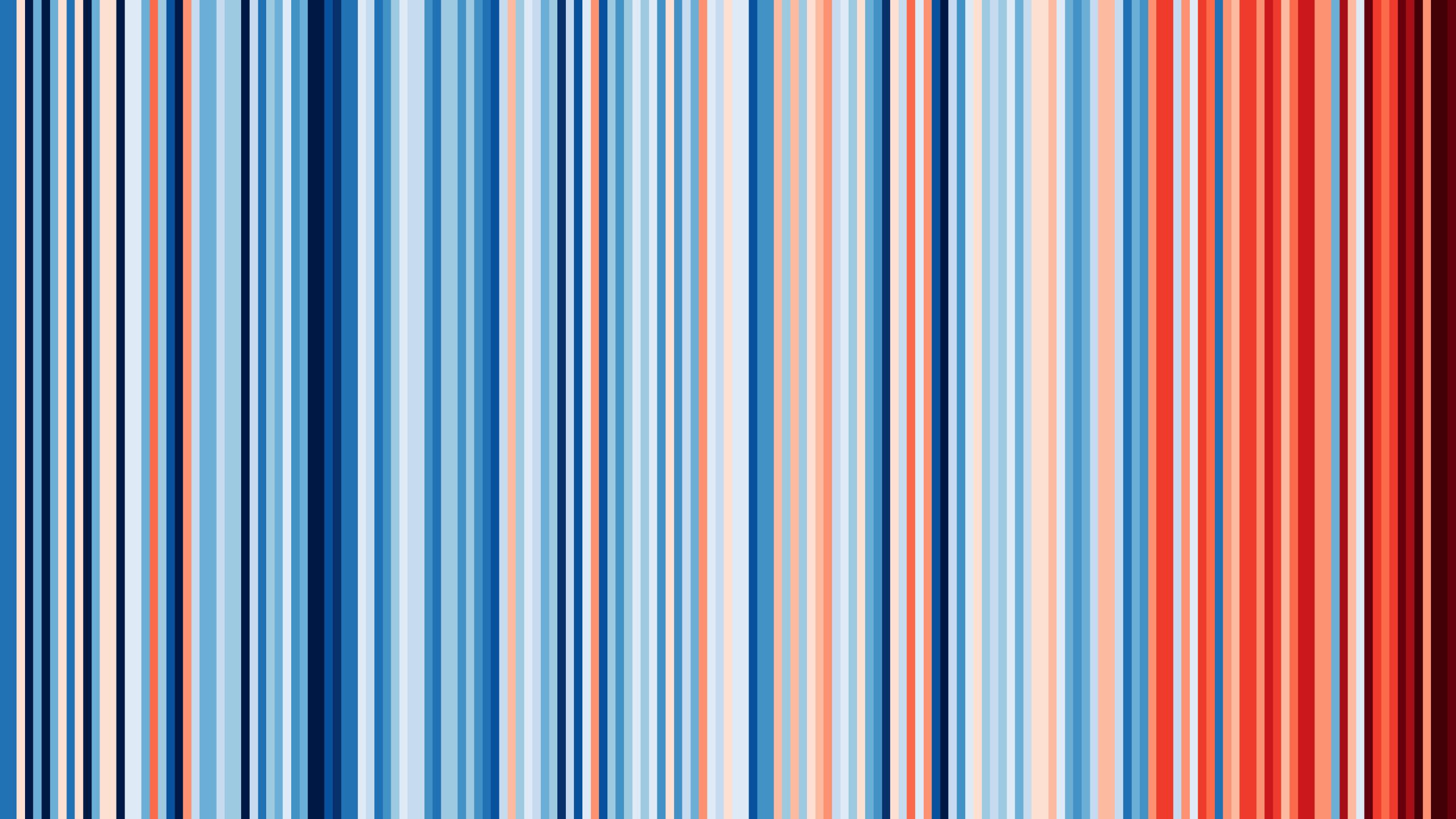


# Closing the loop on Polypropylene with Dissolution Recycling technology

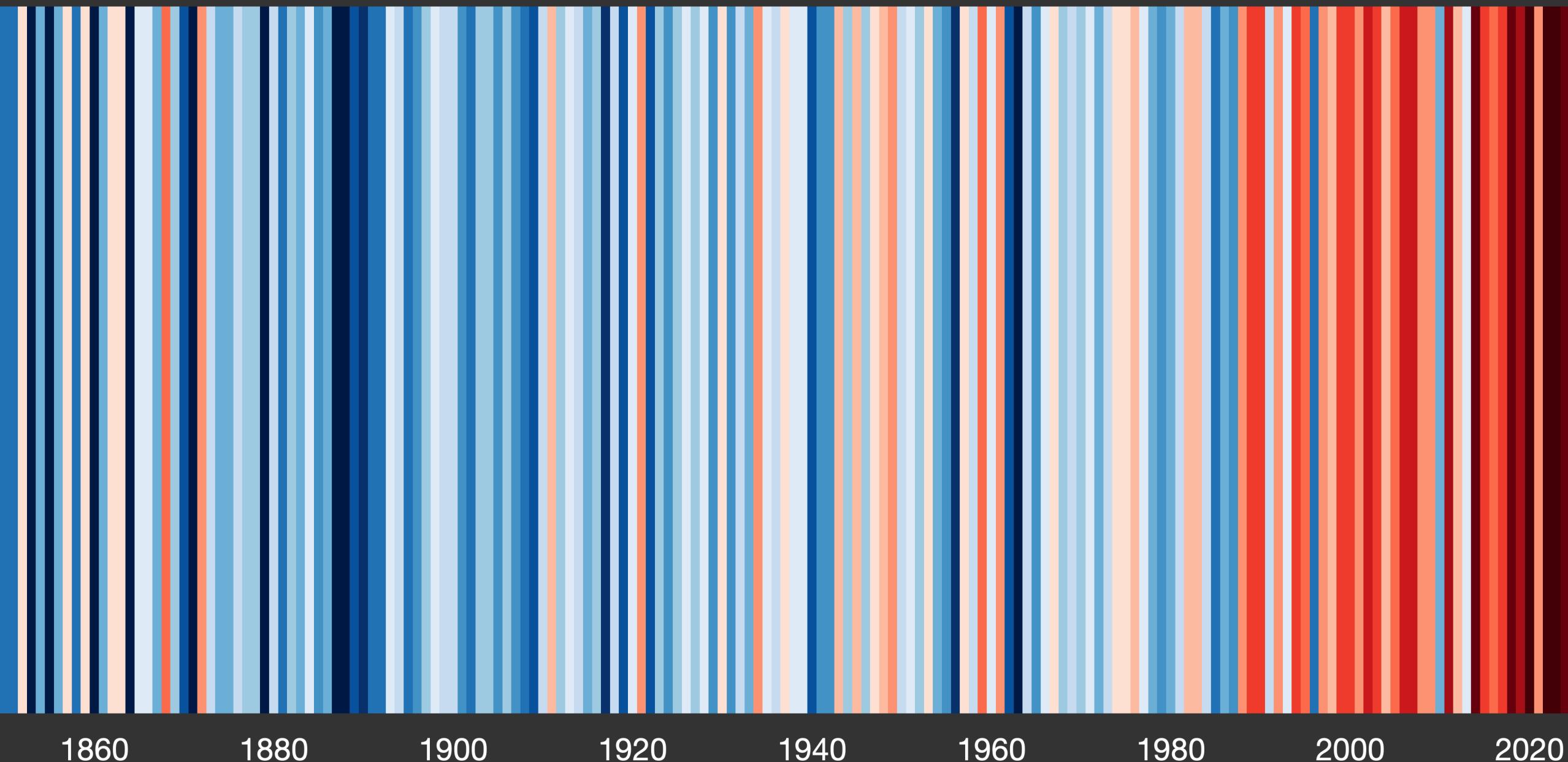
**Wiebe Schipper**, PureCycle  
VP European & Asia Pacific Operations

CAPTURE Café advanced plastics recycling  
December 10, 2025 | Berchem, Belgium





# Temperature change in Belgium since 1850



# PureCycle's Recycled PP – A True Differentiator

## OUR PROCESS

- PureCycle uses a physical recycling process (dissolution) to recycle polypropylene (PP)
- Plastic-to-plastic solution, not chemical recycling
- No mass balance credits needed
- Lower carbon emissions vs. virgin PP or chemical recycling
- Feedstock >90% curbside waste sourced from the U.S. and Canada

## OUR PRODUCT

- Thermoforming, injection molding, BOPP film and textile grades available
- Low PE, ash content and contaminants, comparable to virgin PP
- FDA – suitable for food contact
- GreenCircle Certified's "Recycled Content Certification"
- Association of Plastic Recyclers' (APR) PCR Certification\*



**BEFORE**



**AFTER**

\*HPP15-100 grade of PureFive™ resin has achieved APRs PCR Certification for exceeding the 90+% recycled content requirement. It is also the base recycled content used in all blends of PureCycle's compounded resin grades.

# What We Do

PureCycle uses an innovative dissolution technology, to recycle polypropylene (PP) waste into PureFive™ resin.

We remove odors, color, additives, fillers and other plastics from waste PP.



# How We Do It

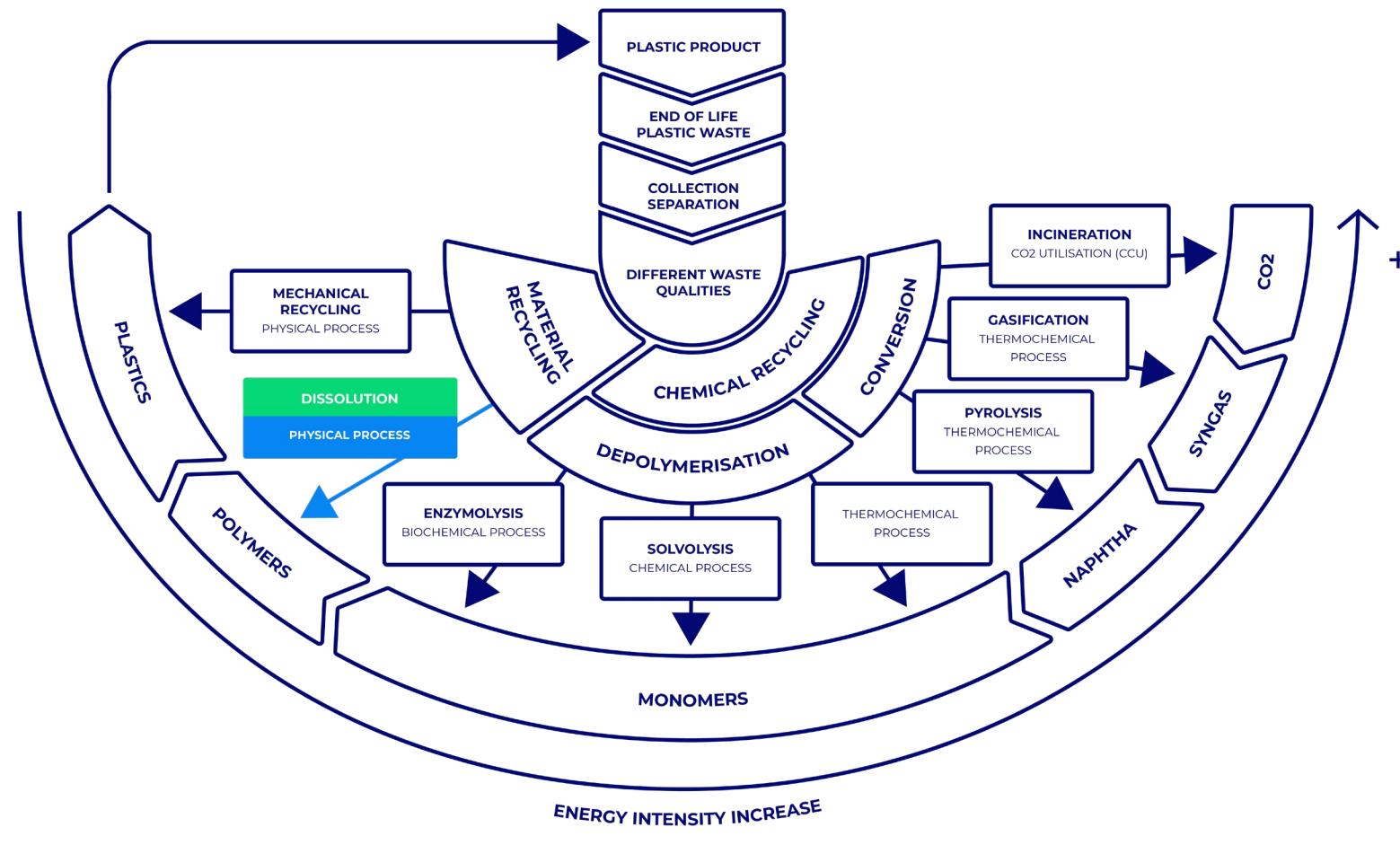
PureCycle's patented purification process



# Simply put...

- We purchase, sort, and shred plastic waste.
- We purify it.
- We produce pellets.

# Diversity of Plastics Recycling Technologies



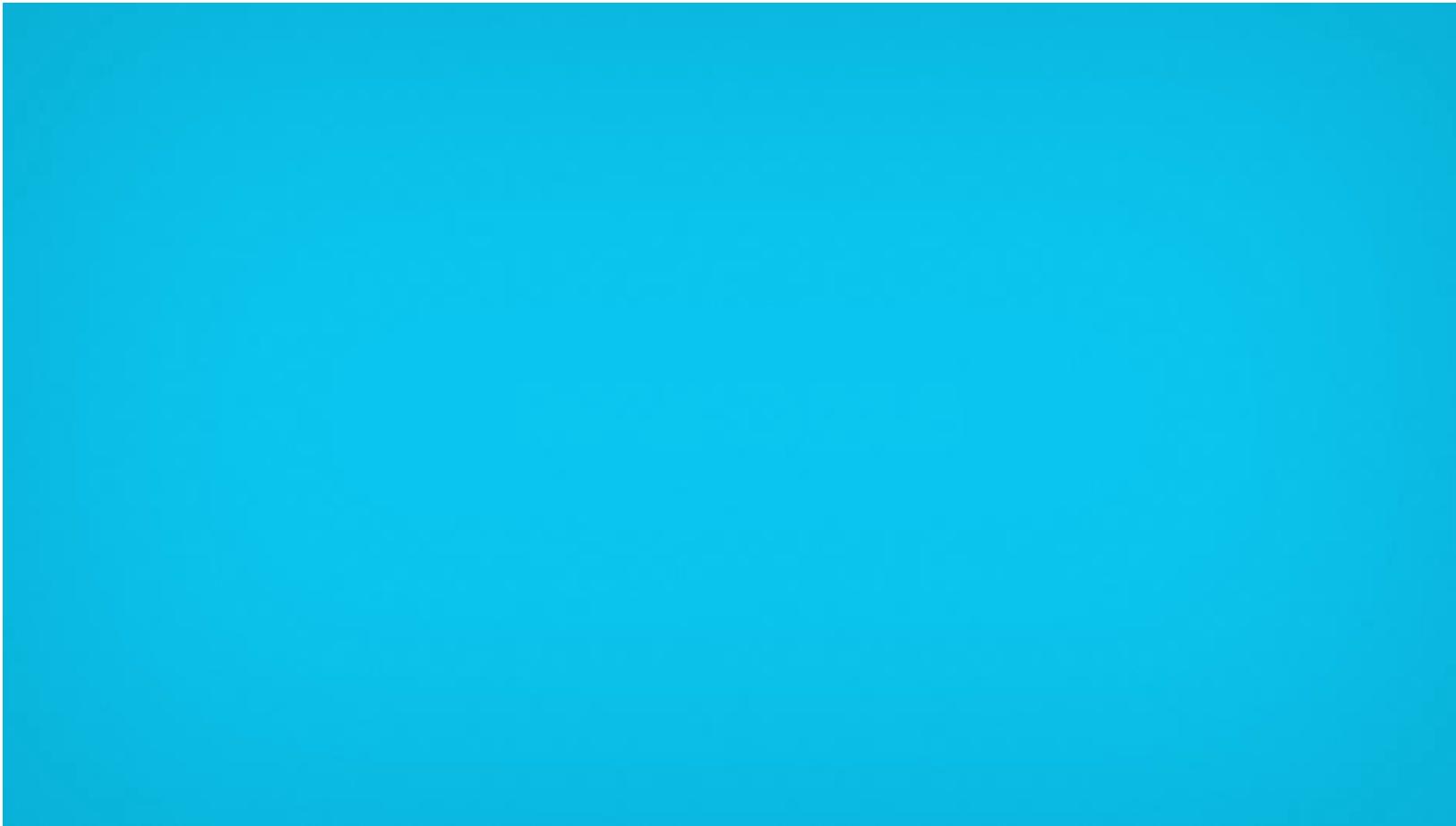
PureCycle's dissolution recycling process is NOT chemical recycling.

Dissolution is a physical process and does not break the polymer chain.

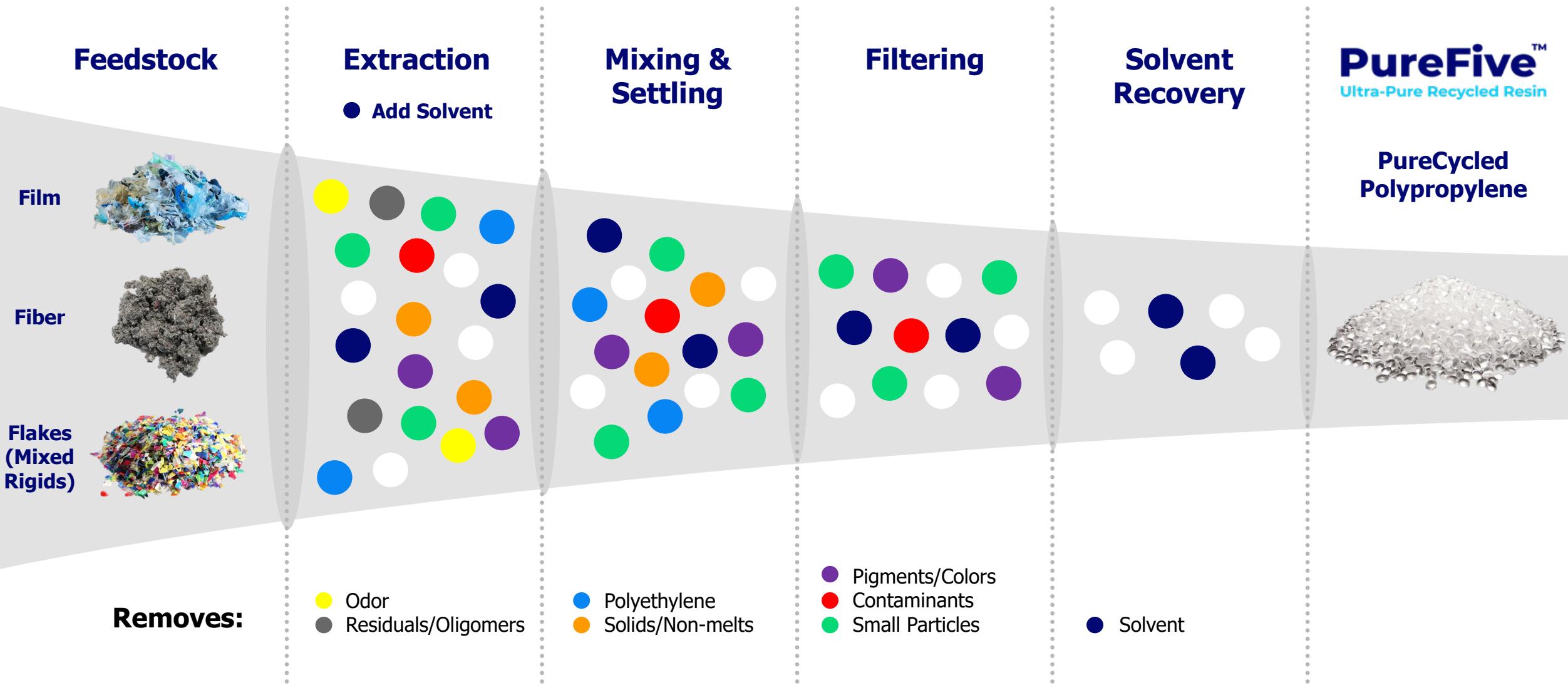
## Key Benefits

- High product quality
- High plastic recovery rate for reuse
- Low energy usage and low carbon footprint

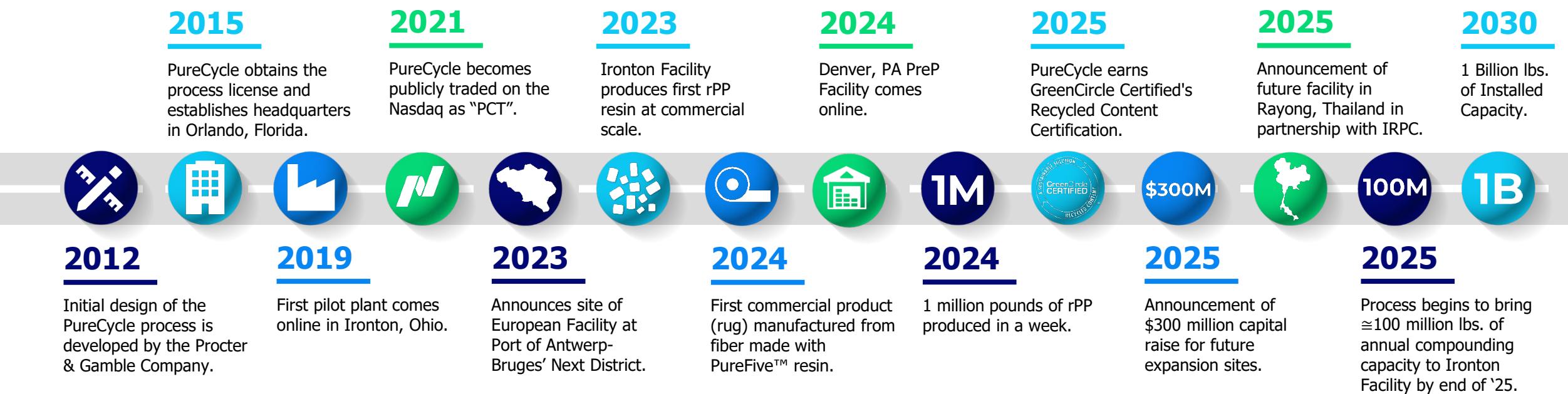
# Dissolution is PureCycle's Solution



# From Waste to 100% PureCycled Polypropylene



# Key PureCycle Milestones



# Our Ironton Facility: The First of Many



**Location:** Ironton, Ohio, USA

**Design Capacity:** 107M lbs/year

**Status:** In commercial production

**Jobs:** 75+ high-paying jobs

**Construction:** Modular for speed and cost-efficiency

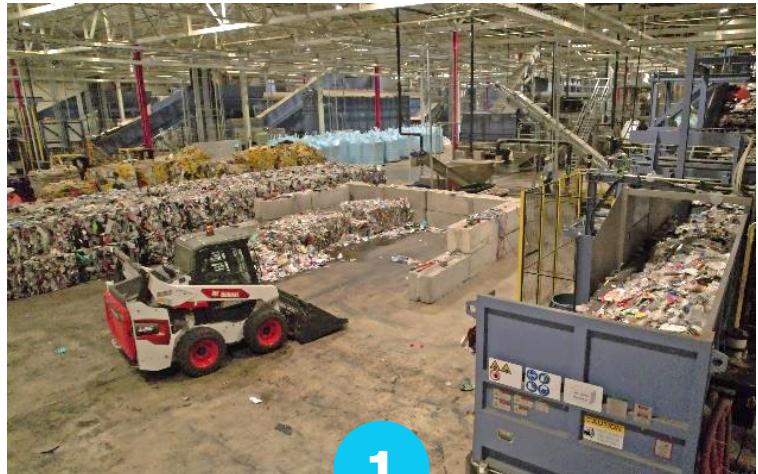
## **Supply Chain:**

- Bag in / out
- Truck in / out
- Rail in / out

## **Future Global Sites:**

- Augusta, Georgia, USA
- Rayong, Thailand
- Antwerp, Belgium
- Central Japan

**Demonstrated 87% reliability and run rates at 93% nameplate capacity**

**1****Feed Prep****2****Feed Silos****3****Feed Extruder****4****Purification****5****Classifier****6****Product Silos**

# Full Line of Commercial Products

Brand	Description	Percent PCT	MFR	Product Applications
 <b>PureFive</b> Ultra™	PureFive Ultra™ is PureCycle's flagship brand that offers customers a drop-in replacement for virgin polypropylene	100%	10-15	All Applications
 <b>PureFive</b> Choice™	PureFive Choice™ offers our customers the opportunity to modify the polymer to their needs. Also available in bright white.	30-98%	Various	Film, fiber, automotive, consumer durables, caps & closures, etc.

**Our UPR PP has the potential to supplement or replace traditional PP with a more **sustainable** solution.**

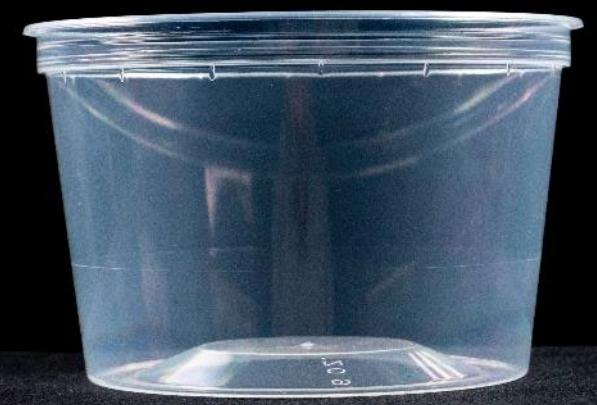
Milliken™



100% Virgin PP



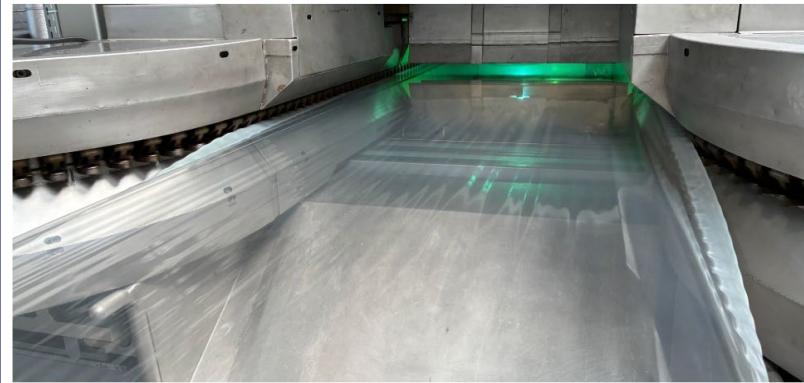
**100% PCT PureFive™  
Ultra-Pure Recycled PP**



**100% PCT PureFive™ Ultra-Pure  
Recycled PP clarified with  
Milliken's Millad® NX®8000**

# PureCycle's PureFive™: Examples of Applications

Flexible  
Packaging



**BOPP film made by Brückner using 50% PureFive™ resin**

Automotive



Source: VWGoA - Innovation Hub Knoxville

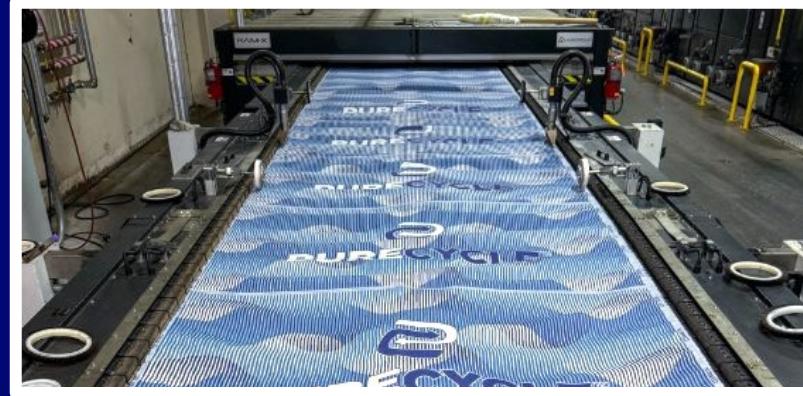
**Fully assembled VW ATLAS bumper with 60% PureFive™ resin**  
Status: Proof of Concept – Not Yet Commercialized

Food Contact



**Food contact Churchill cup made with 100% PureFive™ resin**

Fiber &  
Filaments



**Fiber rug made by Beverly Knits using 50% PureFive™ resin**

**PureFive™ Resins Brochure (Includes Product Portfolio)**

# PureFive Choice™ for Rigid Packaging: Injection Molding



PureCycle has developed multiple compounds to meet the needs of our customers by adjusting the melt flow and impact properties of the resin.

## Homopolymers

- PureFive Choice™ HPP 15-30FN
- PureFive Choice™ HPP 35-30FN

## Impact Copolymer

- PureFive Choice™ CPP 50-30FN
- PureFive Choice™ CPP 80-30FN

## Potential End-Use Applications

- Dairy containers
- Beverage cups
- Caps & closures
- Storage totes

# PureFive Choice™ for Rigid Packaging: Extrusion & Thermoforming

PureCycle has developed multiple compounds with and without impact modification for thermoformed applications.

## Homopolymers

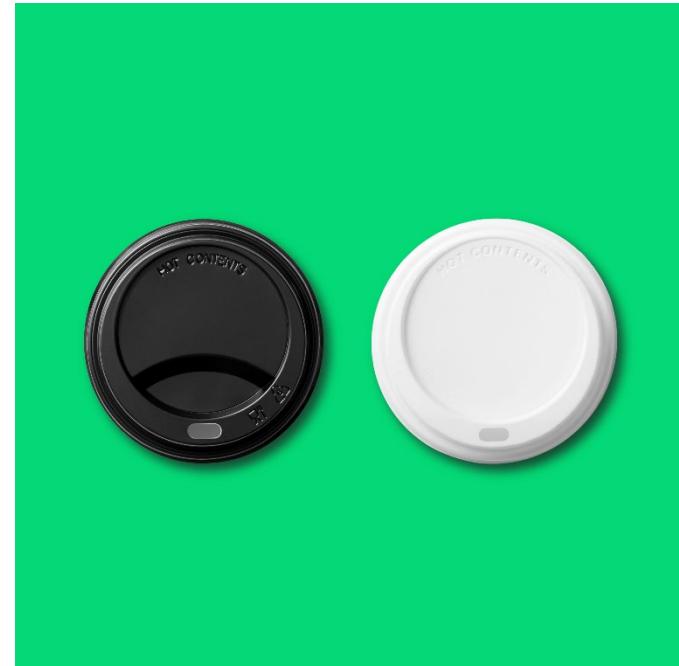
- PureFive Choice™ HPP 02-30FN
- PureFive Choice™ HPP 04-50FN

## Impact Copolymer

- PureFive Choice™ CPP 02-30FN

## Potential end-use applications

- Coffee lids
- Coffee pods
- Yogurt cups
- Clamshell food containers



PureCycle developed a compound with 50% PCR content that has performed like a drop-in replacement for virgin PP at a domestic industrial facility.

#### Qualities of Film Made with HPP03-50

- Ultra Clear and Transparent
- No Tearing During Test
- Odorless

#### End-Use Application Opportunities

- Labels
- Snack Bags
- Packaging Tape

## PureFive Choice™ for BOPP Film – HPP03-50



PureCycle has developed a compound with 50% PCR content that has performed like a drop-in replacement for virgin PP on Brückner's pilot line in Germany

## PureFive Choice™ for BOPP Film – HPP03-50

### Pilot Line Run Details

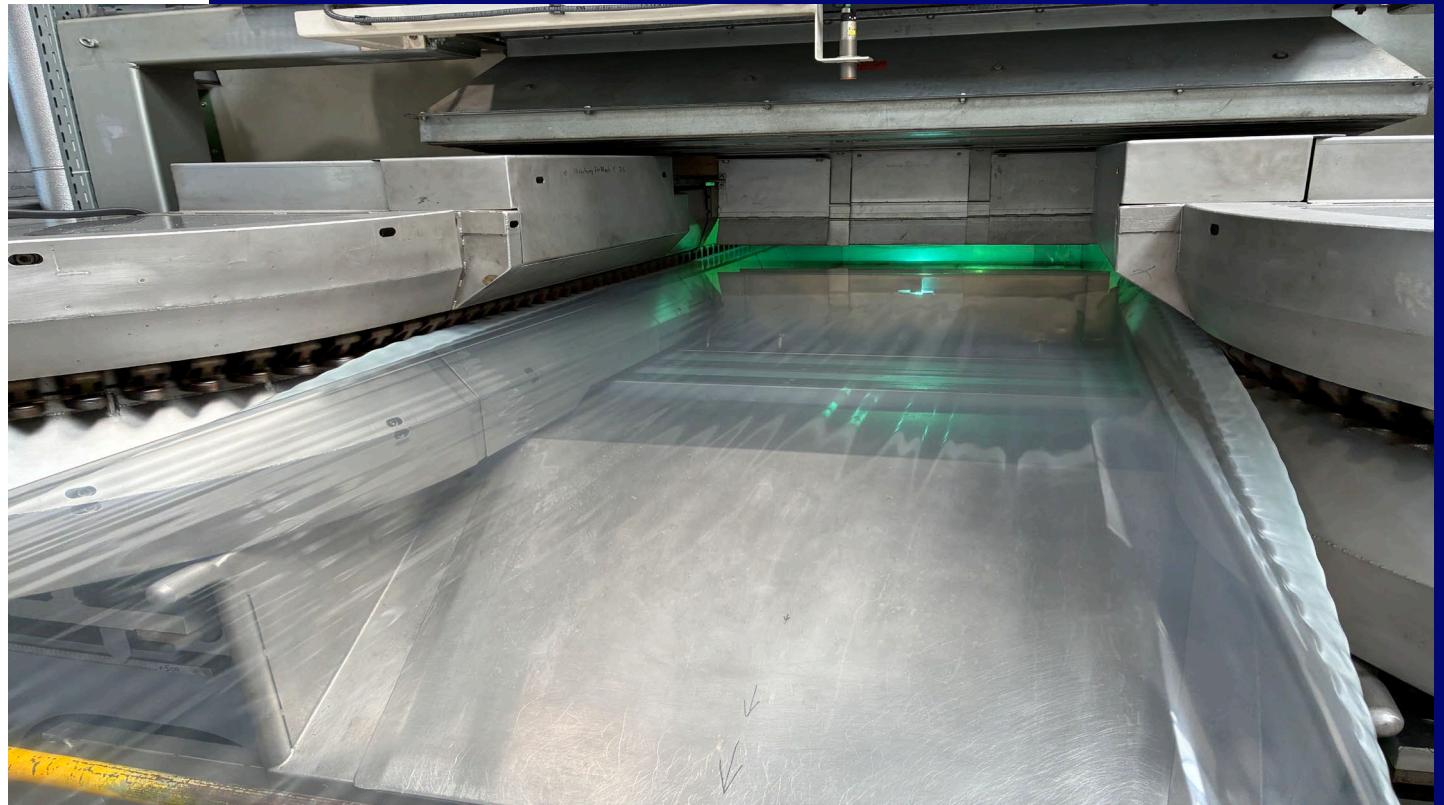
- Process Temperature: 160-188° C
- Line Speed: 40m/min

### Films

- Day 1: 25 micron / 5-layer packaging films
- Day 2: 50 micron / In-mold label (IML) films

### Results

- No tearing during test
- Odorless
- Mechanical: Tensile modulus in-spec
- Optical: Haze, clarity, gloss in-spec



# PureFive Choice™ for Textiles

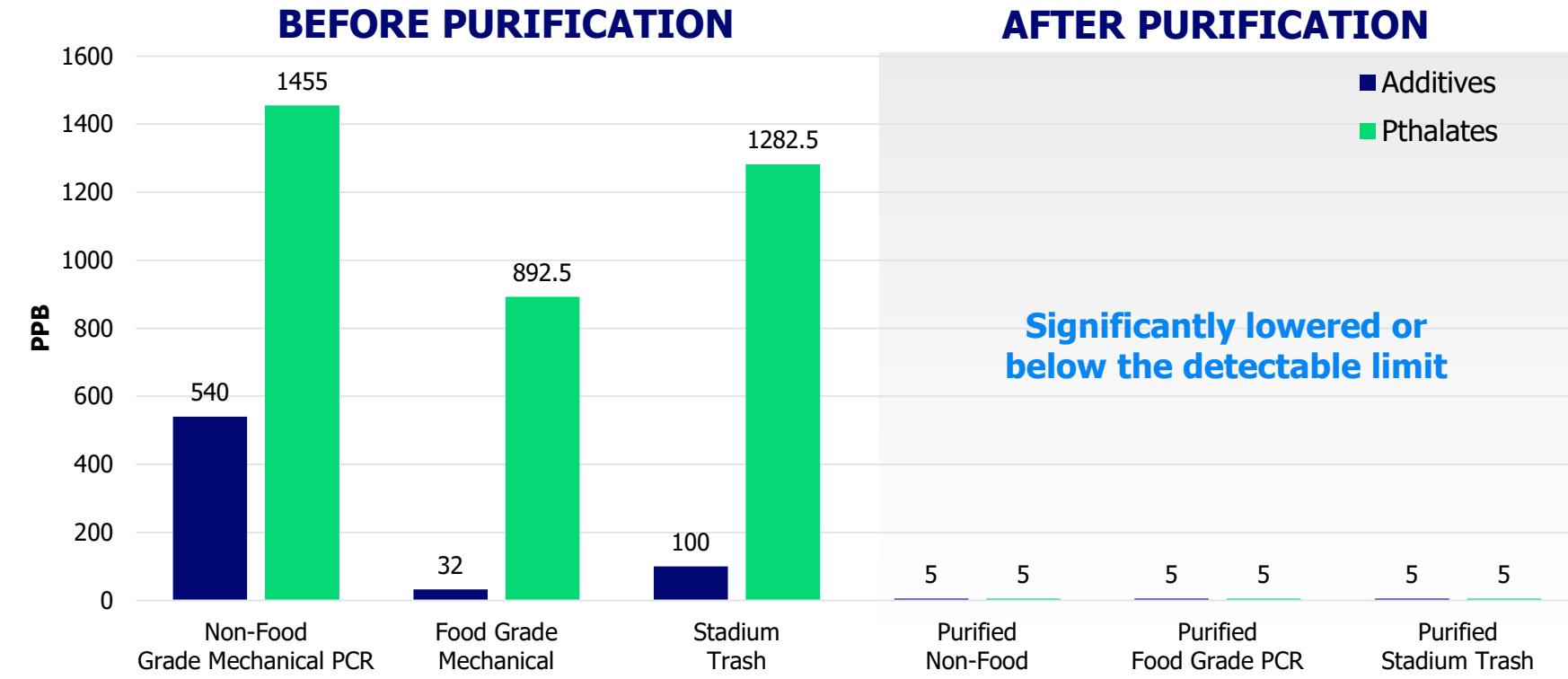
PureCycle has developed two compounds (HPP18-50, HPP35-50) to meet the stringent processing demands of the textile industry.

- HPP18-50 has been qualified for bulk continuous fiber.
- HPP35-50 has been qualified for continuous and staple fiber.
- Benefits of PP Fiber
  - Lightweight
  - Moisture resistant
  - Durability
  - Chemical Resistant
- End-Use Application Opportunities
  - Carpets
  - Apparel
  - Upholstery
  - Automotive



# PureFive™: A High Quality Recyclate

- Secured multiple FDA LNOs for various operating conditions
- Suitable for food contact applications that may contact all food types under Conditions of Use A-H
- Critical substances of interest (SOI) are significantly lowered or below the limit of quantification (LOQ) following purification
- PureCycle monitors SOI internally and with independent laboratories
- Regulatory data sheets available upon request

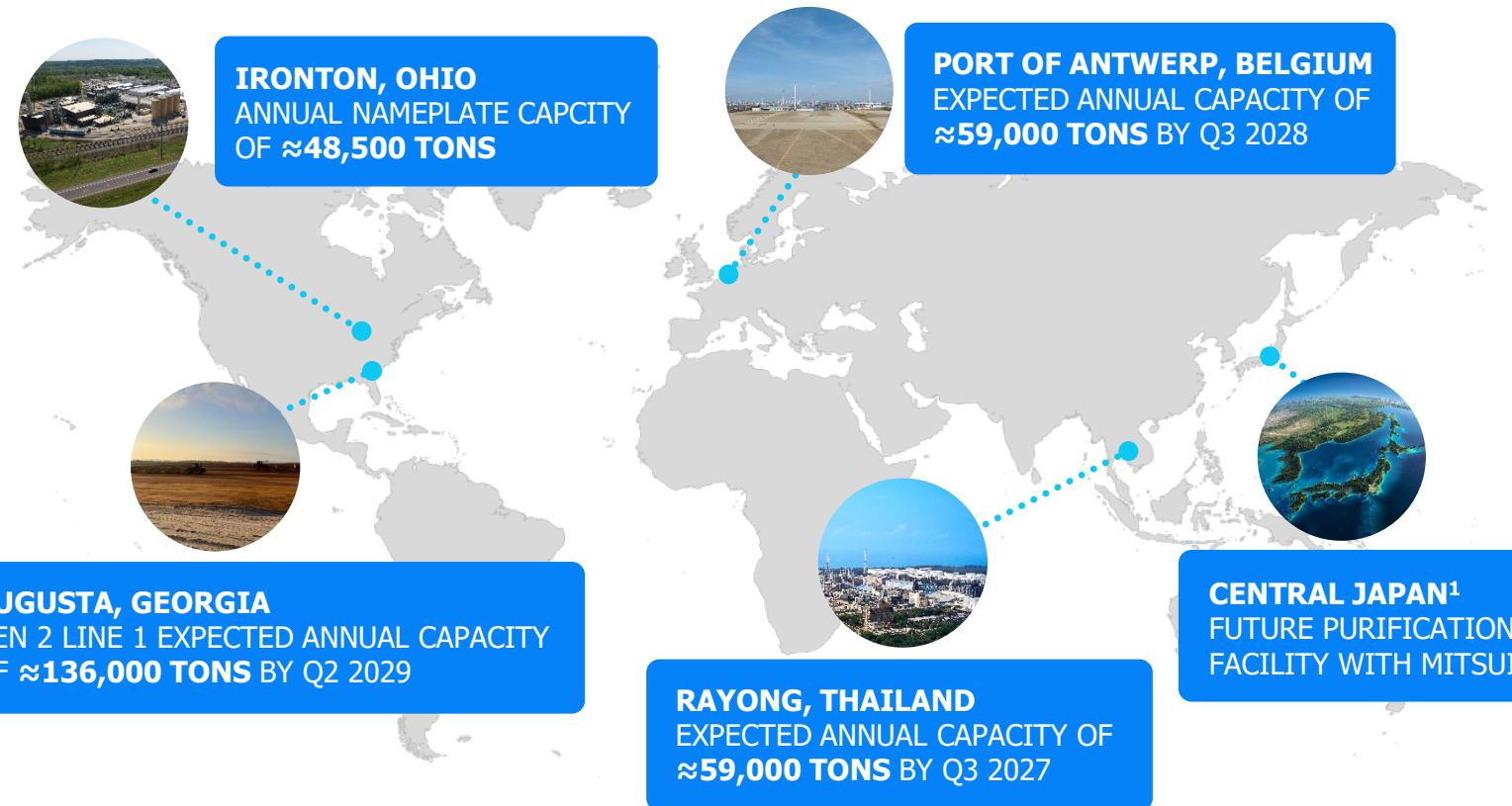


# PureCycle is GreenCircle Certified for Recycled Content

- Earned GreenCircle Certified's Recycled Content Certification for nearly 30 grades of PureFive™ resin and both co-products
- The certification process is ISO 17065 compliant and confirms PureCycle's sustainability claims about the percentage of PCR content
- GreenCircle Certified is a third-party certification company that conducts audits of organizations to verify sustainability claims
- GreenCircle audits conducted according to APR PCR Certification Guidelines
  - PureCycle base resin, HPP15-100, is APR PCR Certified
  - HPP15-100 used in all PureFive™ compounds



# PureCycle: Scaling Towards 450,000 Tons by 2030



Q3 2027 - Gen 2 Line 2 (Location TBD) expected to be under construction

Q4 2029 – Gen 2 Line (Location TBD) expected to begin producing  $\approx 136,000+$  tons annually

Expansion roadmap allows PureCycle to be ready for future legislation such as PPWR and ELV

1. Image: <https://www.etsy.com/listing/202770224/earth-japan-and-korea-planet-earth>

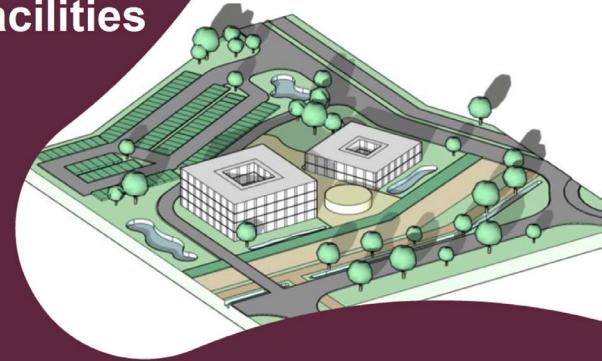


**Engineering**



**Permit**

**Shared Facilities**



## Port of Antwerp-Bruges

Our first PP recycling facility in Europe in port's fast-growing NextGen District

Expected annual capacity of 59,000 metric tonnes

Future total capacity anticipated ~240,000 metric tonnes per year (total for all four lines)

Future opportunities to expand operations; 14-hectare plot can support up to four processing lines

Working on feedstock sourcing and financial planning & intend to finalize project timeline by early 2025

Construction expected after completion of permitting process, anticipated in 2026

# Circular Hub: Antwerp Port's NextGen District



- A global hub for businesses seeking to advance the circular economy.
- PureCycle was awarded a concessionaire contract during NextGen's competitive tender.

## NextGen Neighbors

**Ekopak:** Sustainable energy / utilities include steam & water

**Plug Power:** Green hydrogen

**Bolder Industries:** Tire recycling

**TripleHelix:** Molecules as a service

**Vleemo:** Wind turbines & solar power

# Selected for EU Innovation Fund subsidy

- PureCycle's Antwerp project is selected for **Innovation Fund subsidy** subject to successful conclusion of the Grant Agreement Preparation (GAP) process.
- Target date for Grant Agreement completion: March 2026.
- Grant size: up to € 40 million.
- Carbon savings: >**80%** (relative to the traditional virgin PP alternative)
- Discussing co-funding support from the Flemish government



The project proposal

**101250797 — ASTRA PP**

*Advanced Solvent-based Technology for Recycling in Antwerp, for PolyPropylene*

by

**PURECYCLE BELGIUM**

submitted under the *Innovation Fund (INNOVFUND) call*

**INNOVFUND-2024-NZT-PILOTS — Innovation Fund 2024 Net Zero Technologies – Pilot projects**

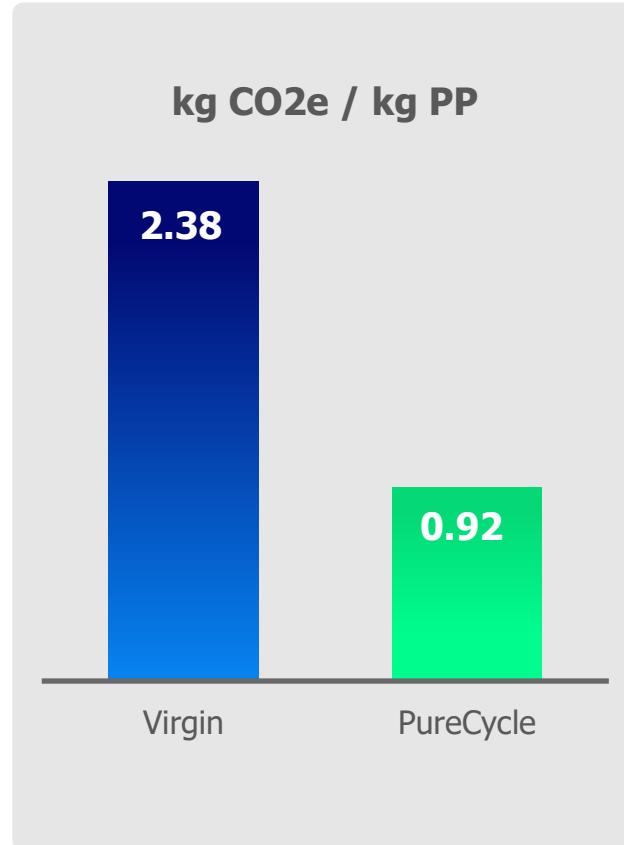
was recognised as a **high-quality project** proposal in a highly competitive evaluation process and contributes to the Strategic Technologies for Europe Platform (STEP) objectives, following evaluation by an international panel of independent experts.

The STEP (Sovereignty) Seal is a quality label awarded by the European Commission aimed at facilitating access to funding opportunities under other Union programmes covered by STEP. For further information, visit <https://strategic-technologies.europa.eu/>

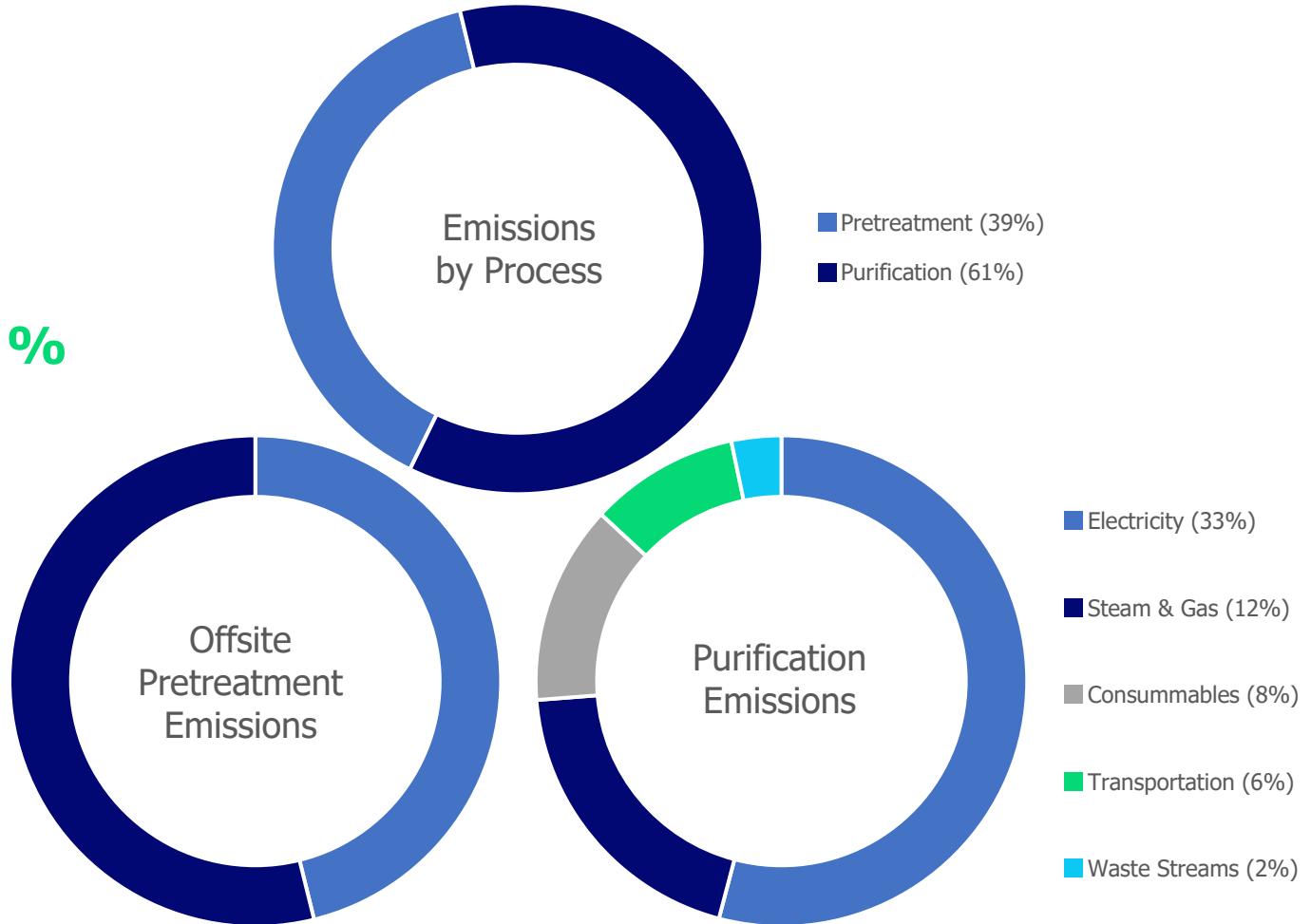
This Seal is subject to compliance with all eligibility conditions under the STEP call (including ownership control assessment and other restrictions, if applicable). Entities interested in providing financial support to the project based on the Seal are requested to contact the Commission ([EC-STEP-PARTNERS@ec.europa.eu](mailto:EC-STEP-PARTNERS@ec.europa.eu)) to confirm such compliance.

Brussels, 07/11/2025

# Antwerp GHG Footprint (DNV Global Benchmark)



PureCycle  
↓ 61%  
than Virgin



Source: DNV study for PureCycle using ISO 14040/44 LCA framework. Based on pilot plant and design data provided by PureCycle. LCA results are estimates - actual operational results may vary

# Industry Engagement

PureCycle has been engaged with the following industry organizations that have like-minded values and goals to advance recycling around the world.



The Plastics Industry Association



U.S. Plastics Pact



Plastics Recyclers Europe



The Association of Plastic Recyclers

Association of Plastic Recyclers



International Organization for Standardization



Sustainable Packaging Coalition



Flexible Intermediate Bulk Container Association



Dissolution Recycling of Plastics Initiative



Circular Economy for Flexible Packaging

# One Goal, A Pure Planet

**Wiebe Schipper**

[wschipper@purecycle.com](mailto:wschipper@purecycle.com)



	VALUE	UNITS	TEST METHOD
<b>PHYSICAL PROPERTY</b>			
Melt Flow Rate, MFR	15±5	(g / 10 min)	A5TM D1238, 230 °C, 2.16 kg
Density	0.9	(g / cm <sup>3</sup> )	ASTM D792
<b>MECHANICAL PROPERTIES<sup>2</sup></b>			
Tensile Yield Stress	35 5075	(MPa) (Psi)	ASTM D638
Strain at Yield	11	(%)	ASTM D638
Tensile Modulus	1.76 255	(GPa) (Ksi)	ASTM D638
Flexural Modulus, 1% secant	1.41 205	(GPa) (Ksi)	ASTM D790
Notched Izod Impact at 23 °C	0.9 48	(ft.-lbs./in) (J/m)	ASTM D256
<b>THERMAL PROPERTIES<sup>3</sup></b>			
Heat Deflection Temperature, HDT	89 192	(°C) (°F)	ASTM D648, @ 0.45 MPa ASTM D648, @ 65 Psi

<sup>1</sup> Commercial grade

<sup>2</sup> Values provided represent an average range ( $\pm 20\%$ ) and is anticipated for the commercial grade.

# TECHNICAL DATA: HOMOPOLYMER POLYPROPYLENE

## HPP15S<sup>1</sup>

PureCycle plans to expand production into multiple grades.



# PureFive™ Product Portfolio – Q4 2025

Market	Application	Polypropylene Type	Grade Name <sup>1</sup>	FDA COU <sup>2</sup>	Additives <sup>3</sup>			PCR (wt.%)	MFR <sup>4</sup> (dg/min)
					G	N	AS		
General Purpose		Homopolymer	PureFive Ultra™ HPP 15-100FN	A-H	•	•		95	10-20
		Homopolymer	PureFive Choice™ HPP 15-100FN White, Black <sup>5</sup>	B-H	•	•		95	10-20
Flexible Packaging	BOPP Film	Homopolymer	PureFive Choice™ HPP 02-30F	A-H				32	2.5
		Homopolymer	PureFive Choice™ HPP 04-50F	A-H				52	4.0
		Homopolymer	PureFive Choice™ HPP 07-70F	A-H				72	7.0
Rigid Packaging	Thermoforming	Homopolymer	PureFive Choice™ HPP 02-30FN	A-H	•	•		32	2.5
		Homopolymer	PureFive Choice™ HPP 02-30FN White, Black <sup>5</sup>	B-H	•	•		32	2.5
		Homopolymer	PureFive Choice™ HPP 04-50FN	A-H	•	•		52	4.0
		Homopolymer	PureFive Choice™ HPP 04-50FN White, Black <sup>5</sup>	B-H	•	•		52	4.0
		Homopolymer	PureFive Choice™ HPP 07-70FN	A-H	•	•		72	7.0
		Homopolymer	PureFive Choice™ HPP 07-70FN White, Black <sup>5</sup>	B-H	•	•		72	7.0
	Injection Molding	Homopolymer	PureFive Choice™ HPP 45-100FN White, Black <sup>5</sup>	B-H	•	•		95	45
		Impact Copolymer	PureFive Choice™ CPP 20-50FN	A-H	•	•		52	20
		Impact Copolymer	PureFive Choice™ CPP 80-30FN White	B-H	•	•		32	80
		Impact Copolymer	PureFive Choice™ CPP 80-80FN White	B-H	•	•		82	80
Fiber and Filaments	CF/BCF <sup>6</sup>	Homopolymer	PureFive Choice™ HPP 35-50	-	•			52	35
	CF/BCF/Staple	Homopolymer	PureFive Choice™ HPP 18-50	-	•			52	18
	Raffia (Food)	Homopolymer	PureFive Choice™ HPP 04-50F	A-H				52	4.0
	Raffia (Non-Food)	Homopolymer	PureFive Choice™ HPP 04-50	-				52	4.0

1. F = Food Grade, N = Nucleator

2. FDA COU = FDA Conditions of Use. PureFive™ resin complies with FDA 21 CFR 177.1520(c)(1). Please contact your PureCycle representative for more information.

3. All products contain antioxidants. Additional additives are G = Anti-Gas Fading AO Package, N = Nucleator, AS = Antistatic Agent.

4. Melt Flow Rate (230 °C, 2.16 kg), ASTM D1238

5. Black resin produced using recycle-friendly Near Infrared (NIR) transparent colorant

6. CF = Continuous Filament, RCF = Bulk Continuous Filament