



# Avantium Full Year 2025 Results

18 March 2026

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# Avantium Today



# Avantium at a glance



**avantium**

Transforming sugars into next-generation bio-based plastic releaf®



Established  
In 2000



HQ in Amsterdam (NL)



World's 1<sup>st</sup> FDCA Plant  
Opened in Oct 2024  
Expected to be on stream  
in H2 2026



21 Offtake Agreements  
13 Capacity Reservations  
1 License Agreement



175 patent  
families



**EURONEXT**

Publicly listed  
Amsterdam & Brussels



250+  
FTE

# Key pillars and investments highlights



FDCA / PEF – Innovative & unique product

Introducing a better & cleaner bioplastic: FDCA and PEF



From sugars to the next generation bioplastic



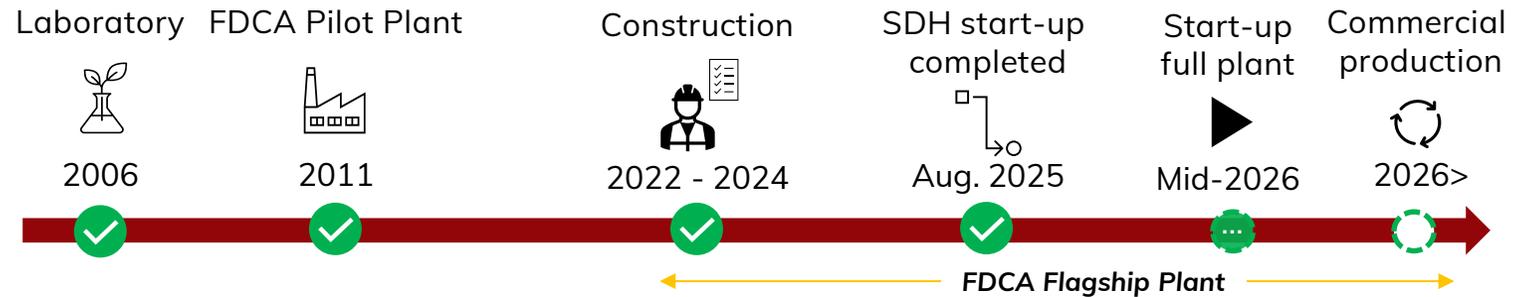
**FDCA / PEF**

- ✓ 100% bio-based feedstock
- ✓ Fully recyclable in PET stream
- ✓ Lower carbon footprint
- ✓ With superior properties



Flagship Plant Project execution

Starting up the plant for sales under the offtake agreements in H2 2026




Commercialization

Successfully paving the way towards future licenses



**21** offtake agreements

**13** capacity reservations for future license plants

**1** license agreement signed

# Commitments from leading brands



21  
Offtake Agreements

“ Besides packaging reduction, recyclability and reuse, fossil-free materials are high on our wish list. With the use of PEF, we are giving substance to this.”



Marit van Egmond  
Former CEO of



13  
Capacity Reservations Future Plants

“ The things that lured us into looking at PEF are the quality properties, and that PEF is able to retain the fizz of the beer 8 times better than PET.”



Simon Boas Hoffmeyer  
Senior Sustainability Director at



1  
Technology License Agreement

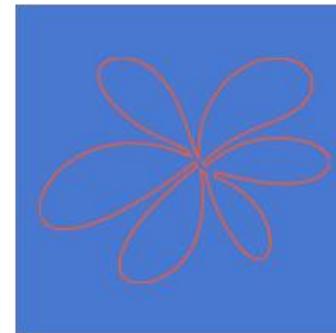
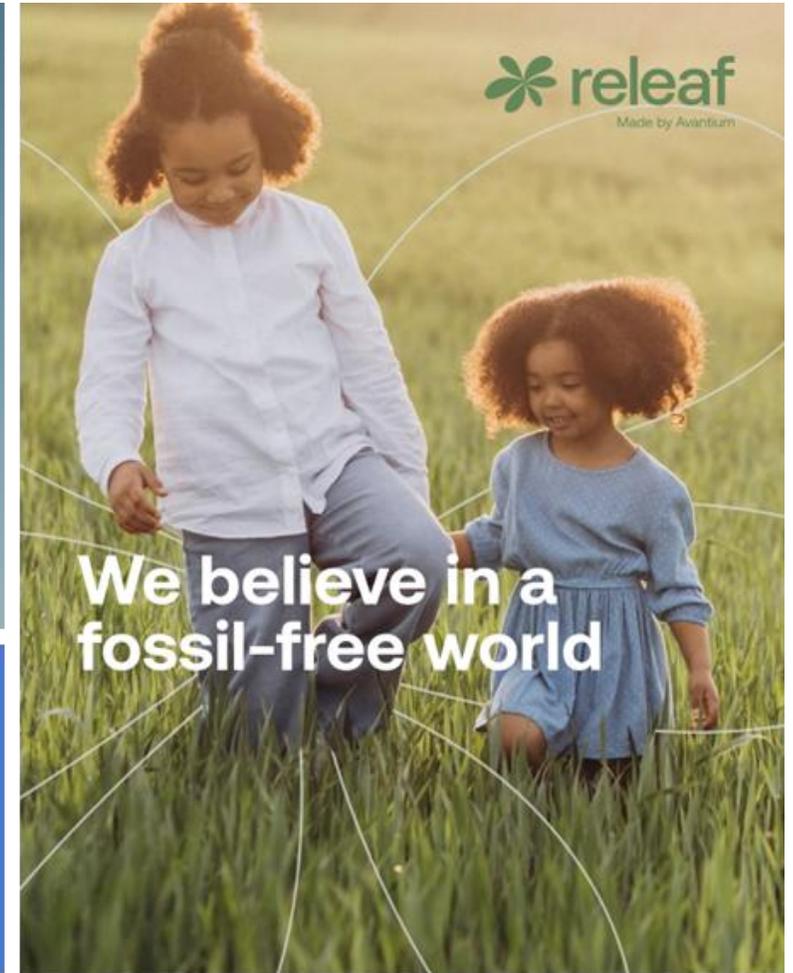
“ We have been positively surprised about the properties of PEF, the look and feel [of the textile] is impressive.”



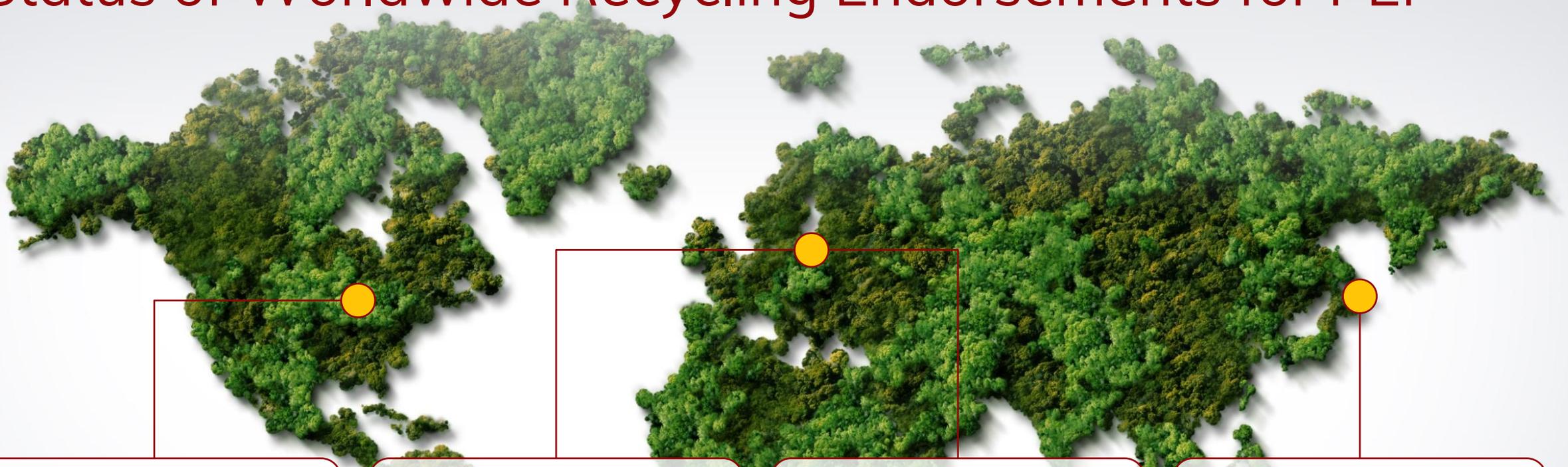
Anders Byriel  
CEO at



# Marketed as releaf®



# Status of Worldwide Recycling Endorsements for PEF



Critical Guidance  
Recognition for 10% PEF  
layer in PET bottle



Interim endorsement  
monolayer (2% MP\*) and  
10% multilayer (5% MP\*)

RecyClass



Technology approval, 10%  
multilayer fully compatible  
with PET recycling



PETボトルリサイクル推進協議会

CPBR approval 10% PEF  
multilayer in PET bottle

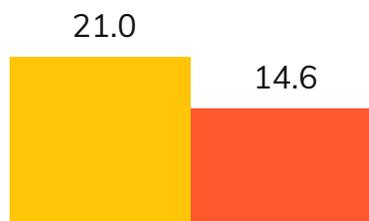
# Broad range of applications



# Full Year 2025 Results

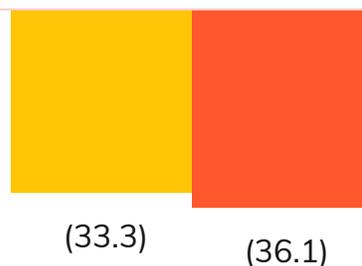
# Financial highlights FY 2025 (€ millions)

## Revenues



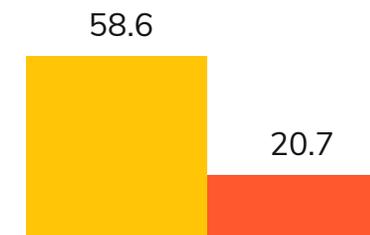
■ FY24 ■ FY25

## EBITDA



■ FY24 ■ FY25

## Investments



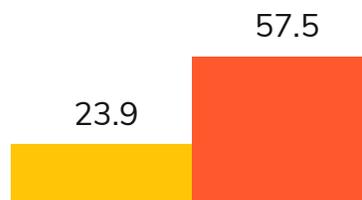
■ FY24 ■ FY25

## Other income (grants)



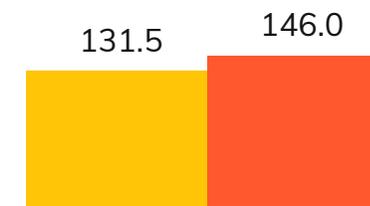
■ FY24 ■ FY25

## Cash position



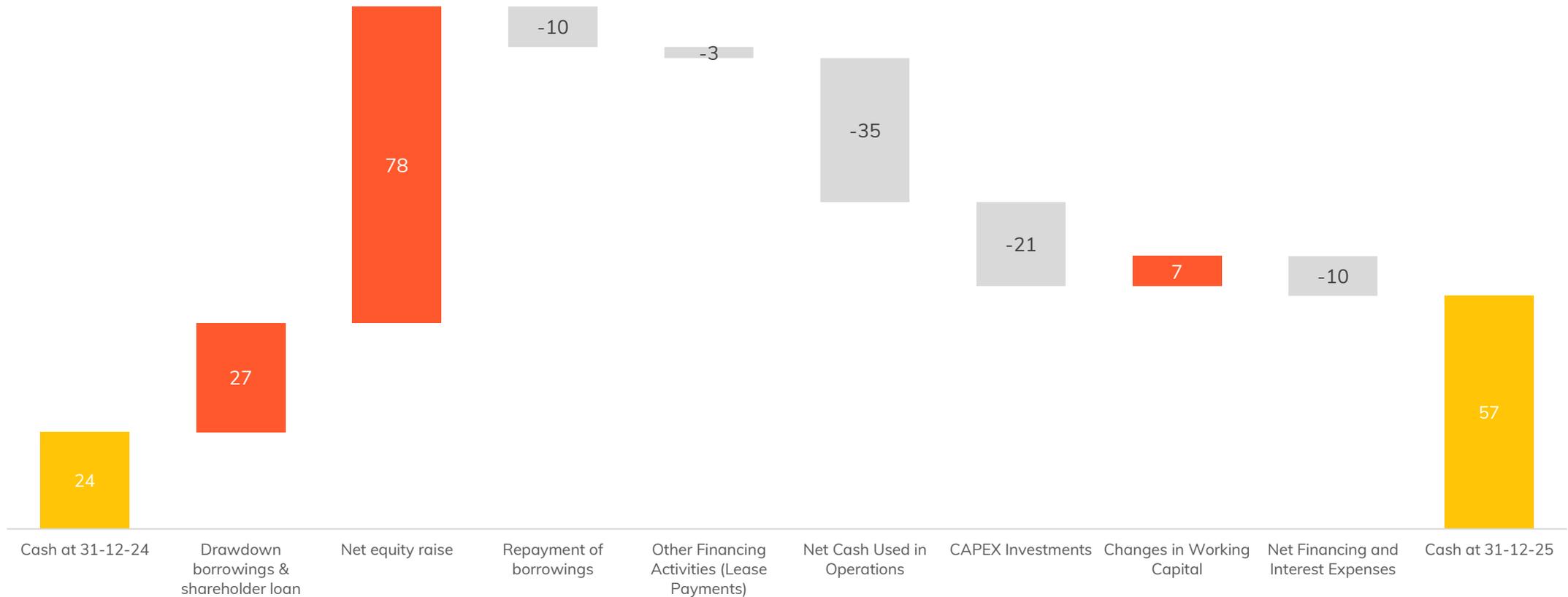
■ FY24 ■ FY25

## Borrowings



■ FY24 ■ FY25

# Cash flows 2025 (€ millions)



What drives us?

# The why

## CURRENT FOSSIL, LINEAR ECONOMY

- × Atmosphere: CO<sub>2</sub> Climate change
- × Environment: Pollution & Microplastics
- × Human body: Microplastics & Health effects



## BARRIERS FOR TRANSITION

- Inadequate recycling solutions
- Insufficient performance of bioplastic
- Economic barriers (virgin plastic)
- Economic interests: increasingly more oil is used for plastics production

## RENEWABLE, CIRCULAR ECONOMY

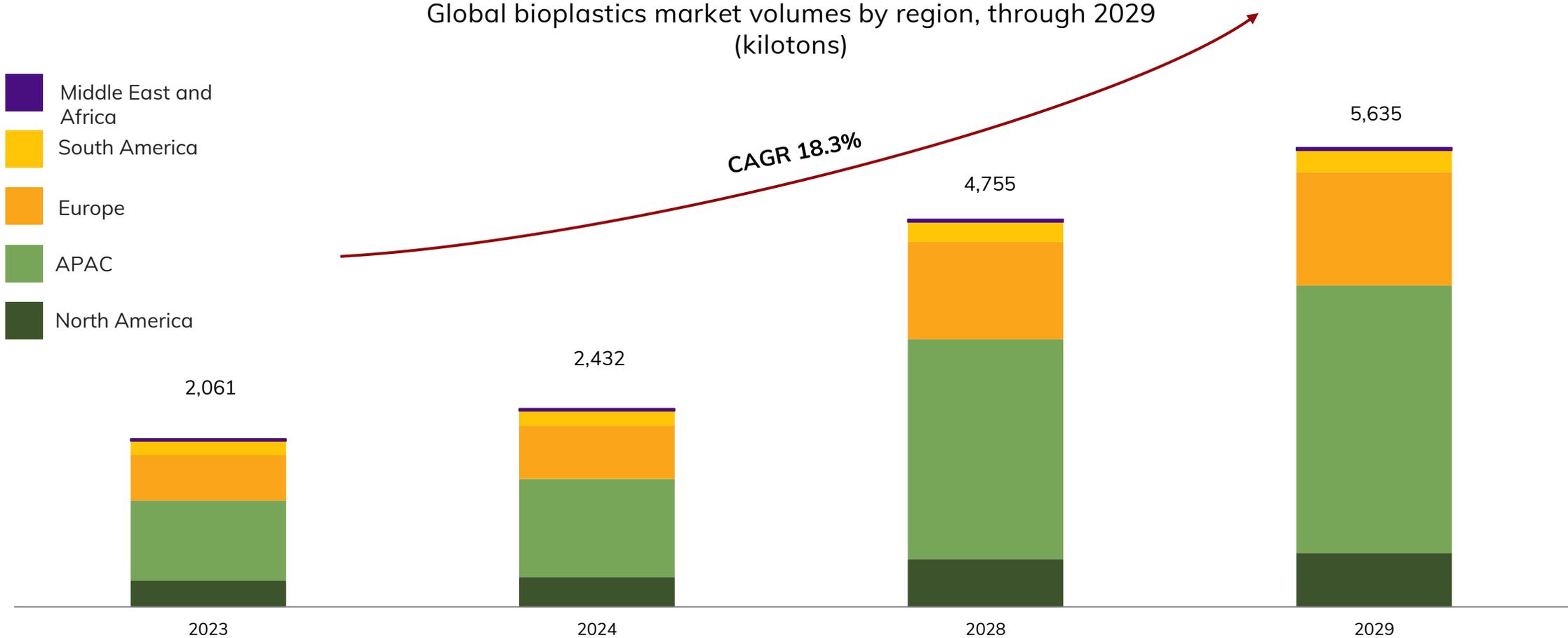
- ✓ Atmosphere: Oil-independent & lower CO<sub>2</sub> emissions
- ✓ Environment: Not persistent & fits with existing recycling infrastructures
- ✓ Human body: Safe & no migration to human body



### Opportunities

- ❖ Strong market demand driven by consumers
- ❖ Shifting regulatory landscape favoring biobased materials
- ❖ Innovative materials delivering advantages beyond what fossil-based plastics can offer

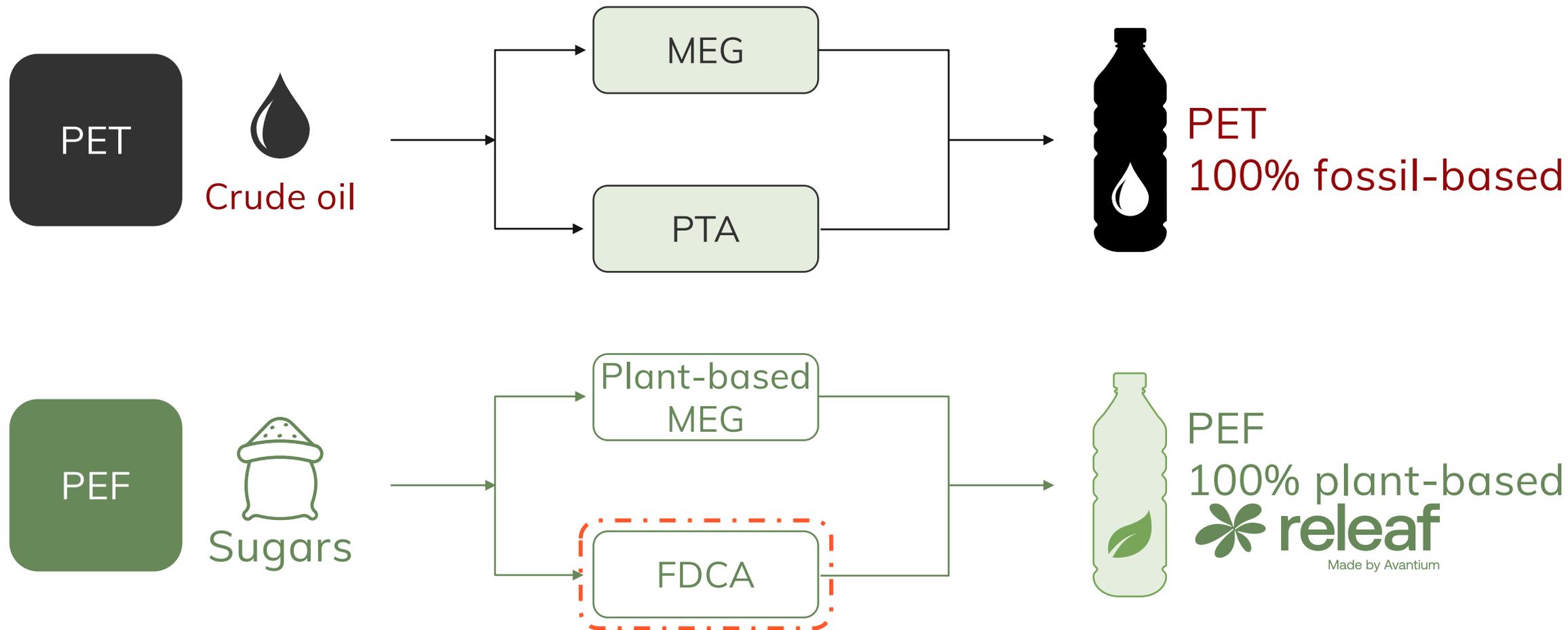
# Promising market outlook for bioplastics



FDCA / PEF:  
Superior performance  
and sustainability benefits



# FDCA: the key building block of PEF



# PEF can be used in a very broad range of applications

Key applications    Competing materials    Addressable market<sup>1</sup>    Avantium's partners

**Bottles**



Beer, Juices, Waters, Soft Drinks

Glass, Aluminium, PET, Multi-layer

>50 million ton/year  
>€100bn TAM



**Fibers**



Textile, Upholstery, Car Tires, Industrial Fibers

PET, Nylon, Cotton

>40 million ton/year  
>€80bn TAM



**Packaging & More**



Food Packaging, Non-Food Packaging

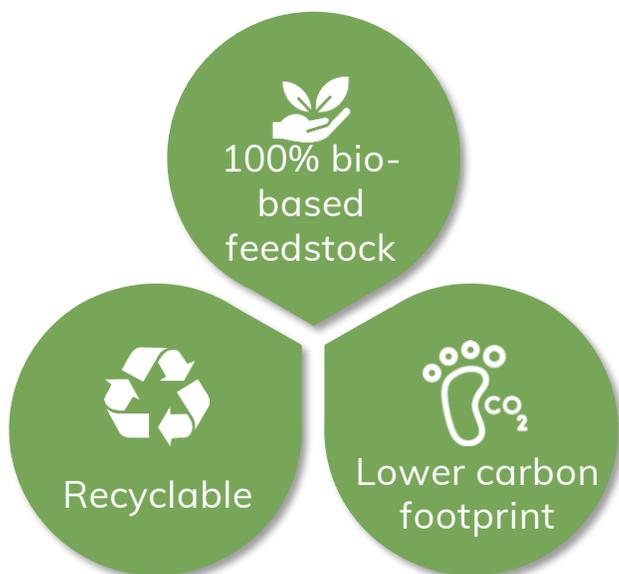
Glass, Aluminium, PET, Multi-layer

>25 million ton/year  
>€50bn TAM

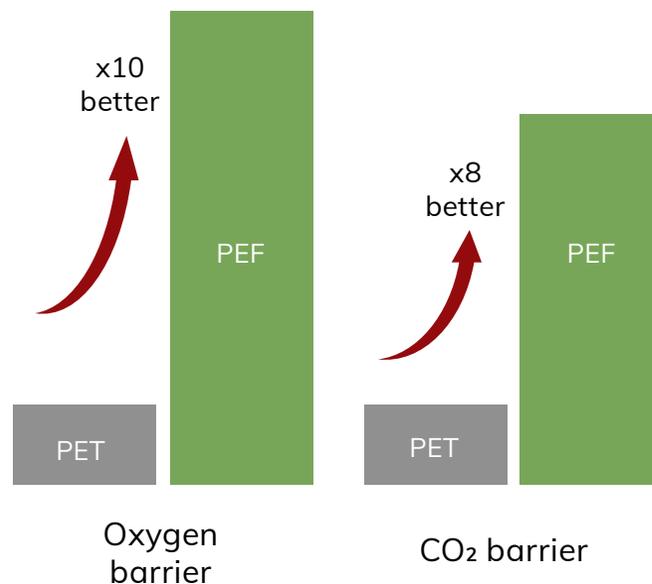



# PEF sustainable and superior alternative for PET

A more sustainable product...



...with superior properties...



...providing distinctive value proposition

- >20% weight reduction as less material required for same properties
- Longer shelf life leading to food waste reduction
- Larger range of applications Ability to replace glass, aluminium, etc.
- Enhanced recyclability as mono-material packaging or by replacing hard-to-recycle polymers (e.g. nylon) in multi-material packaging

- ✓ APR<sup>2</sup> Critical Guidance Recognition on compatibility with standard PET recycling practices
- ✓ RecyClass validates Avantium's PET/PEF bottle as fully recyclable in PET stream
- ✓ EPBP<sup>1</sup> interim approval on multilayer PET/PEF and monolayer PEF bottles in the PET recycling stream



Notes: (1) The European PET Bottle Platform is a voluntary initiative of industry organisations representing waste collectors, plastic recyclers, PET material producers and bottle owners; (2) The Association of Plastic Recyclers, non-profit organisation focused exclusively on improving recycling for plastics  
Sources: Avantium and Nova Institute, PEF – A Sustainable Packaging Material for Bottles - ISO Certified LCA of Avantium's PEF products, 2022; University of Aberdeen, PEF plastic synthesised from industrial carbon dioxide and biowaste, 2020; Journal of Ecological Engineering, Energy Inputs on the Production of Plastic Products, 2022; RECORD, Chemical and physico-chemical recycling of plastic waste, 2022, 177 p, n°21-0919/1A; Avantium, The Journey of Avantium's PEF towards Commercialisation, 2021

# PEF outperforms other sustainable polymers

## Key features for a viable sustainable polymer Sustainable polymers side-by-side

PEF combines all characteristics of a high-performance sustainable polymer

1 **Renewable feedstock**  
Bio-based polymers reduce GHG emissions

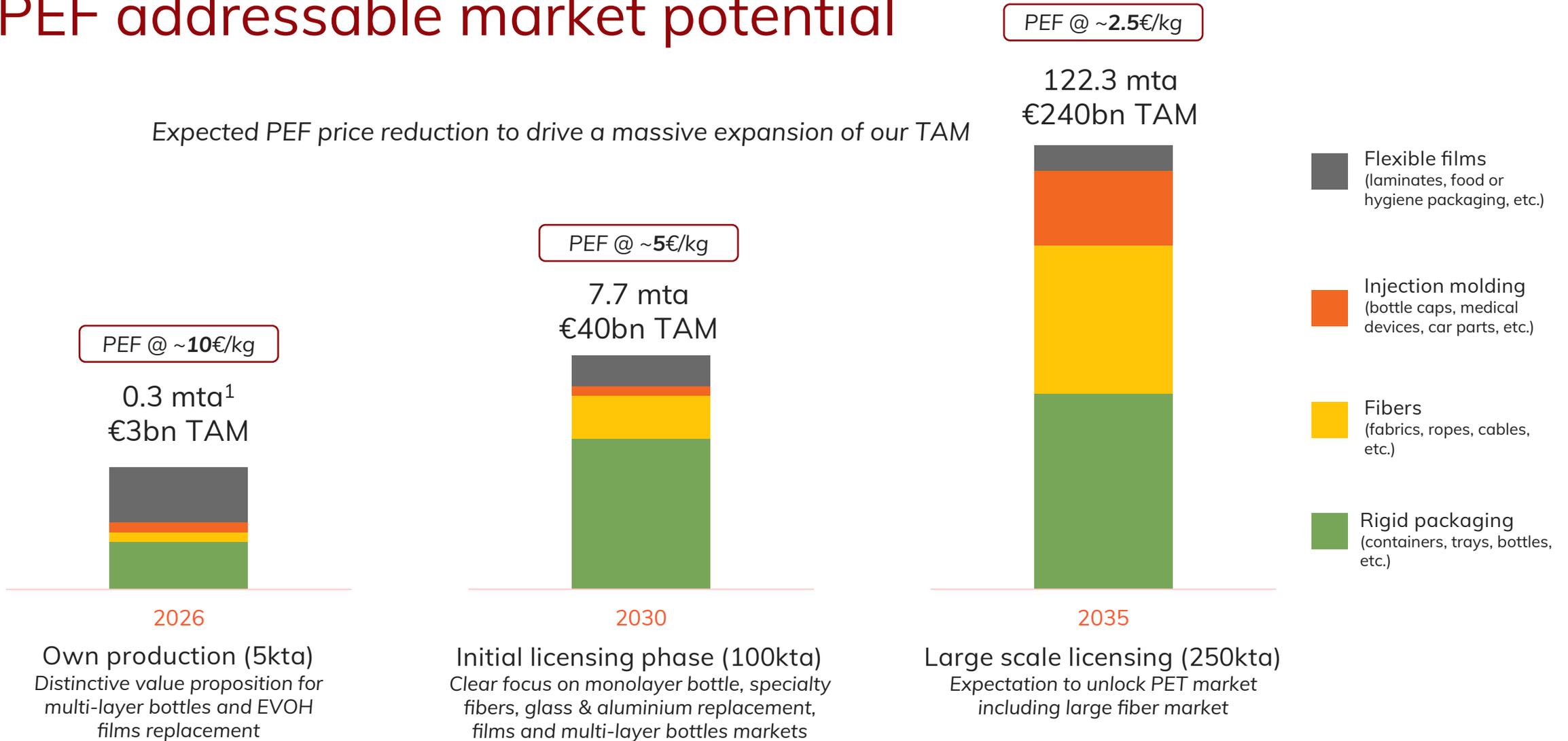
2 **Performance**  
High gas barrier extends shelf life and unlocks mono-material packaging

3 **End-of-life**  
Recyclability through existing infrastructure  
  
Degradability in industrial & natural environment

	PEF	rPET	bioPET	PBS	PHA	PLA
<b>Bio-based</b>	✓	✗	✗	✓	✓	✓
<b>Fossil-based</b>		✗	✗			
<b>70% fossil-based</b>			✗			
<b>High gas barrier</b>	✓	✓	✓	✗	✗	✗
<b>Medium gas barrier</b>		✓	✓			
<b>Low gas barrier</b>				✗	✗	✗
<b>High recyclability (mono &amp; multi-material)</b>	✓	✓	✓	✗	✗	✗
<b>High recyclability (mono-material)</b>		✓	✓			
<b>Low recyclability</b>				✗	✗	✗
<b>Very Low degradability</b>		✗	✗			
<b>High degradability</b>	✓			✓	✓	✓
<b>Medium degradability</b>						✓

# PEF addressable market potential

Expected PEF price reduction to drive a massive expansion of our TAM



# PEF is both sustainable and price-competitive at scale

## 100kta

Competing with aluminium and glass at €5.0/kg PEF



PEF Bottle  
33cl – 13.5g  
PEF material cost<sup>1</sup>  
€0.07 = ~7% of end price

Glass Bottle  
33cl – 200g  
Glass material cost<sup>1</sup>  
€0.13 = ~13% of end price

Aluminium Can  
33cl – 13g  
Alu material cost<sup>1</sup>  
€0.03 = ~4% of end price

## 250kta

Competing with mono-material PET at €2.5/kg PEF



PEF Bottle  
50cl – 17.5g  
PEF material cost<sup>2</sup>  
€0.044 = ~3.7% of end price

rPET Bottle  
50cl – 22g  
rPET material cost<sup>2</sup>  
€0.055 = ~4.6% of end price

PET Bottle  
50cl – 22g  
PET material cost<sup>2</sup>  
€0.037 = ~3.1% of end price

PEF reducing Global Warming Potential

↓ **76%** vs. glass

↓ **67%** vs. aluminium

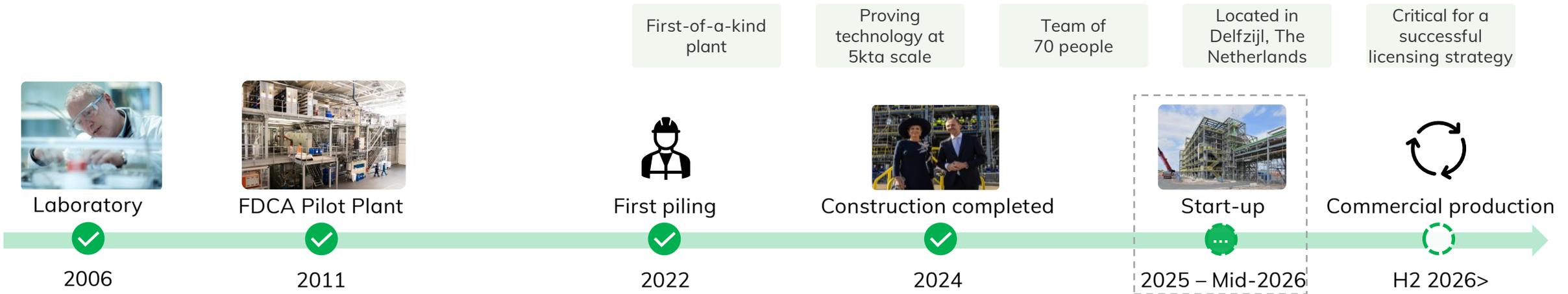
↓ **73%** vs. PET

Only a c. 85% recycled content PET bottle can equal PEF bottle carbon footprint

# FDCA Flagship Plant

# FDCA Flagship Plant start-up status

## FDCA Flagship Plant



### Core processes



### Commissioning & Start-Up status

- ✓ Utilities Started-up
- ✓ Sugar Dehydration Started-up
- Oxidation Start-up ongoing
- Purification Start-up ongoing

Planned completion of start-up : **Mid-2026**

# Commercializing releaf®

# Releaf® | The next generation polymer, with superior performance benefits<sup>1</sup>



Superb barrier properties



10x better oxygen barrier



Circular, enhanced recyclability, 100% plant-based



73% GHG emissions reduction



8x better CO<sub>2</sub> barrier



Food waste reduction: Up to 5-6 times longer shelf life



>20% weight reduction

# Licensing strategy in motion



Avantium's  
Licensing  
Strategy

● **Feedstock** ●

Limiting feedstock risk through  
1<sup>st</sup> and 2<sup>nd</sup> gen strategy



● **Commercial** ●

Capacity Reservations for  
future licensed plants



>100 kilotonnes  
of capacity reservations  
= >1 100 kta license plant

● **Technology** ●

Derisking technology risk by proving  
commercial scale production in the  
FDCA Flagship Plant



# Global FDCA licensing opportunities for Avantium

Technology licensing target customers – On a standalone or consortium basis

Customer type	Feedstock suppliers	Chemical companies	PET (/polymer) producers
Activity	Process agricultural raw materials (corn, sugar beets, wheat) to produce sugar and starch	Produce basic units of monomers (MEG, PTA, FDCA)	Combine basic units of monomers (MEG, PTA, FDCA) together to form long-chain polymers (PEF, PET)
Illustrative companies			
Rationale for licensing	Interested in expanding their value chain	Meet their 2030 CO <sub>2</sub> reduction goals by portfolio expansion	Moving from PET to PEF production using existing assets for a greener value and superior performance proposition

## Key considerations on licensing



## Our ambition

4 licenses in place by end of 2027

# FDCA – feedstock agnostic, utilising Gen 1 and 2 feedstocks



# Key takeaways

- 1 Most advanced FDCA & PEF player worldwide

Most advanced technology, strong IP portfolio, global leader in the commercialization of FDCA/PEF
- 2 FDCA Flagship Plant start-up

Targeting completion of start-up Mid-2026; Commercial scale production expected in second half of 2026
- 3 Strong commercial momentum

  - i. 21 Contracted offtakes by industry leaders
  - ii. 13 Capacity reservations for future plants
  - iii. Pro-active licensing strategy; 1 license agreement in place
- 4 Comprehensive financing package secured in Sept. '25

Raised c. €85 million in equity, incl. €15 million cornerstone placement from Dutch Ministry of KGG, to complete start-up of the Flagship Plant, accelerate licensing deployment and expand FDCA/PEF applications; targeting addit. €20 million from government related investment initiative.
- 5 Clear path to profitable growth

Ambition: €90 million<sup>1</sup> revenues and EBITDA break-even in 2027



# Appendix

# Glossary

FDCA: Furandicarboxylic Acid

FDME: Furandicarboxylic Methyl Ester

FEED: Front End Engineering Design

FID: Final Investment Decision

HFS: High-Fructose Syrup

JV: Joint-Venture

MEG: Mono-Ethylene Glycol

MF: Methylfurfural

ML: Methyl Levulinate

MTA: Million Metric Tons Annually

NPV: Net Present Value

PEF: Polyethylene Furanoate

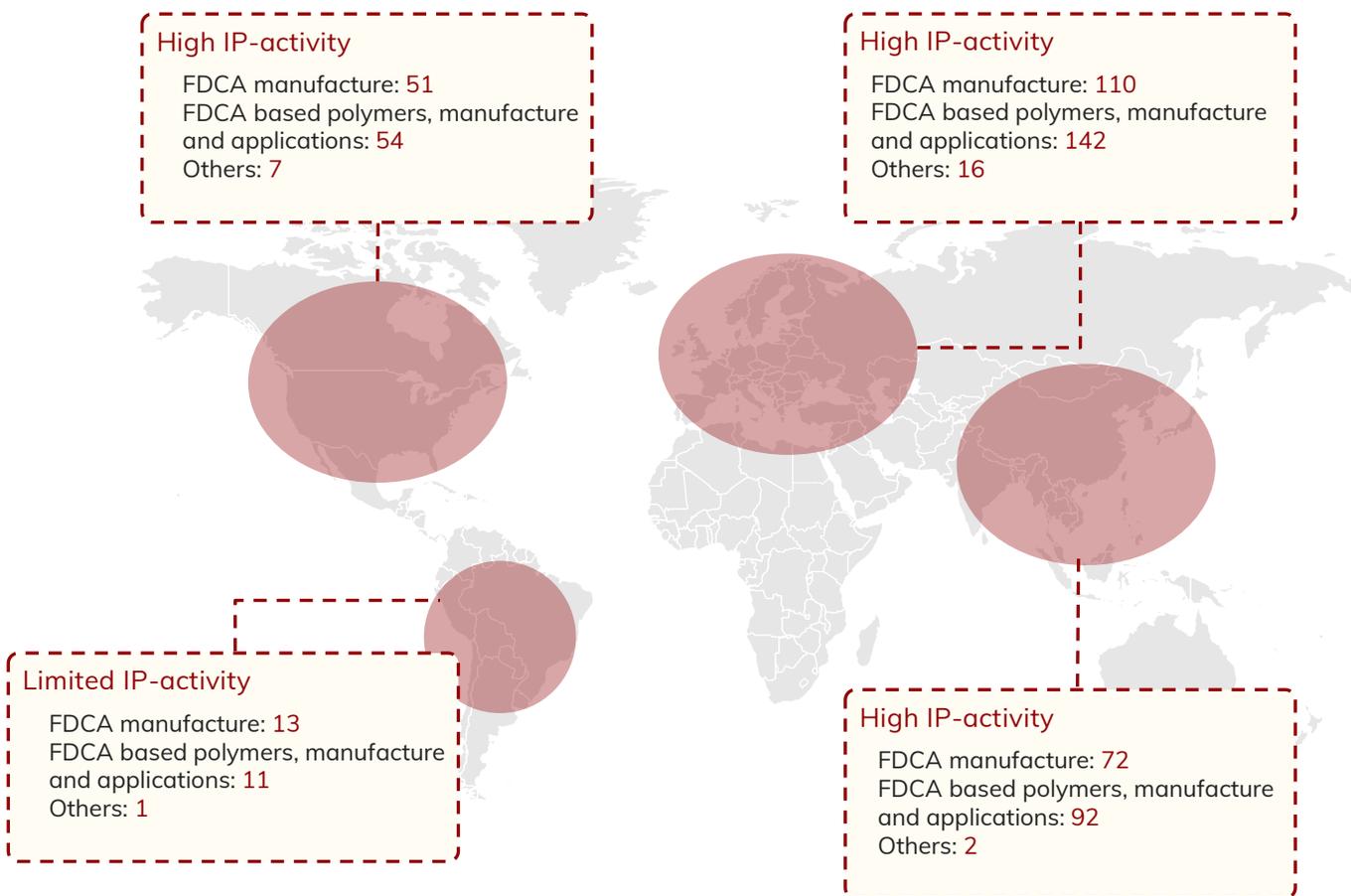
PET: Polyethylene Terephthalate

PTA: Purified Terephthalic Acid

RDS: R&D Services

TAM: Total Addressable Market

# Avantium owns the necessary IP for production and licensing of FDCA and its high value applications



## IP across further businesses

- Avantium has **175+ patent families<sup>1</sup>** containing **1,125 rights**
- Besides FDCA (72 families, 578 rights), Avantium holds the IP required for the execution of its commercial strategy for all other technologies (R&D Solutions, Ray Technology, Volta Technology and Dawn Technology)
- Avantium actively manages its IP portfolio including review of third-party patent positions
- Avantium has a dedicated team of in-house patent attorneys

# Stricter European regulations increase the need for truly sustainable solutions, requiring short-term investments



**Packaging and Packaging Waste Regulation (PPWR):** regulates what kind of packaging can be placed on the EU market, as well as packaging waste management and prevention measures

*Entered into force on February 11, 2025*

**2030** - packaging full recyclability

**2040** - 15% reduction in per capita packaging waste

**2050** - climate neutrality in the packaging sector



**Clean Industrial Deal:** outlines concrete actions to turn decarbonization into a driver of growth for European industries, including actions for the use of recycled and biobased materials *Presented on February 26, 2025, by European Commission*

**2026**

Public procurement rules revised to favor sustainable and European products, with €100bn mobilized for clean manufacturing

# 2<sup>nd</sup> generation feedstock: Dawn/Yukon technology enabling to use polycotton textile waste for feedstock

## The technology

- Avantium (together with the University of Amsterdam) developed a patented technology to break down cotton in polycotton textile waste into an intermediate for **FDCA/PEF (based on 2G feedstock)**, while leaving the polyester intact for fiber-to-fiber recycling

## Business case

- Scalable and cost competitive: successful Avantium Dawn pilot plant tests demonstrate high yields from polycotton waste, proving the method's scalability and cost-effectiveness



## Textile waste management

- Addressing global waste problem  
**149m tons** of expected textile production by 2030  
**< 1%** - current recycling rate<sup>1</sup>
- Avantium's technology aligns with new regulations that make textile producers responsible for waste management

## Strategic importance

- Feedstock agnostic approach: reinforces the commercial potential of FDCA / PEF, supports Avantium's licensing strategy

Polyester residue of postconsumer polycotton waste textiles in the DAWN pilot plant

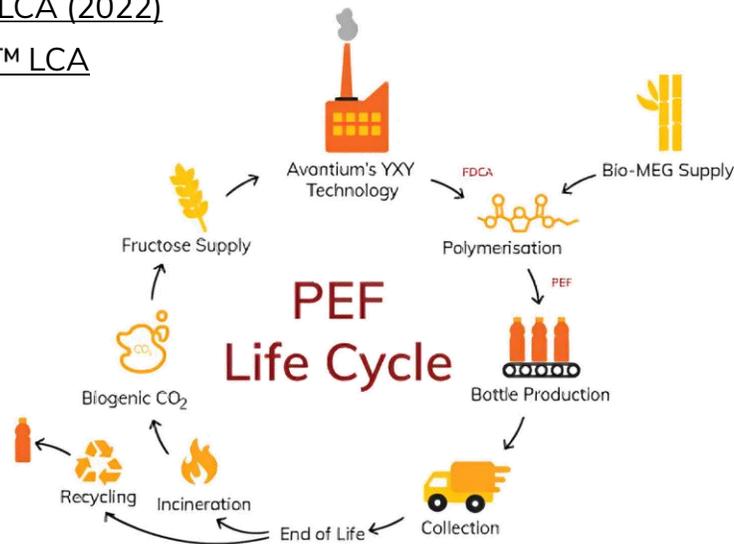
# Understanding the sustainability benefits

Life Cycle Assessment (LCA) is fundamental to understanding how Avantium's technologies compete with fossil-based alternatives, as well as the potential sustainability benefits of our technologies.

LCA is the most recognized method to quantitatively assess potential environmental impacts of products, services or processes.

Third-party peer-reviewed and ISO-certified Life Cycle Assessments show that Avantium's PEF can enable a 73% reduction in GHG emissions over the life cycle of a 500 ml PET bottle.

- [Releaf® \(PEF\) LCA Applications 500ml bottle \(2024\)](#)
- [PlantMEG LCA \(2022\)](#)
- [PlantMPG™ LCA](#)



For more information visit: <https://avantium.com/products-technologies/lca/>

## ESG ratings



Avantium was awarded a Silver Medal by EcoVadis, after a thorough audit of our performance in four categories: environment, labor and human rights, ethics, and sustainable procurement.



Sustainalytics recognized Avantium as having medium risk for material financial impacts driven by ESG factors.

Thank you!

