



ASSOCIATION OF PLASTIC
RECYCLERS

THE PLASTIC RECYCLING PROCESS & HOW EPR CAN IMPROVE PLASTICS RECYCLING

Illinois EPR Advisory Board, March 2026

Who is APR?

APR is an international non-profit and largest North American organization focused exclusively on improving recycling for plastics.



What Do We Do?

Our mission is simple:
RECYCLE MORE PLASTIC
to reduce waste.

STEPS OF PLASTICS RECYCLING

Collecting



Haulers collect plastic and other recyclables from homes and businesses.

Sorting



Material recovery facilities (MRFs) sort types of plastics into bales.

Processing



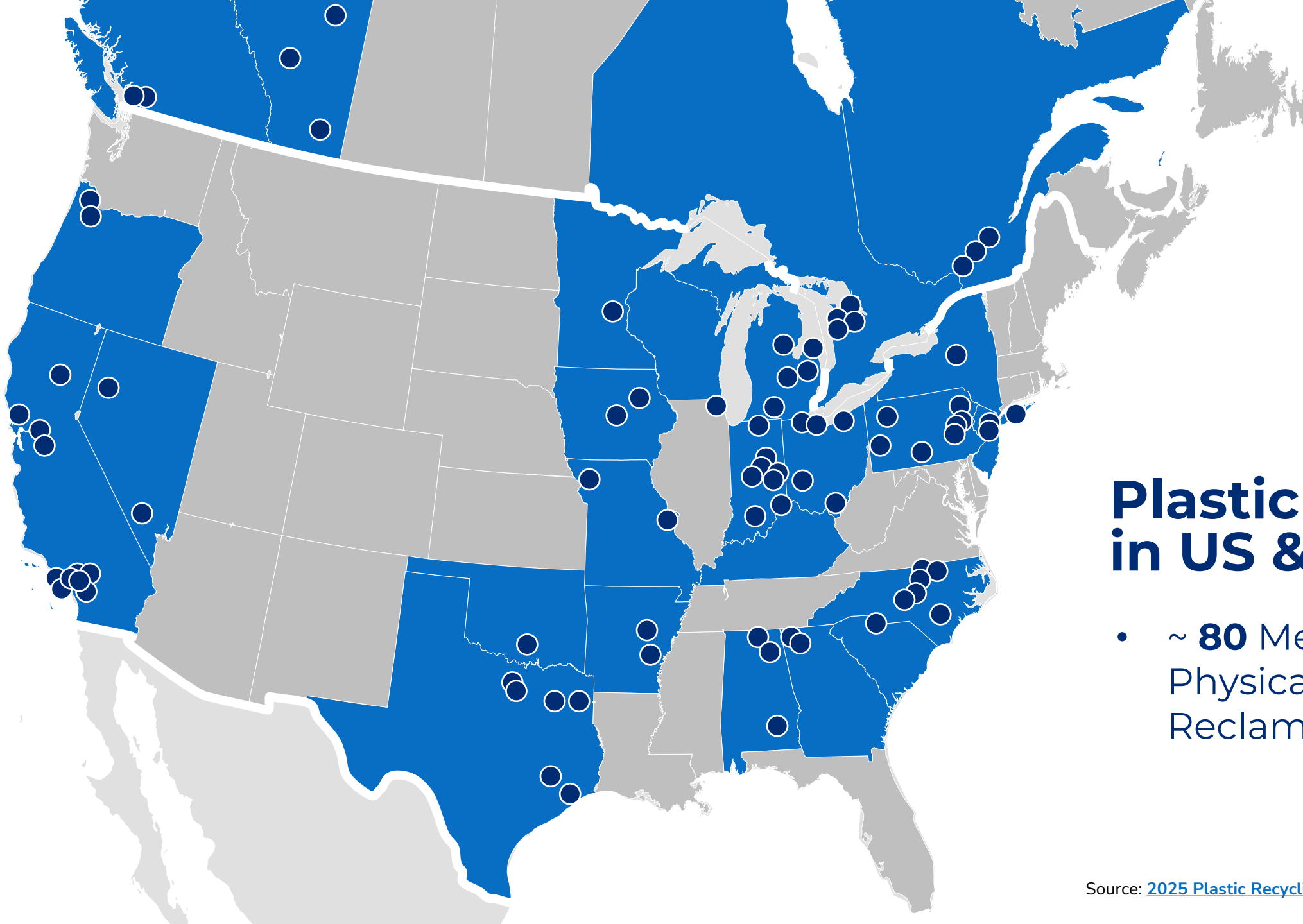
Reclaimers sort, grind, wash, and process plastics into pellets, flakes, or sheet.

Reclaimers (recyclers) are the CORE of APR

Manufacturing



Converters use recycled plastics to make new packaging and products.



Plastic Recyclers in US & Canada:

- ~ **80** Mechanical and Physical Reclamation Sites

APR Members Span the Entire Value Chain



PLASTICS RECYCLING WORKS EVERY DAY



5 Billion Pounds
Of Plastic Was
Recycled in North
America in 2022

Source: 2022 Post Consumer
Plastic Recycling Report



340
Trucks A Day Of
Plastic Saved From
Landfills

Source: Maximum weight
restriction of 40K lbs per truckload



1 Million Homes
Could Be Powered
by the Energy
Savings

Source: EPA Warm Tool



681,000

jobs supported by all recycling
& reuse activities in
the US (not just plastics)

Source: EPA, 2020



POLICIES ARE NECESSARY TO IMPROVE PLASTIC RECYCLING.

APR SUPPORTS THESE PRIORITY POLICIES.



Design

Packaging design standards can help reduce consumer confusion and increase participation in recycling, streamline processing, and deliver higher quality recycled plastics.



Collection

Extended Producer Responsibility (EPR) laws provide the needed funding and coordination to scale local recycling programs. **Bottle deposit programs** incentivize recycling and reduce litter for beverage containers.



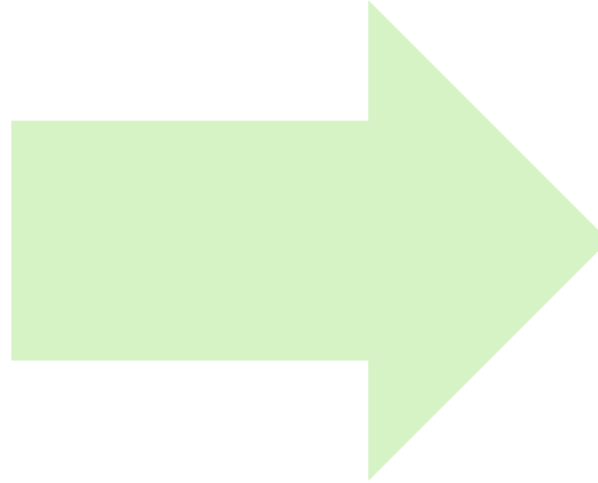
Remanufacturing

Minimum recycled content standards, tax credits, and other economic tools create stronger end markets and unlock investment and innovation so recycled plastics replace virgin plastics as the primary feedstock for new plastic products.



INSIDE A PLASTICS RECLAIMER

INPUT: PRESORTED BALES

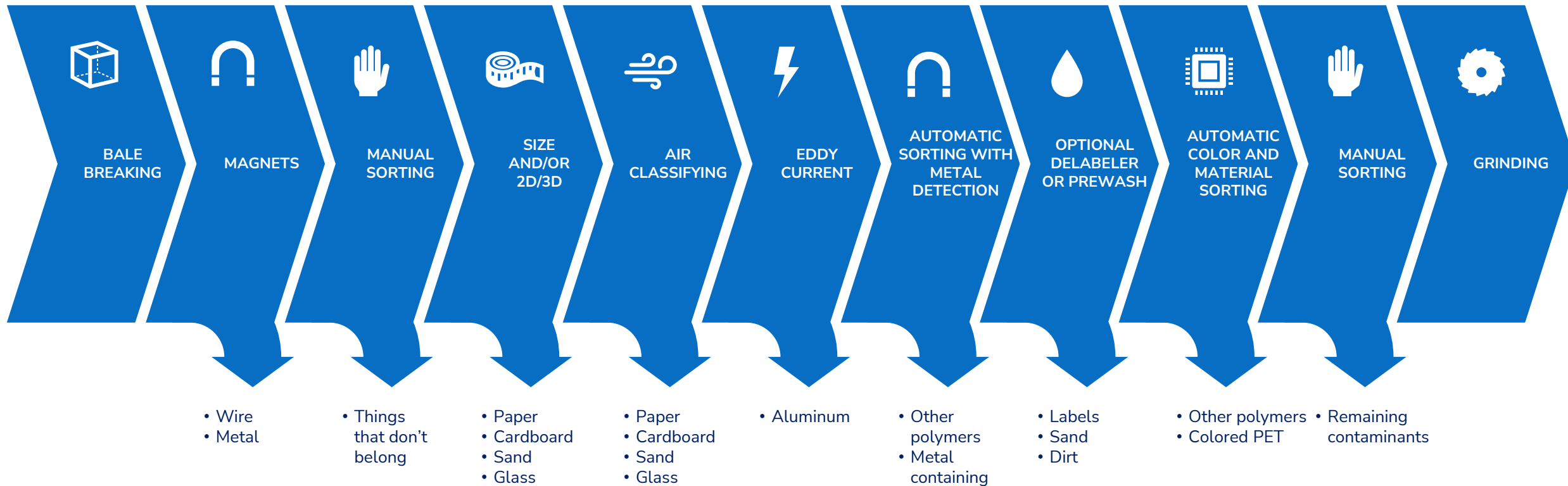


OUTPUT: RECYCLED FLAKE OR PELLET



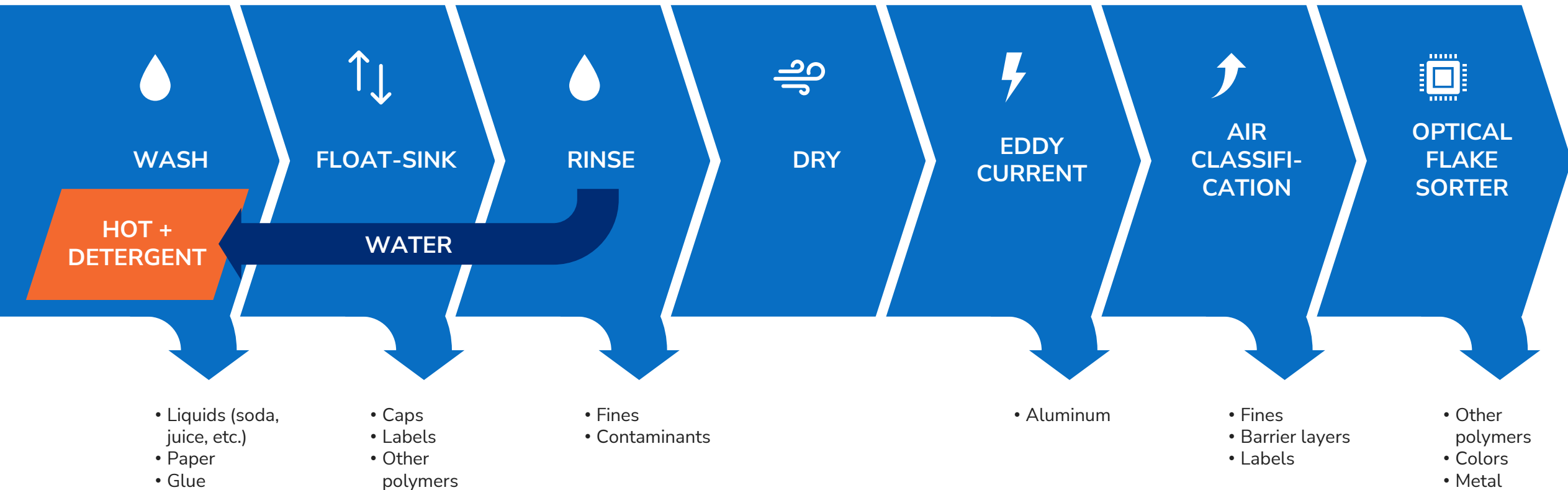
PART 1: SEPARATE THE COMPONENTS

PET Reclaimer Front End Sorting process



PART 2: WASH AND SORT

PET wash line for ground material (i.e. flake)



ESSENTIAL TOOLS FOR SEPARATION & CLEANING

Washing



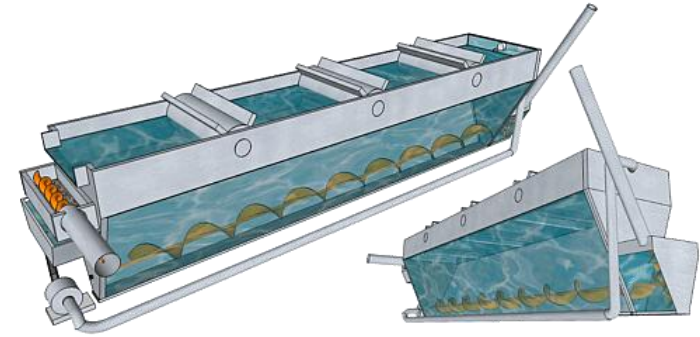
PET:

- 10 minutes
- 85 °C
- 1 % sodium hydroxide (NaOH)

HDPE - PP:

- 10 minutes
- 30 – 70 °C

Float-Sink



- Large recirculating water tank used to separate plastics by resin
- Ex: PET bottle flake sinks while HDPE caps float to the top

SIMILAR CHALLENGES TO DOING YOUR LAUNDRY

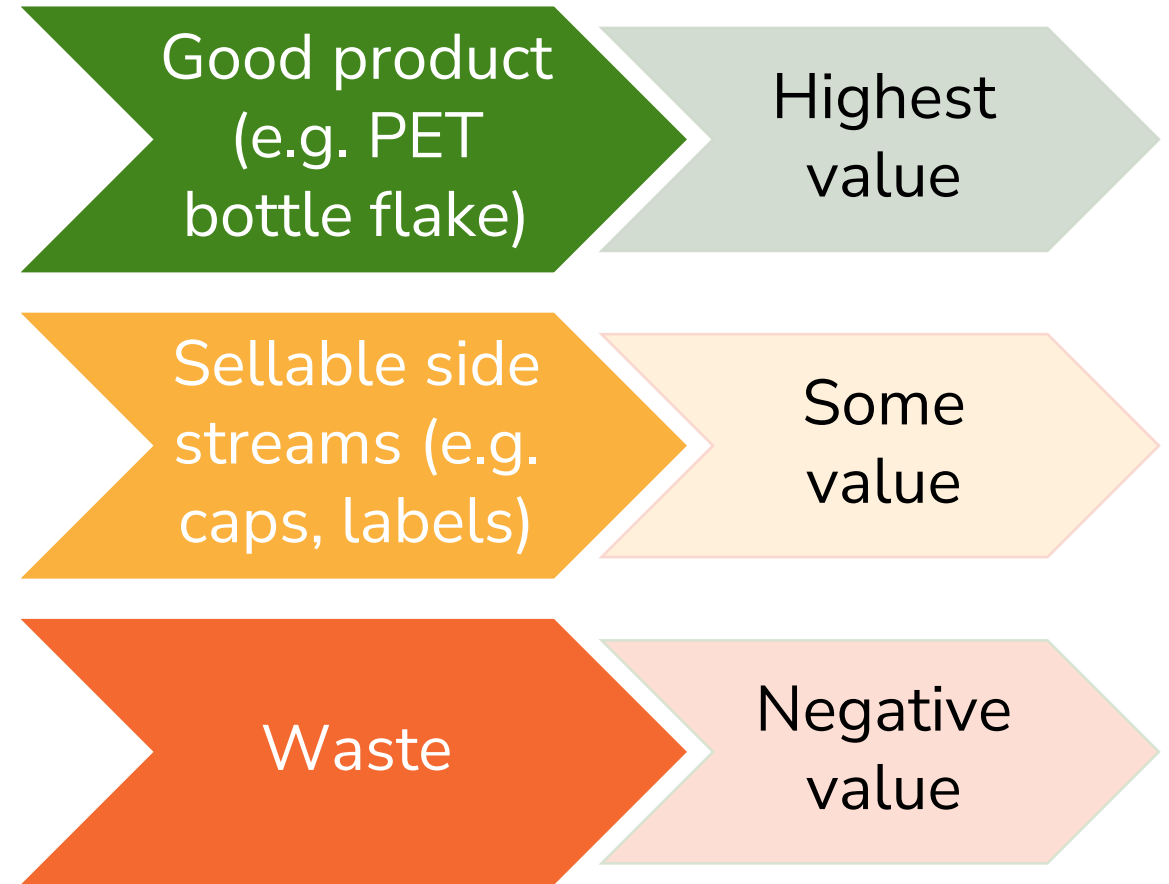
- Red items in clear/white load → pink plastic
- Mixing colors → black recycled content
- Paper labels act like tissues → requires more water, energy to remove
- Adhesives, labels, etc. → require more washing, more soap



Design for recycling matters!

AFTER SORTING, RECLAIMERS HAVE THREE STREAMS

Good packaging design and effective MRF sorting maximizes sellable streams and minimizes waste.



PART 3: MAKING NEW PLASTIC PRODUCTS

Extrusion: Flake is heated in an extruder and processed into pellets and/or sheet.

Transfer: Sold to plastics converter or compounder for customization.

Customized: Formulated to meet product specifications for color, strengthen, flexibility, etc.

Manufacturing: Sold to manufacturer to make new products, replacing use of new virgin plastic.

** Note some or all of these processes can be done at the same location and/or vertically integrated companies.*



SEE PLASTICS RECYCLING IN ACTION



KW Plastics, HDPE and PP recycler: <https://www.youtube.com/@kwplastics248>

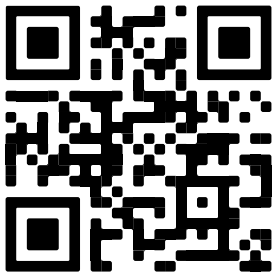
Placon, PET recycler: <https://www.youtube.com/watch?v=4UcwEI2Dhuk>



APR Design® Training & Tours

September 22-24 | Indianapolis, IN

Scan to learn more



How plastic recycling works in action

- Learn the do's and don'ts of package design for recyclability from one of the nation's leading experts, APR COO Curt Cozart.
- Network with other stakeholders in the plastic packaging and recycling space.
- **Unparalleled private guided tours to see how both rigid and flexible packaging is sorted, baled and processed.**

DAY 1



DAY 2



DAY 3



WHAT MAKES A PACKAGE RECYCLABLE?

The **APR Design® Guide** is your tool to ensure a package design is compatible with the North American recycling system.

To be considered recyclable*, companies must consider all the following criteria:

- Design for recyclability
- Consumer access to recycling
- Acceptance of a package in the recycling stream
- End markets for products made from the recycled plastic



* For unqualified claims in the U.S., refer to FTC Green Guides

APR Design® Guide for Plastics Recyclability

Scan for Guide



Since 1994, has helped companies determine if packaging and its components are compatible with the recycling system.

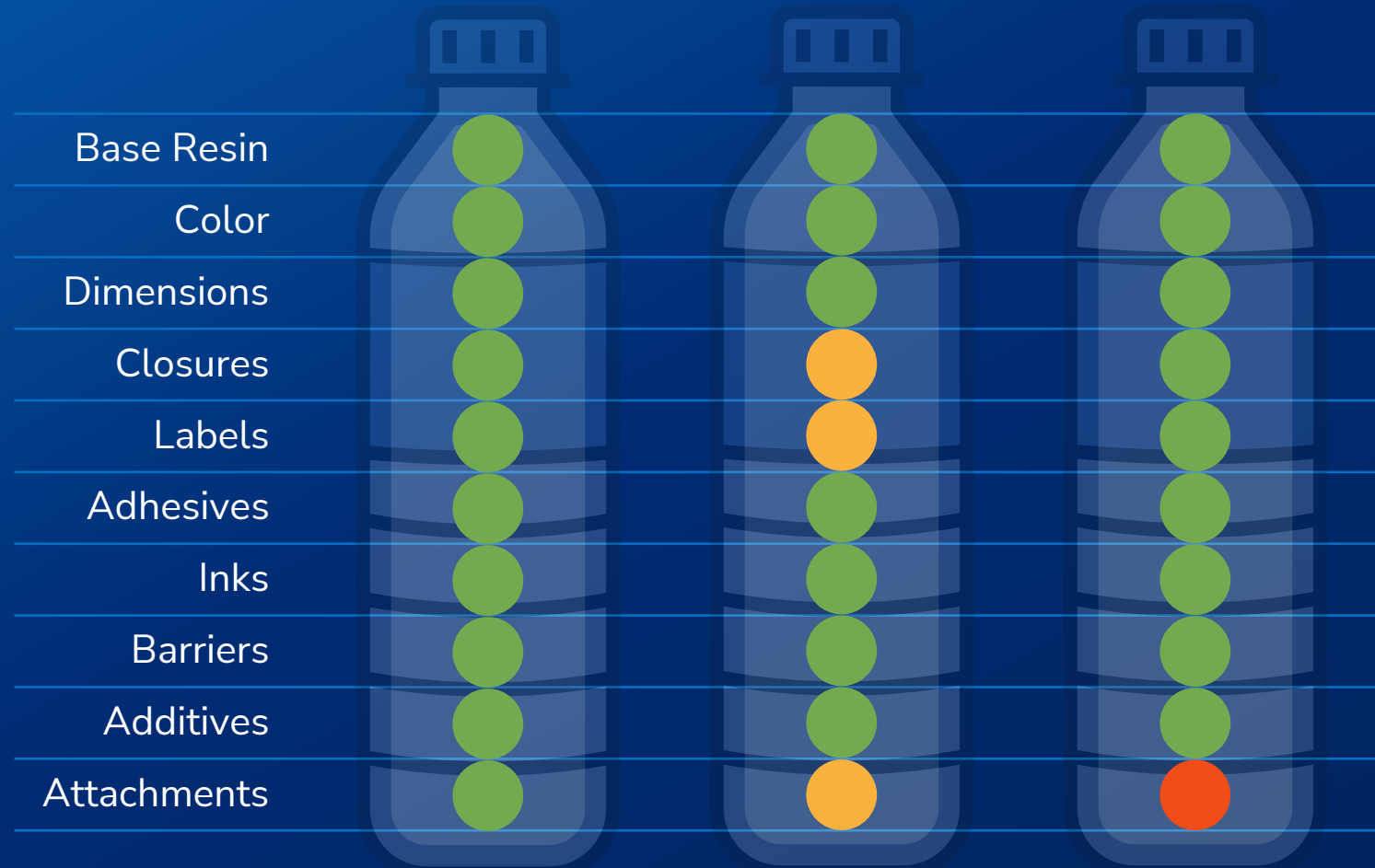
- ✓ Guidelines created transparently by **recyclers and packaging experts**, based in scientific research.
- ✓ Widely recognized as the **authority on how to design plastic packaging for recyclability** in North America and required for compliance with California's SB343 and SB54 laws.



Design Features Drive Whole Package Assessment

Design Features

Design features are classified according to the APR Recyclability Categories or test results where testing is required.



Whole Package Assessment



WHY IS APR PREFERRED DESIGN IMPORTANT?

APR distinguishes between **Preferred** and **Detrimental** design components.

Preferred Design for Recycling supports a strong recycling system that provides the most and highest quality recycled content back to domestic manufacturers.

Preferred:
recyclable with
maximum
quality and
yield

Detrimental:
recyclable
but reduces
yield and/or
quality



DESIGN FEATURES THAT MAKE PACKAGING NON-RECYCLABLE



Small formats



Dark colors



Large labels



Metals: lids, springs, labels etc.



PVC



PACKAGING EPR IS ESSENTIAL TO IMPROVING PLASTICS RECYCLING



HOW US PACKAGING EPR WILL IMPROVE PLASTICS RECYCLING

REQUIRED

- More plastics collected for recycling
- Higher recycling rates
- Better consumer education
- Increased recycling services
- Data and reporting

LIKELY

- Incentives for design standards
- Investments in end markets
- Stakeholder coordination
- More formats readily recycled

POSSIBLE

- Product labeling
- More refill/reuse packaging

EPR PRIORITIES TO IMPROVE PLASTICS RECYCLING

- ✓ Harmonization with other states to keep costs lower and drive packaging changes
- ✓ Timelines & goals that allow for packaging design changes and capital investments
- ✓ Producers report data, set metrics to improve packaging design
- ✓ Set base fees & ecomodulation fees high enough to drive improvements
- ✓ Metrics to reduce contamination, improve recovery at MRFs
- ✓ Specific budget allocation for developing, improving end markets in North America
- ✓ Complementary policies including mandatory recycled content for plastics



RECYCLED CONTENT MANDATES CLOSE THE LOOP

EPR will collect more plastics for recycling.



Keeps plastics out of landfills & environment.



Recycled content laws ensure companies make products from recycled plastic.



Reduces production of new virgin plastic.

HOW EPR FEES CAN INFLUENCE PRODUCT DESIGN

- Base fees are lower for more recyclable formats. This is a good start.
- But base fees do not yet address design elements within a category.
 - PET bottles with non-recyclable labels pay the same fee as well-designed bottle.
 - Ecomodulation for design components still in early days
- Bonuses must be high enough to overcome cost to change design.
- Align with other states to amplify consistent price signals.

Oregon EPR Packaging Fees, July 2025

Packaging format	Fee
Clear PET bottles	12 cents/lb
Colored PET bottles	52 cents/lb
PVC rigids	82 cents/lb



POTENTIAL FUTURE TOPICS ON PLASTICS RECYCLING



How packaging design can be improved for recyclability & the barriers to changes



Understanding the benefits and risks of physical recycling, depolymerization, pyrolysis, and more



How to measure recycled content, including mass balance accounting



Responsible end market regulations



Film & flexible plastics recycling opportunities and challenges

TAKEAWAY MESSAGES



Recycling is an essential part of comprehensive strategy to reduce plastic waste.



EPR is needed to collect more plastics for recycling and can significantly improve plastics recycling.



Design standards are well-established for plastic packaging. EPR can help push design changes.



More policies are needed to increase the use of recycled plastic in new products.

COMMON QUESTIONS

- **Are the plastics I put in my bin actually recycled?**
 - Yes, if you put the correct packaging in the bin. For example, 85% of the PET bottles collected for recycling are turned back into new products.
- **Are most plastics exported for recycling?**
 - No. Over 93% of the plastics collected for recycling in the US are recycled here in North America. The US greatly reduced exports of plastic since the mid 2010s and reinvested in domestic recycling.
- **Can plastics be recycled more than once?**
 - Yes, plastics can be recycled multiple times. For example, PET bottles are most commonly made back into new PET bottles, which can then be recycled again.
- **Are recyclers a major source of microplastics?**
 - No. There was one study of microplastics from a UK recycler based on untreated wastewater which is not standard practice. Onsite filtration reduces dissolved solids by 68% and wastewater treatment plants can reduce solids by 98%.
- **Are there safeguards on chemical additives in recycled plastics?**
 - Yes, the US FDA oversees the use of additives in both virgin and recycled plastics.





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Discussion & thank you!

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