



Berry

CleanStream® – The Future for Food-Grade Mechanically Recycled Plastic

ORIGINALLY DELIVERED AT THE **FESTIVAL OF POLYMER INNOVATION 2024**
VISIT [HTTPS://WWW.POLYMERFESTIVAL.COM](https://www.polymerfestival.com) FOR MORE INFORMATION

A HUGE THANK YOU TO PLASTIKCITY FOR SPONSORING OUR MAINSTAGE





We deliver packaging and engineered materials that make life better for people and the planet fueled by our **global capabilities**, **innovation expertise**, and **sustainability leadership**.



Bmore

circular solutions

The **B Circular Range** is a testament of Berry's Global customer promise and our ongoing impact support your sustainability goals.

Reuse/Refill

Increase the reusability of your products to reduce waste and facilitate circularity.

Reduced Carbon Footprint*

Optimize your material usage and design for reduction in transportation and storage impact.



*Vs. previous generation of Berry product

Recycled Plastic

Divert waste by utilizing recycled product content up to 100% recycled material in your products

Renewable

Replace fossil fuel feedstocks with renewable resources like forestry residue and used cooking oils.

Improved Recyclability

Designs that follow RecyClass and APR guidelines to be more compatible with recycling systems.





Berry Global proudly introduces our
proprietary **CleanStream®** technology, one
of the first closed-loop systems to
mechanically process **domestically**
recovered household waste polypropylene
(PP) back into **contact sensitive packaging**.

Now Available



A Concept Born of Demand

Marketplace Needs



Consistent Physical Properties



Food Contact Approval



Good Aesthetics



Reliable
Availability



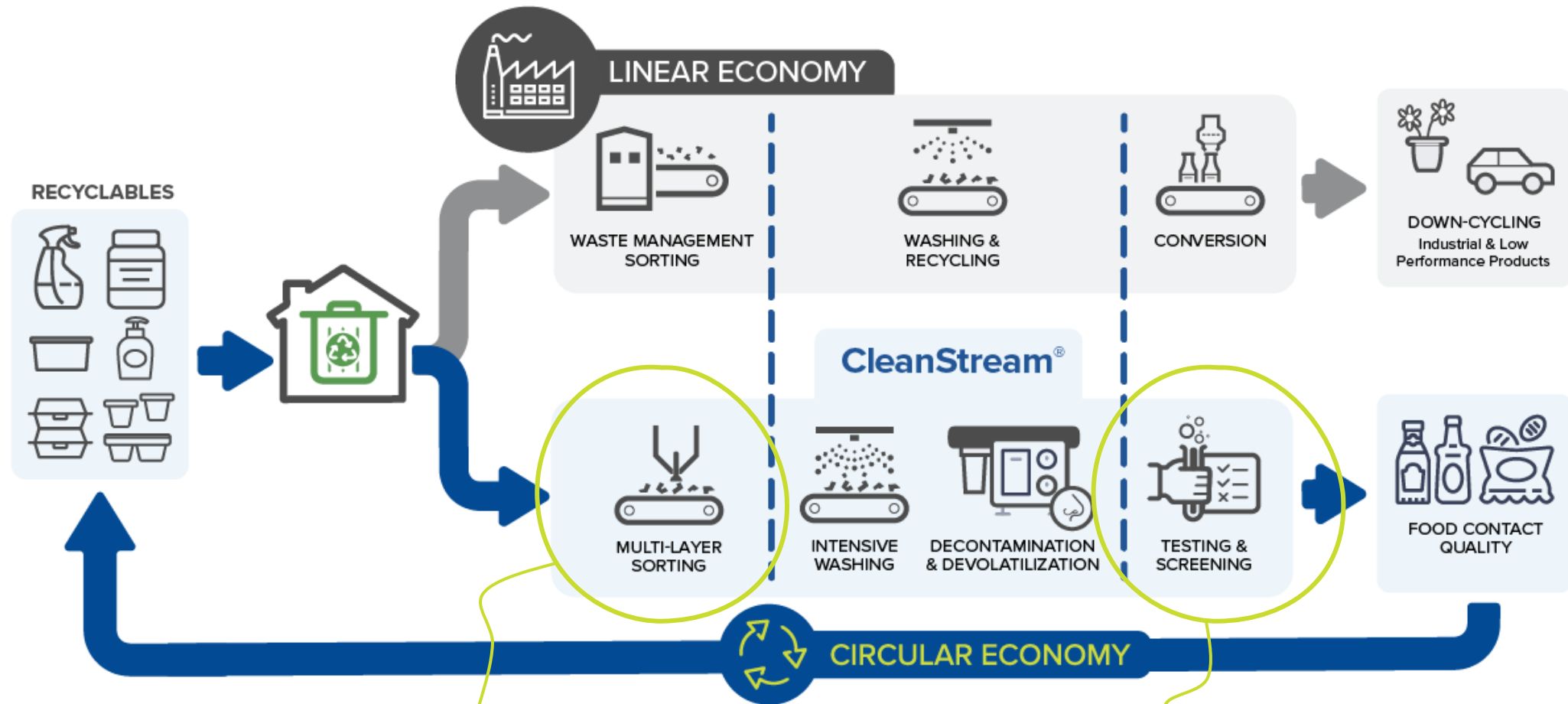
No Odour



Low CO₂ Footprint



The Circularity Challenge



>95% food-contact achieved through AI based sorting

Rigorous batch control and 'real-time' analysis



Quality Control For Every Batch

Our quality control enables:

- Input screening, process control and batch release.
 - On-Site Laboratory equipped with GC-MS and GC-FID for NIAS and Specific Migration screening.
- No odour and good aesthetics.
- Compliant with U.S. Food and Drug Administration (FDA) standards while upholding performance.



CleanStream® Benefits

Traditional recycling

vs

CleanStream®

- Mixed Infeed (PIR & PCR)
- Shred / Wash
- PP Content 85 – 90%
- Peroxide efficiency compromised
- Impact Strength 3 – 5kJ.m-2
- Impact Modification Required
- Stiffness Compromised vs Virgin

- Single Infeed
- PP Content >99%
- Sort (4 Layers) / Shred
/ 3 stage Wash
- Lower peroxide addition
- Impact Strength >5kJ.m⁻²
- No Impact modification required
- No Stiffness compromise
- Higher % PCR inclusion



High quality contact-sensitive PCR



Technical Datasheet PP5-FDAMF20

PP5-FDAMF20 - A medium MFI Ivory coloured PP (Polypropylene) grade from 100% post-consumer sources suitable for injection moulding and other conversion processes.

CleanStream® technology produces high quality compounded materials utilising state-of-the-art hot wash, separation and treatment processes to produce compounds from controlled blends of recycled materials to defined specifications, with low volatile content.

The CleanStream® process has an NOL issued by the US FDA (**PNC2780**) for use in Direct Food Contact Applications for all food types under CoU E-G.



A Recycling Process with a Low Carbon Footprint

Our mechanical recycling CleanStream® technology has benefits such as:

- **35% lower CO₂** generation than virgin PP production
- Creates packaging made with materials that will have **20% lower impact** than virgin resin
- Light PP virgin replacement will **reduce CO₂ impact of plastics packaging** by 13,104 tonnes of CO₂ / annum



A Team of Dedicated Experts to Navigate Evolving Regulations for Your Brand

Evolving regulations on food contact materials can be complex, however:

- Berry is uniquely positioned as a European leader in plastic recycling and a global leader in plastic packaging
- CleanStream process is designed for demanding contact sensitive applications:

Highest quality standards for personal care brands

**Process aligned with the requirements of regulation
EU 2022 / 1616, for food contact use**

- CleanStream application status:

Approved

Submitted

Detailed CoA produced in 'real-time' for each batch:



Multiple products available with CleanStream®





We deliver packaging and engineered materials that make life better for people and the planet fueled by our **global capabilities**, **innovation expertise**, and **sustainability leadership**.

