Plastic Recycling
A Snapshot on Markets, Technology, and Trends

Keefe Harrison, Director of Communications

Liz Bedard, Director of Rigid Recyclers Recycling Development

The Association of Postconsumer Plastic Recyclers
Key Terms For Today

PCR – Post Consumer Resin
Recycler/Reclaimer/Reprocessor – Companies who turn post consumer/industrial material into manufacturing material

Flake – After material is collected, it’s ground into flake. Cleaned.

Pellet – Generally PCR is converted to pellet for use as a manufacturing feedstock.

Resin Identification Codes
1 = PETE (polyethylene terephthalate)
2 = HDPE (high density polyethylene)
3 = V (vinyl)
4 = LDPE (low density polyethylene)
5 = PP (polypropylene)
6 = PS (polystyrene)
7 = Other/mixed plastics

Current Market Trends

• Supply, supply, supply.
• Plastics Recycling Industry has invested in:
  – Technology
  – Flexibility
  – Growth potential
• Capacity is exponential. More lines, more shifts, more material.

The Association of Postconsumer Plastic Recyclers
Example: Technology

Envision Plastics

The Association of Postconsumer Plastic Recyclers
Example: Flexibility
Example: Growth Potential

Introducing KW’s ALLPlastic Container

Superior Packaging with Built-In Savings

Talk to KW Container about superior container performance. Tell to KW Container about a recycling program for
your used containers. We'll buy your used containers and process them into new products.

Talk about savings...
Talk to KW Container.

(334) 566-5163 • (800) 633-6744 • www.kwplastics.com
Factors Influencing PCR

• Increased demand for PCR. Why?
  – Good, clean feedstock.
  – Increasingly affordable.
  – Consumer demand.
  – Legislation to support and expand markets, infrastructure, use of PCR.
Mapping Demand for PCR

- Southeast Recycling Development Council
- 60 companies that look to recycled plastic feedstock
- Need for Glass, Aluminum, Paper, Plastic, Steel in the Southeast: More than 206 companies depend on recycled feedstock. They employ over 47,525 people and see a tax revenue exceeding $29.4 billion

www.serdc.org
The Growth of Rigid, Non-Bottle Recycling

• Tubs & lids
• Caps
• Buckets
• The wide, wild world of plastics…
Ongoing Work to Grow Domestic Recycling Options

• Bale audit: What is currently being recycled? How much is available to be recycled? Growth potential
• Bale specs: Establishing consistency so the market can plan, grow. Strong partnerships with MRFs to ensure adoption.
• Target material sources: Grocery stores. Approximately 354 million pounds per year generated. Of that, 212 million pounds/year is deemed “easily recoverable.”
  – Two predominant resin types HDPE: 30 to 55%, PP: 45 to 70%
Polypropylene

- Blow molded: Containers
- Injection molded: Caps, lids
- End uses: Auto parts, bottles/containers, ag applications, growing move towards HDPE-type applications
HDPE

- Blow molded – Detergent, milk jugs
- End uses: Pipe, bottles, playground equipment, blended for film, buckets
- Growing recovery efforts for rigid non-bottle containers
- Grocery stores example untapped potential
PET, Growth in Non-Bottle Packaging

- Blow mold: the soda bottle
- Also thermoforms (salad trays)
- End uses: Bottles, carpet, fiber fill, strapping, thermoform sheet
- Can it be mixed?
Understanding Film

- LDPE, LLDPE & HDPE
- Blended per use
- LLDPE is the most stretchable & strongest but similar properties can be achieved through clever blending
- LDPE is also used for containers, 6-pack rings, flexible applications
- Collection tends to be industry based – not consumer level.
Polystyrene

- What’s the problem with styrene?
  - Full of air
  - Full of grease
  - Not a good curb-side commodity
- Industrial applications ensure clean, dense loads.
- Example: Rooms to Go, Avangard Innovative, Houston, TX
Other Plastic Trends - Biobased

- Bioplastics – Plastics made from plant material. Rayon is a bioplastic as is cellulose acetate in cigarette filters. Some plastics are made entirely from plant materials, others could have plants as some of the raw materials.
  - Coke Plant Bottle – Test show that it can be recycled with PET resin.
- PLA - Polylactic Acid Resin. Based on lactic acid, from corn or sugar cane. Essentially, another thermoplastic, like PET, polyethylene, PVC, polypropylene, and polystyrene.
  - PLA is not an additive, it is a material type.
Degradable Additives

- Oxo-Degradable Additives – Catalytic – chemical process.
  - Triggered by light/heat/flexing. Degradation is throughout the plastic. Once started, the catalytic degradation process continues. Fragments available to microbial attack.

  - Triggered by microbial environment. Not starch.
  - Degradation can be very slow, decades.
Degradable Additives

- We cannot machine-identify when a bottle has additives present – all become suspect.
- If the additives do their job, the plastic item will ‘fall apart’. The question is when?
- Recycled plastic is often used to make durable goods that need to last a long time (carpet) and can be exposed to weather and microbial environments (strapping and pipe).
- Who is liable when recycled plastic underperforms when containing degradable additives?
- There is no sustainability with respect to plastic packaging without recycling. There is no such thing as a plastic so “green” that it can just be thrown away. - Mike Schedler, NAPCOR

The Association of Postconsumer Plastic Recyclers
Few Words on Export

• Pulls material from domestic need
• Has been used as easy fix to collection confusion but that is changing
• Increased demand expected domestically and abroad
What’s Next?

• This industry has made a significant investment in collection, processing, placement infrastructure.
• Creative problem solving is our specialty.
• We’re ready to grow, change, partner.
• Consistent quantity = opportunity.
• Supply, supply, supply.
For More Information

- APR Members - [http://plasticsrecycling.org/membership-information/member-profiles](http://plasticsrecycling.org/membership-information/member-profiles)
Questions?

Keefe Harrison
keefe@plasticsrecycling.org
864.222.2997

Liz Bedard
ebedard18@gmail.com
603.528.1896

www.plasticsrecycling.org