene 2,5-furandicarboxylate), or PEF, on the PET bottle recycling stream. PEF is a polyester resin chemically similar to PET containing a furan dicarboxylic acid (FDCA) instead of terephthalic acid (PTA) in the polyester backbone.

The EPBP assessment refers to the use of PEF as a barrier (middle) layer in multilayer PET bottles. Based on a near infra-red (NIR) spectrum comparison, test results with clear PET bottles, PEF bottles and PET/PEF multilayer bottles, with a correctly set NIR detector will remove 100% PEF bottles from the PET bottle stream and will capture PET/PEF multilayer bottles for separate recycling.

Testing a 5% concentration of PET/PEF multilayer bottles with 10% PEF content in the middle layer and testing according to the EPBP protocol, demonstrate no negative impact on haze and other properties of the resulting rPET products.

The 5% market penetration figure takes local accumulation into account

Based on the assessment's outcome and considering the variable performance of European sorting and recycling plants, the novelty of this packaging solution and its potential market penetration, **EPBP has awarded an interim endorsement to Avantium Renewable Polymers BV PEF polyester resin in a test market (up to 50kt) and for a period, expiring 30 June 2025.**

The interim endorsement is awarded under the following conditions:

- A maximum allowed market penetration of 5%
- A maximum 10% PEF content in the individual bottles
- Avantium Renewable Polymers BV will provide EPBP with additional data on the targeted end-products, PEF commercial grade(s) and sales regions as they become available
- Avantium Renewable Polymers BV will continue to cooperate with the EPBP to carry out additional tests, to decide if the interim endorsement can become permanent
- Detailed testing as per EPBP protocol to be carried out as soon as the market development plant becomes operational.

#### **European PET Bottle Platform Technical Opinion**

Avantium Renewable Polymers BV – Poly(ethylene 2,5-furandicarboxylate) resin as barrier material in PET bottles



- An updated technical opinion will be based on any additional test data and market information supplied to the EPBP prior to any market introduction of PEF based products.

Upon prior notice to Avantium Renewable Polymers BV , the EPBP reserves the right to update and change the conditions of this technical opinion at any time, in accordance with the most recent technologies, assessments and experience.

EPBP reserves also the right to revoke this interim endorsement in case it is realized misleading communication to consumers related to PEF resin compatibility with PET recycling streams

*The European PET Bottle Platform EPBP is a voluntary industry initiative that provides PET bottle design guidelines for recycling, evaluates PET bottle packaging solutions and technologies and facilitates understanding of the effects of new PET bottle innovations on recycling processes. The EPBP initiative fully supports the economic and environmental sustainability of the European PET value chain.*