



Eureka Recycling's mission is to demonstrate that waste is preventable, not inevitable.

Eureka Recycling's Zero Waste Lab™



Identifying,
Understanding and
Overcoming obstacles to
Zero Waste

[Visit our Booth!!!](#)

Which Post Consumer Plastics can *Really* be Recycled?

- Human health impacts of products
- Human health and environmental impacts of recycling
- Technically Feasible to Recycle into New Product
- Composite Packaging → Difficulty to Separate
- Stable end markets (more than 1)
- Feasibility of specifications for recycling markets
- Economics of collection, sorting, transportation, and processing
- Ability to Recycle Again



Plastics Markets are Evolving

- **China's Green Fence** →
- Higher quality standards for exports to China
- More market development in the United States
- MRFs need to adjust to meet quality specifications
- New markets without transparency appearing in other parts of Asia (India, Cambodia, Vietnam etc)



Plastics with Steady Longer Term Markets for Post Consumer : #1 and #2 Bottles

These types of plastics have relatively steady recycling markets and relatively low health concerns, when compared with other plastics.



Post Consumer Plastics Show Stable Markets: #1 and #2 non bottles, #4 containers, & #5 containers

Markets for these plastics are growing and increasingly stable and relatively low health concerns, when compared with other plastics.



Issues with Black Plastic

- A technical issue- changing quickly as the industry responds
- Black plastic food packaging is mostly #1 and #5, with some #6/ other
- A year ago- market specs all said no black plastic because their optical sorters could not identify the resin type because of the dark color.
- New methods developed to separate the #1's from the #5's:
 - New optical sorters that can separate black plastic (expensive)
 - Float/ sink
 - Hand sorting shiny vs matte black plastic



Issues with #3: PVC/Vinyl

- A toxicity issue—PVC is commonly referred to as “the poison plastic”
- The production, use, and disposal of vinyl have been linked to:
 - reproductive abnormalities
 - damage to the immune and neurological systems
 - hormone disruption
 - infertility
 - cancer
- Technically recyclable, but no viable markets
- We need to ban or phase out #3 plastics, NOT develop markets



Issues with #4: LDPE

A sorting issue:

- #4 containers are a tiny percentage of the stream- not enough to feasibly collect and sell separately at a MRF level.
- Bags are a huge contamination issue at most MRFs- they get wound around equipment and contaminate other materials.



OR



Issues with #6: PS & EPS

- Many issues: pollution, toxicity, sorting challenges, lack of recycling markets
- Lightweight packaging easily becomes litter
 - contributes disproportionately to plastics in oceans, lakes, and rivers
 - EPS breaks apart and is eaten by animals who mistake it for food
 - Litter cleanup is expensive because it breaks into tiny pieces
- Styrene is a known animal carcinogen and a suspected human carcinogen—100% of Americans have styrene in our bodies
- No viable markets—one of the most costly and difficult plastics to recycle
- We need to ban or phase out this plastic, NOT develop recycling markets



Issues with #7: “Other”

- A sorting issue:
 - Some can be recycled along with #1, #2, or #5
 - Some are compostable plastics—contaminate recycling
 - For others, quantities are too small for recycling to be feasible
- Also, health concerns with BPA, found in some #7 polycarbonate plastics.



Plastics Recycling Overview



PETE
Polyethylene
Terephthalate



HDPE
High Density
Polyethylene



V
Polyvinyl
Chloride



LDPE
Low Density
Polyethylene



PP
Polypropylene



PS
Polystyrene



OTHER
Other Resins

Packaging types within each resin category

Toxicity

Markets

New Recycling Labels from the Sustainable Packaging Coalition

Example for Frozen Food Package

The Recyclability Icon
Indicates the recyclability of the packaging component

Special Instructions
Specific directions for the consumer to ensure successful recycling

Packaging Material
Identifies the material type of the packaging component

Packaging Component
The specific part of the package referenced by the label

Program Website
Provides resources and information on the label, local recyclability and proper recycling

PAPER BOX	PLASTIC COVER	PLASTIC TRAY

Rinse Before Recycling

how2recycle.info

***Not recycled in all communities**



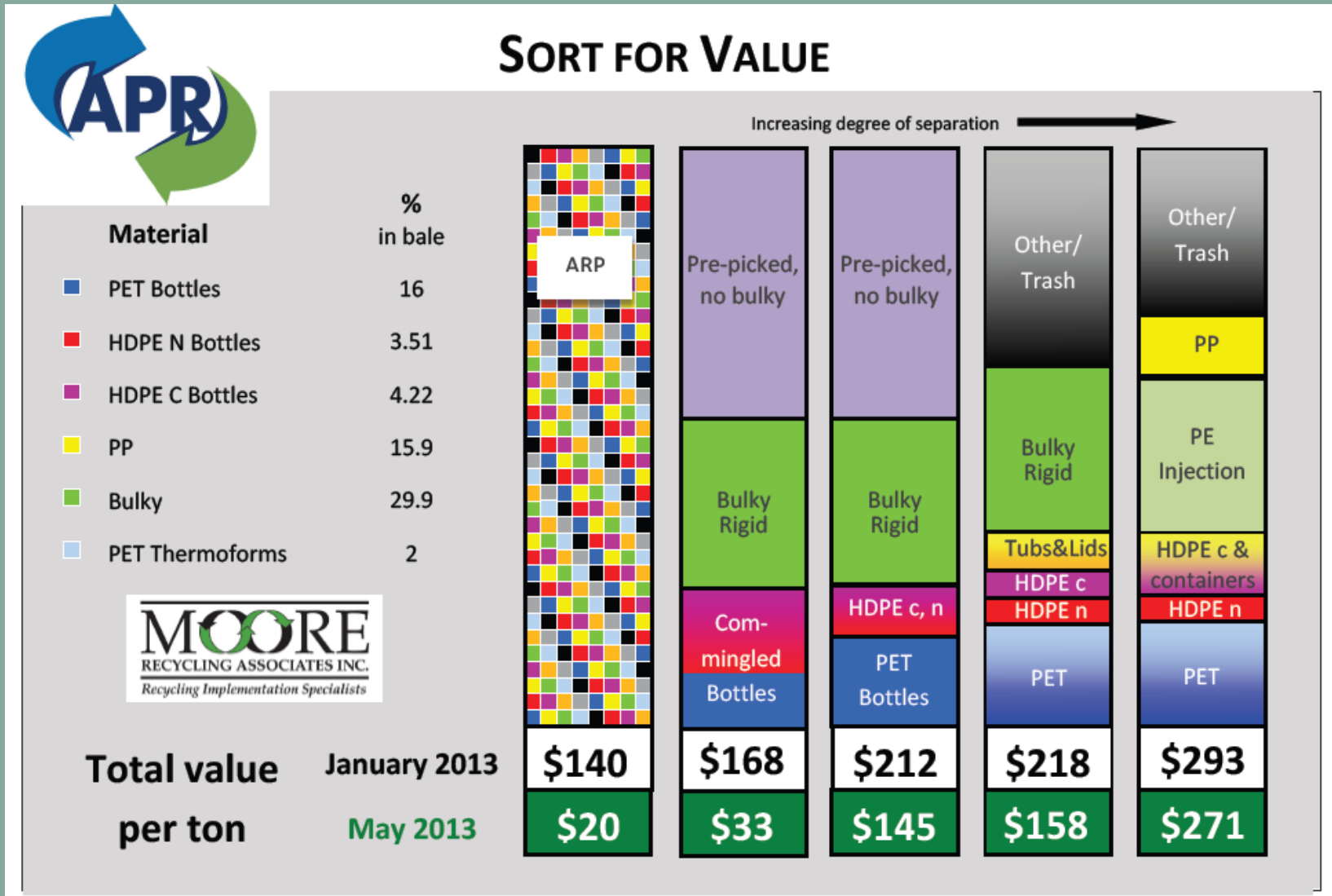
With this much variety, how can we sort plastics to (really) recycle as much as possible?

Current market specs:

- #1 PETE Bottles
- #2 HDPE color bottles
- #2 HDPE natural bottles
- #5 Polypropylene
- Tubs and Lids (#2, #4, & #5)
- Bulky Rigids
- Pre-Picked (#3-#7)
- All Rigid Plastic (#1-#7)



With this much variety, how can we sort plastics to (really) recycle as much as possible?



The Role of Recycling Education

It is critical to tell the truth—#3 and #6 plastics cannot be recycled.



VS

If we don't tell residents about the complications of plastics recycling, we create the image that all plastics are sustainable choices because they can be "recycled".



Most Plastic Food & Beverage Containers

empty, rinse, flatten, put caps or lids back on if you can

no ♻️ or ♻️ plastics

The Role of the Zero Waste Lab and Extended Producer Responsibility

Design, Design, Design

Feedback loops and incentives for recyclability in design



***Come Visit Our Booth to Learn about Our
Zero Waste Lab***

**We're working towards a waste-free
tomorrow.....*join us!***

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www.eurekarecycling.org