Expanding Opportunities with #3 - #7 Plastics Recycling

The Association of Postconsumer Plastic Recyclers
Can you hear me now?

You should now hear the presenters.
Computer audio not coming through?
Use the dial in number

Questions? Use the Q & A feature.
Today’s Presenters

Kara Pochiro
APR Communications
Director

Liz Bedard
APR Rigid Plastics
Recycling Program
Director

Mary McClellan
ReCommunity

Susan Albritton
Sunoco
Recycling

Dave Bellon
QRS
Recycling

Patty Moore
Moore Recycling
Associates

The Association of Postconsumer Plastic Recyclers
”Expanding Opportunities in #3-7 Plastics Recycling”

Association of Postconsumer Plastic Recyclers (APR)

• National trade association - “The Voice of Plastic Recycling”

• Represents over 90% of the post-consumer plastic processing capacity in North America.

APR’s overall goal is to increase the amount of plastic material recycled in North America.
APR goals include:

- Increasing supply of recycled plastics
- Reducing contamination for plastic recyclers
- Developing plastic “Design for Recyclability” protocols
- Recognizing packages designed for recycling
- Highlighting products made from recycled plastic material
- Increasing plastic recycling beyond bottles
“Expanding Opportunities in #3-7 Plastics Recycling”

• Communications Committee
  • Support the APR’s commitment to enhanced messaging and extending the APR brand
  • APR website, press releases, web seminars, educational pieces

• PET Technical Committee & Olefin Technical Committee
  • APR Design Guides
  • Critical Guidance
  • Recognition Programs

• Rigid Committee
  • Plastic Recycling beyond Bottles
“Expanding Opportunities in #3-7 Plastics Recycling”

APR Rigid Plastics Recycling Program

Membership committee representing 36 rigid plastic stakeholders –

- generators, collectors
- recyclers, reclaimers
- brand names companies
- resin producers
- public policy makers

Goal – increase plastic recycling beyond bottles
"Expanding Opportunities in #3-7 Plastics Recycling"

Over the last five years, plastic collection has changed

(Source – APR Annual “Each State’s Largest City” Plastic Collection)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All Containers</td>
<td>16</td>
<td>24</td>
<td>27</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>Bottles Only</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Containers (w/ some exceptions)</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>TOTALS</td>
<td>30</td>
<td>35*</td>
<td>38*</td>
<td>44*</td>
<td>44*</td>
</tr>
</tbody>
</table>

(Source: APR Annual “Each State’s Largest City” Plastic Collection)
“Expanding Opportunities in #3-7 Plastics Recycling”

APR Rigid Plastic Recycling Committee

Non-bottle rigid plastics model bale specifications

Goals–

1. Simplifying communication - generators & reclaimers.

2. “Building Better Bales”
"Building Better Bales"

**APR Model Bale Specifications**

Four Types of Rigid Plastics Model Bale Specs

<table>
<thead>
<tr>
<th></th>
<th>PET/HDPE Bottles</th>
<th>#3-7 Bottles</th>
<th>Non-bottle Containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All Rigid Plastics (with or without Bulky)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Pre-Picked Rigids (with or without Bulky)</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>3. Tubs &amp; Lids (with or without Bulky)</td>
<td>HDPE only</td>
<td>PE and PP only</td>
<td>PE and PP only</td>
</tr>
<tr>
<td>4. Bulky Rigids</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Association of Postconsumer Plastic Recyclers
In response to China’s Green Fence Policy

Visually illustrates economic benefit of additional sorting

Working matrix developed based on historic pricing of MRF generated plastics

APR members surveyed for January & May 2013 pricing on a variety of plastic bale types
"Expanding Opportunities in #3-7 Plastics Recycling"

**Sort for Value**

<table>
<thead>
<tr>
<th>Material</th>
<th>% in bale</th>
<th>January 2013 Value</th>
<th>May 2013 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PET Bottles</td>
<td>16</td>
<td>$140</td>
<td>$20</td>
</tr>
<tr>
<td>HDPE N Bottles</td>
<td>3.51</td>
<td>$168</td>
<td>$33</td>
</tr>
<tr>
<td>HDPE C Bottles</td>
<td>4.22</td>
<td>$212</td>
<td>$145</td>
</tr>
<tr>
<td>PP</td>
<td>15.9</td>
<td>$218</td>
<td>$158</td>
</tr>
<tr>
<td>Bulky</td>
<td>29.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PET Thermoforms</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Value per ton**

- **January 2013**: $140
- **May 2013**: $271

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**The Association of Postconsumer Plastic Recyclers**
"Expanding Opportunities in #3-7 Plastics Recycling"

Sort for Value Matrix – On-line w/updated Market Pricing

• On-line, user controlled

• User can explore financial benefit of various sorting combination of postconsumer plastics

• User can input own scrap values & disposal costs OR use default values
“Expanding Opportunities in #3-7 Plastics Recycling”

Other Activities –

- Thermoform Recycling Subcommittee
- Polypropylene Market Development Subcommittee
Taking on the #3-#7 Plastics Challenge
Please complete our survey for a CHANCE TO WIN $50!

The City of Greensboro would like to learn more about your thoughts and behaviors about recycling because we want to improve our recycling program. The purpose of this survey is to identify why people don't recycle so that we can work together to overcome those things.

For the following, please indicate whether you perform the specified action on the following scale:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Always</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I recycle at home</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I recycle at work</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I try to recycle when away from home and work—shopping, at sporting events, etc.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I encourage my friends, neighbors, or coworkers to recycle</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I remember to recycle</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

For the following, please indicate the degree to which you agree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My household is properly organized for recycling</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Recycling is dirty, gross, or smells bad</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Recycling takes too much time</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Items that I recycle will just end up in the landfill anyway</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Recycling is not worth the extra effort</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>The recycling program is too expensive for the City</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I never think about recycling when I'm trying to throw something out</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I don't know what items can be recycled</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Protecting the environment isn't important to me</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Recycling doesn't have any real impact on the environment</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>What happens to my garbage is not my responsibility</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>I don't have enough space to store my recycling</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

Please indicate your level of satisfaction with the following services:

<table>
<thead>
<tr>
<th>Service</th>
<th>Highly Satisfied</th>
<th>Moderately Satisfied</th>
<th>Neutral</th>
<th>Moderately Dissatisfied</th>
<th>Highly Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trash Collection</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Recycling Program</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Every Other Week Recycling Service</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Yard Waste Collection</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>Overall Service</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

Please indicate the best response below:

Heavy Recycler | Moderate Recycler | Light Recycler | Never recycle

My household would be BEST classified as:

- ☐ Heavy Recycler
- ☐ Moderate Recycler
- ☐ Light Recycler
- ☐ Never recycle

What is THE BEST OF YOUR KNOWLEDGE, which of the following materials are ACCEPTABLE to be placed in your recycling container?

(Choose all that apply)

Glass bottles | ☐ | ☐ | ☐ | ☐ | ☐ |
Cloth | ☐ | ☐ | ☐ | ☐ | ☐ |
Yard Waste | ☐ | ☐ | ☐ | ☐ | ☐ |
Paper towels, tissues | ☐ | ☐ | ☐ | ☐ | ☐ |
Plastic Bag | ☐ | ☐ | ☐ | ☐ | ☐ |
Plastic #1-2 | ☐ | ☐ | ☐ | ☐ | ☐ |
Plastic #3-7 | ☐ | ☐ | ☐ | ☐ | ☐ |
Food Waste | ☐ | ☐ | ☐ | ☐ | ☐ |
Tires | ☐ | ☐ | ☐ | ☐ | ☐ |
Non-recyclable items | ☐ | ☐ | ☐ | ☐ | ☐ |
Office and school paper, just mail | ☐ | ☐ | ☐ | ☐ | ☐ |
Newspaper, magazines, catalogs | ☐ | ☐ | ☐ | ☐ | ☐ |
Aerosol Cans (empty) | ☐ | ☐ | ☐ | ☐ | ☐ |
Empty motor oil bottles | ☐ | ☐ | ☐ | ☐ | ☐ |

On my service day, my recycling can is usually:

- ☐ Overfull, some recyclable items may not get in
- ☐ Between 3/4 and completely full
- ☐ Between 2/3 and 3/4 full
- ☐ Between 1/2 and 2/3 full
- ☐ Between 1/3 and 1/2 full
- ☐ Very little in the can, I don’t put it out every service day
- ☐ I don’t recycle

A. What information sources do you use regularly for news about the City of Greensboro and its services? CHECK ALL THAT APPLY

- ☐ TV
- ☐ Radio
- ☐ Internet
- ☐ Newspaper
- ☐ Social media (Facebook, Twitter, etc)

B. Thinking about the information sources you use, which ONE source do you consider to be the most reliable? CHECK ONE ONLY

- ☐ TV
- ☐ Radio
- ☐ Internet
- ☐ Newspaper
- ☐ Social media (Facebook, Twitter, etc)

Personal Information (optional, but needed to award gift card)

- Name
- Street Address
- City:
- Zip:
- Phone:

If you have any comments or suggestions regarding the City’s recycling program, please write them below:

Thank you for completing this survey. Completed surveys can be mailed with your current water bill payment, or mailed separately to:

Recycling Survey
PO Box 3130
Greensboro, NC 27402-3130

All completed surveys postmarked by 2/19/2014 will be entered into a random drawing for one of five Visa gift cards valued at $50.
A Big Caveat
“C” Average
<table>
<thead>
<tr>
<th>Material</th>
<th>Percent</th>
<th>Percent Correct</th>
<th>Grade</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardboard</td>
<td>95.56%</td>
<td>95.56%</td>
<td>A</td>
<td>8,062</td>
</tr>
<tr>
<td>Glass Bottles</td>
<td>94.60%</td>
<td>94.60%</td>
<td>A</td>
<td>7,981</td>
</tr>
<tr>
<td>Newspaper, Magazines, Catalogs</td>
<td>94.54%</td>
<td>94.54%</td>
<td>A</td>
<td>7,976</td>
</tr>
<tr>
<td>Aluminum Cans</td>
<td>93.23%</td>
<td>93.23%</td>
<td>A</td>
<td>7,866</td>
</tr>
<tr>
<td>Chipboard (Cereal Boxes, etc)</td>
<td>86.57%</td>
<td>86.57%</td>
<td>B</td>
<td>7,304</td>
</tr>
<tr>
<td>Office and School Paper, Junk Mail</td>
<td>80.61%</td>
<td>80.61%</td>
<td>C</td>
<td>6,801</td>
</tr>
<tr>
<td>Steel/ Tin Cans</td>
<td>78.61%</td>
<td>78.61%</td>
<td>C</td>
<td>6,632</td>
</tr>
<tr>
<td>Milk &amp; Juice Cartons</td>
<td>75.23%</td>
<td>75.23%</td>
<td>C</td>
<td>6,347</td>
</tr>
<tr>
<td>Plastics #3-7</td>
<td>72.73%</td>
<td>72.73%</td>
<td>D</td>
<td>6,136</td>
</tr>
<tr>
<td>Plastics #1-2</td>
<td>63.59%</td>
<td>63.59%</td>
<td>F</td>
<td>5,365</td>
</tr>
<tr>
<td>Pizza Boxes</td>
<td>59.94%</td>
<td>59.94%</td>
<td>F</td>
<td>5,057</td>
</tr>
<tr>
<td>Aluminum Foil &amp; Pie Pans</td>
<td>52.93%</td>
<td>52.93%</td>
<td>F</td>
<td>4,466</td>
</tr>
<tr>
<td>Aerosol Cans (empty)</td>
<td>45.41%</td>
<td>45.41%</td>
<td>F</td>
<td>3,831</td>
</tr>
<tr>
<td>Plastic Bags</td>
<td>26.11%</td>
<td>73.89%</td>
<td>D</td>
<td>2,203</td>
</tr>
<tr>
<td>Paper Towels, Tissues</td>
<td>25.02%</td>
<td>74.98%</td>
<td>C</td>
<td>2,111</td>
</tr>
<tr>
<td>Styrofoam</td>
<td>20.23%</td>
<td>79.77%</td>
<td>C</td>
<td>1,707</td>
</tr>
<tr>
<td>Empty Motor Oil Bottles</td>
<td>8.92%</td>
<td>91.08%</td>
<td>B</td>
<td>753</td>
</tr>
<tr>
<td>Yard Waste</td>
<td>4.39%</td>
<td>95.61%</td>
<td>A</td>
<td>370</td>
</tr>
<tr>
<td>Tires, Rubber</td>
<td>3.54%</td>
<td>96.46%</td>
<td>A</td>
<td>299</td>
</tr>
<tr>
<td>Clothes</td>
<td>3.12%</td>
<td>96.88%</td>
<td>A</td>
<td>263</td>
</tr>
<tr>
<td>Food Waste</td>
<td>1.26%</td>
<td>98.74%</td>
<td>A</td>
<td>106</td>
</tr>
<tr>
<td><strong>OVERALL</strong></td>
<td><strong>81.00%</strong></td>
<td></td>
<td><strong>C</strong></td>
<td></td>
</tr>
</tbody>
</table>
Attitudes about recycling

“I want to recycle _X_, why can’t you take it?”

“When are you going to let me recycle _X_?”

“I think _X_ should be recycled, so I recycle it even though I’m not sure.”

“They’ll just sort it out if I put in something wrong.”

“We aren’t recycling ALL THE PLASTIC we could.”

“More, more, more!”
“I DON'T KNOW WHAT PLASTICS # 1-7 MEAN”
“I can't recall the numbers on plastic containers, usually I check before recycling.”
“I continue to have problems deciding what plastic items are recyclable.”
“I'VE READ THAT THE PLASTIC #S ARE MOSTLY MEANINGLESS SO I TRY TO USE COMMON SENSE.”
“CAN WE RECYCLE 3-7 PLASTICS? THAT WOULD BE AWESOME!”
“IT WOULD BE VERY HELPFUL IF THE NUMBERED TRIANGLE IS MUCH LARGER ESPECIALLY FOR OLDER PEOPLE.”
“*PLASTICS #3-7 (What does that mean?)”
“Please expand it to include 3-7 and all non-toxic plastics. We throw away more plastic than we have to.”
“I'M NOT ALWAYS SURE WHAT PLASTICS ARE ACCEPTABLE AND HOW CLEAN THEY NEED TO BE”
“Please expand it to include 3-7 and all non-toxic plastics. We throw away more plastic than we have to.”
“THE COKE {Give It Back} PROMOTION & MY MOTHER-IN-LAW CONFUSED ME ABOUT PLASTICS # 3-7.”
What’s wrong with the #1-#7 Message?
- Except for…We don’t REALLY mean that
- Bags, film and foam
- What number? What about #8 and #9?

What’s wrong with the All Plastic Containers message?
- Except for…We don’t REALLY mean that
- Number indoctrination of the past 30 years
- What’s a container? Is a bag a container? A Styrofoam take out box? Where does it end?
Bigger Challenges

- Giving Recyclers the Tools for Success
  - Getting service information to the user
  - Influencing the disposal decision
- Placing the message where it is most needed
  - On the cart
  - On the refrigerator
  - On the in-home recycling container
Focus on Solutions

- First step is admitting there’s a problem
- Taking steps to inform the community
  - Maintenance approach
  - Program rebrand; simple and strong plastic message
  - Adopting a tiered presentation of information
  - Direct marketing to residents is priority
  - Continue talking to community; focus groups, more surveys, focus on non-participants
- Measure changes
Thank You
A MRF Perspective.... Plastics

Susan Albritton
Sonoco Recycling
Quick Facts on Sonoco Recycling

- Supply division for Sonoco Products Company
- In SE US, 6 single stream MRFs, 20 commercial plants
- 3.5 million tons /yr – all commodities
- Sustainability services for Kraft, Unilever, P&G, and Boeing and others..

~10% of MRF streams is plastic by weight
~ 50% of Plastic stream is #1 & #2 the rest is.....
Plastics 1&2 or 1-7?

Top 100 US cities, 1-7 collection is increasing

- ~50% of that stream is #1& #2, followed by PCR, Presort Line Films and PL #3-7

- Recycling participants understand #1 & #2

- Many # 3-7 packages are not collected and recovered
Hardest to Recycle

# 3 Polyvinyl chloride commonly used in plastic pipes, shower curtains, medical tubing, dashboards, and baby bottle nipples

Chlorides

#4 Low density polyethylene used in films, grocery and bags

Contamination

#5 Polypropylene used in Tupperware, butter tubs, cat litter tubs

Critical Mass

# 6 Polystyrene coffee cups, cutlery, meat trays, packing “peanuts”

Collection

# 7 Other - Items crafted from various combinations of the aforementioned plastics or unique plastic formulations
Current State

Many of these materials are currently collected and marketed....
So what’s the problem?
Chicken or the egg

- No China Export
- Cost to create exceeds market
- Low volume
- Contamination
- Residential VS Industrial
Solutions

- Viable Optics
- PRF s
- Some Export
- WTE / WTG
- Landfill
The Challenge Ahead

- Continue to market and refine quality for core grades

- As an industry, we accept material that cannot be reclaimed today

- Based on 4 C’s – we do not have the technology to recover

- Volumes for critical mass needed

- Solutions are developing
The Challenge Ahead…

- Continues to provide best cost supply security
- Mitigates increased costs to Paper division
- Provides the best return on investment
- Can be supported with core organization
- Leverages impact of market forecast

Thank You!
Who We Are

Someone chosen for their ability to:

1. Founded in 1974
2. Industry Resource
3. PRFs in Louisville, Atlanta and... Baltimore
4. MRF in Louisville
5. Collaboration and Partnership
“ELP”

End of line plastics.
– “1s & 2s”
– “1-7’s”
– “Tubs & Lids”
– “3-7s”
– “3,6,7 and Blacks”
VALUE PRINCIPALS

1. Recycling can be capital intensive.
2. Maximize the return on your precious capital.
3. Does not necessarily mean 100% efficiency.
4. It does mean **volume**!
5. = Residuals
**Residuals = sellable commodity**

Treat them that way!
Value Killers for ELP

» Glass
» Fiber
» Organics
» Gravel
» Non-plastics
End of Line Plastics:

• Sellable commodity
  – Landfilling for a cost
    • vs
  – Potentially selling

❖ Simple Math = significant increase to your bottom line.
We can help!

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NON-BOTTLE RIGID PLASTIC UPDATE
OVERVIEW

Where we are…
Where we should be…
Barriers to overcome…
PET Thermoform

- Demand for bottles outpaces supply: US reclamation capacity growing
- Thermoforms may provide relief
Thermoform Packaging Recycling

Thermoforms (PET) → Intermediate processor/MRF → Bottles & thermoforms → Domestic reclaimer

Thermoforms (other resins) → Mixed rigid bales → PRF (6 in NA) → Export

Domestic end markets
PET Thermoforms in Bottle Bales are Increasing

Source: NAPCOR commissioned bale analyses, conducted by Moore Recycling Associates
Foam

- Domestic markets exist primarily for EPS, some PU (commercial)
- Collection is key: high volume, commercial or special collection
- EPS may work curbside: clear, easily identifiable
Non-Bottle Rigid Plastic

100 Most Populous Cities: Plastic Collection Programs

2008

2011

2013

All Bottles  Bottles & Containers  All Rigid Plastic
CHINA REGULATIONS

- Prohibit the importation of unprocessed scrap [1996]
- Technical Specifications for Pollution Control during Collection and Recycle of Waste Plastics [2007]
- AQSIQ regulation No. 119 [2009]
- Registration of foreign suppliers and domestic assignees

Green Fence: March 2013
Non-Bottle Rigid Plastic

- Domestic markets exist: primarily for olefin plastic [PE – PP]
Where We Should Be

Curbside: All Rigid Plastic, EPS?

Retail Drop-off: Film, Other

Special Collection: EPS, Electronics, Bulky Rigid, Other

Commercial: Rigid, Foam, Film
Where We Should Be

- Raw Material
- $ Investment
- Technology
- Profitable Products
Barriers to Overcome...

- Most scrap plastic is sold on a spot-market basis
- Incentives for MRFs to “divert” materials as inexpensively as possible coupled with their (past?) ability to export low-quality, mixed resin bales
- Lack of accepted standard terminology
Plastic Recycling
Public Education
Terms
For communities to use to more effectively communicate what plastics are accepted (and not)
BASE PROGRAM:
Main Categories ➔ Subcategories ➔ Definitions

+  

ADDITIONS

+  

OPTIONAL NOTES

+  

EXCLUSIONS

YOUR COMMUNITY’S PROGRAM
<table>
<thead>
<tr>
<th><strong>Base Program</strong></th>
<th><strong>ACCEPT</strong></th>
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<tbody>
<tr>
<td></td>
<td>- Plastic Bottles &amp; Containers</td>
</tr>
<tr>
<td></td>
<td>- Plastic Soda, Water and Other Drink Bottles</td>
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<tr>
<td></td>
<td>- Plastic Food and Household Bottles / Jars</td>
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<tr>
<td></td>
<td>- Plastic Tubs &amp; Lids</td>
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<tr>
<td></td>
<td>- Plastic Produce, Deli &amp; Bakery Containers, Cups, Trays</td>
</tr>
<tr>
<td></td>
<td>- Plastic Non-food Containers &amp; Packaging</td>
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</tbody>
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| **Additions** | **Plastic Bags, Wrap & Film** |

| **Notes** | Empty, flatten and put caps back on bottles / jars  |
|           | Rinse or wipe clean all food or other residue from bottles and containers  |
|           | Place all clean, dry bags and film inside another bag & tie off  |

<table>
<thead>
<tr>
<th><strong>Exclusions</strong></th>
<th><strong>DO NOT ACCEPT</strong></th>
</tr>
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<tbody>
<tr>
<td></td>
<td>- No Containers that held Hazardous Products</td>
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<tr>
<td></td>
<td>- No Plastic Marked Other (#7)</td>
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</tbody>
</table>
Plastic Recycling Commodity Terms

For both communities and the recycling industry to speak the same language and better track what is being recovered.
Recycling Tracking Categories, Resin Segregated Rigid Plastic

- PET Bottles
- PET Bottles & Thermoforms
- PET Thermoforms
- HDPE Bottles - Natural
- HDPE Bottles - Colored
- HDPE Bottles & Containers – Colored
- HDPE Bottles - Mixed Natural & Colored
- HDPE Bottles, Containers & Bulky
- HDPE Injection Grade (Buckets, Totes, Crates, Lawn Furniture, Carts, Storage Bins)
- PP Bottles
- PP Bottles & Container
- PP Bottles, Containers & Bulky
Recycling Tracking Categories, Mixed Resin Rigid Plastic

- PET & HDPE Bottles
- HDPE Bottles - Colored & PE/PP Containers
- Commingled Plastic Bottles (all plastic bottles)
- Tubs & Lids (PE & PP containers)
- PE/PP Bottles, Containers & Bulky (PE and PP bottles, containers and bulky items)

- Mixed Clamshells (PET, PS, PVC, PLA thermoformed containers: trays, cups, clamshells, clamshells, boxes)
- Bulky Rigid Plastic (Buckets, totes, crates, lawn furniture, carts, storage bins)
- Pre-picked Rigid Plastic: No Bulky (bottles and containers with PET & HDPE bottles removed)

- Pre-picked Rigid Plastic: with Bulky (all rigid plastic with PET and HDPE bottles removed)
- All Rigid Plastic: No Bulky (Mixed Bottles and Containers)
- All Rigid Plastic: with Bulky (all mixed rigid plastic, excludes film and foam)
Recycling Tracking Categories
Film & Foam

- MRF Film
- Mixed Retail Bags/Wraps Film
- EPS Blocks/Shapes (e.g., protective packaging, foam coolers)
- EPS Blocks/Shapes & Foam Food Service

* Not including commercial tracking categories as part of this project
Barriers to Overcome...

- Need for converter modifications to accommodate postconsumer resins, which tend to have less consistent properties
- Lack of adherence to Design for Recyclability Guidelines
Barriers to Overcome...

- PET Thermoform (other?) Issues
  - Look-alike containers
  - Size, shape
  - Labels, inks, glues

- APR: PlasticsRecycling.org
HOW TO USE THIS GUIDE

This APR Design for Recyclability Guidelines Executive Summary is a quick reference tool for bottle packaging designers. It is not intended to be exhaustive, rather it is designed to aid in the design process when considering the recyclability of a bottle or container.

→ For full guidelines and protocols, please refer to www.plasticsrecycling.org/technical-resources/apr-design-for-recyclability-guidelines.

→ Innovative designers should also consult the APR Critical Guidance as a next step for learning more. For more information visit the APR’s website at http://www.plasticsrecycling.org/technical-resources/critical-guidance.

- Caps and Closures
- Inks
- Labels
- Colorants
- Additives/Layers/Fillers

The Association of Postconsumer Plastic Recyclers
Barriers to Overcome...

- Unknown depth of demand
- Lack of realistic specifications for non-bottle PCR
The Future?

**Curbside:**
All Rigid Plastic, EPS?

**Retail Drop-off:**
Film, Other?

**Special Collection:**
EPS, Electronics, Bulky Rigid, Other?

**Commercial:**
Rigid, Foam, Film

**DFR Guidelines**
Clear, Achievable, Followed

**Infrastructure**
PRF Reclaim Plastic-to-Oil

**PCR Demand**
Strong

ALL PLASTIC IS RECYCLED!
Resources

PlasticsMarkets.org
  [Connect Suppliers and Buyers of All Types of Scrap Plastic]

PlasticFilmRecycling.org
  [Educate and Facilitate Film Recycling]

MooreRecycling.com
  [Publications]

PlasticsRecycling.org
  [Association of PostConsumer Plastic Recyclers]

RecycleMorePlastic.org
  [Resources to Grow the Recycling of All Types Plastic]
Questions?

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