

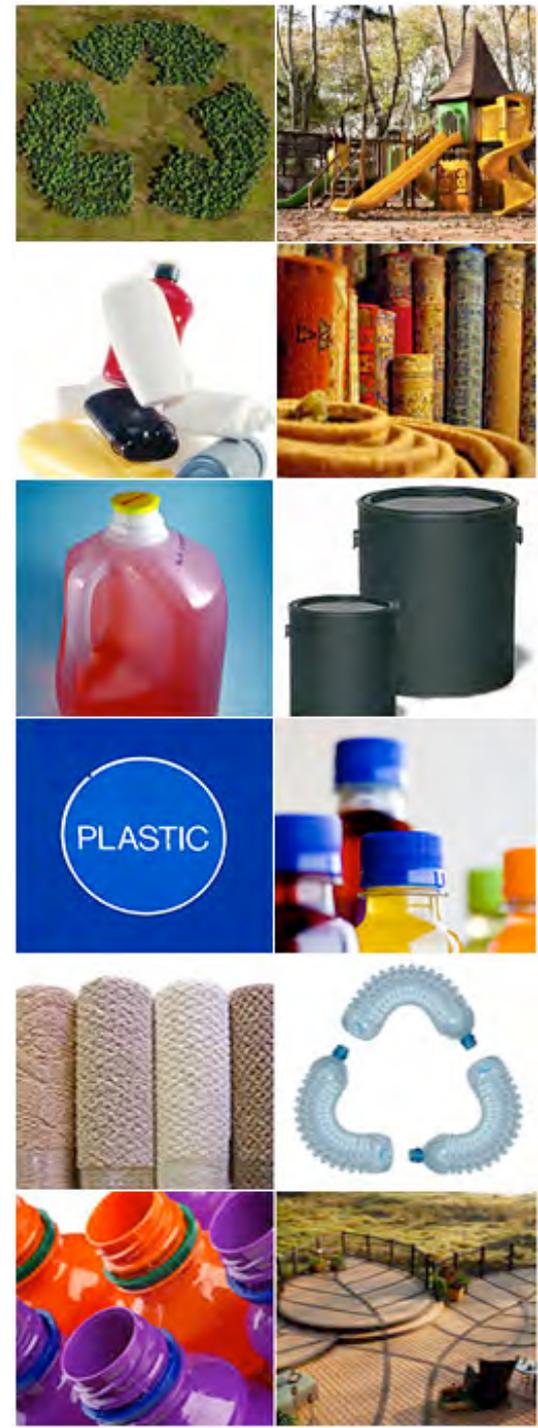
APR Rigid Plastics Recycling Program

Liz Bedard, Director



The Association of Postconsumer Plastic Recyclers

The voice of plastics recycling



APR Rigid Plastics Recycling Program

Association of Postconsumer Plastic Recyclers (APR)

- *National trade association -*

“The Voice of Plastic Recycling”

- *Representing companies with over 90% of the post-consumer plastic processing capacity in North America.*



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APR Rigid Plastics Recycling Program

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***



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APR Rigid Plastics Recycling Program

APR Rigid Plastics Recycling Program -
membership committee representing rigid plastic stakeholders –

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

**Goal – increase plastic recycling
beyond bottles**



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- American Chemistry Council
- Avangard
- Berry Plastics
- Blue Ridge Plastics
- Clean Tech Inc.
- ConAgra Foods
- Custom Polymers Inc
- Dart Container
- Denton Plastics
- Dow Chemical Company
- Entropex
- Envision Plastics
- Estee Lauder Companies, Inc.
- Graham Recycling Company
- Haycore Canada Inc.
- IntegriCo Composites
- Kimberly-Clark
- KW Plastics Recycling



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- Lyondell Basell Industries
- Merlin Plastics Supply Inc.
- Milliken & Company
- Moore Recycling
- MRC Polymers
- NAPCOR
- NatureWorks LLC
- New York City – Department of Sanitation
- North Carolina - Division of Pollution Prevention
- Oregon Department Of Environmental Quality
- Perpetual Recycling Solutions
- Procter & Gamble Company
- ReCommunity
- Recyc RPM
- Rehrig Logistics
- Starbucks Coffee Company
- Talco Plastics, Inc.
- Waste Management – Recycle America



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Milliken™



P&G
Procter & Gamble



lyondellbasell



ConAgra
Foods
Food you love



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APR Rigid Plastics Recycling Program

Rigids Committee has three focus areas:

1. *Up-to-date information*
2. *Supply Issues*
3. *Demand Issues*



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Municipal Plastic Recycling National Survey

- Conducted the last 4 years to get a “sense” of how and what plastics are being collected nationwide
- Each state’s largest city’s plastic collection resident education
- Completed in August/September
- Four trends are clear....
 - Single stream recycling increasing
 - Moving away from #1 and #2 only
 - Switching form “bottles only” to all containers
 - Moving towards collecting #1-7 plastic containers

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Municipal Plastic Recycling National Survey

	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
Single Stream	31	34	35	39
Dual Stream	8	7	7	4
Source Separated	1	1	1	3
Pilot Program(s)	2	1	1	0
Drop Off Only	1	3	3	1
Subscription	5	5	4	4
Total	48	51	51	51



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Municipal Plastic Recycling National Survey

<u>#1-2 Collection</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
All #1 & 2 Containers	8	5	4	2
#1 & 2 Bottles Only	10	10	8	4
TOTALS	18	15	12	6



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Municipal Plastic Recycling National Survey

<u>#1-7 COLLECTION</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
All #1-7 Containers	16	24	27	32
#1-7 Bottles Only	8	7	6	6
#1-7 Containers (w/ some exceptions)	6	4	5	6
TOTALS	30	35	38	44



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Rigid Plastics – Model Bale Specifications

- **Purpose:**
 1. Ease communication between generators and marketplace
 2. Industry wide accepted and used
- **Two model bale specifications already published – “Tubs & Lids” and “Bulky Rigids”**
- **Two model bale specifications in final stages**
- **APR/ISRI Task Force**



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Rigid Plastics – Model Bale Specifications

Four Types of Rigid Plastics Bales

	PET/HDPE Bottles	#3-7 Bottles	Non-bottle Containers
1. All Rigid Plastics (w/ or w/o Bulky)	X	X	X
2. Pre-picked Rigids (w/ or w/o Bulky)		X	X
3. Olefin /Tubs & Lids (w/ or w/o Bulky)	HDPE only	PE and PP only	PE and PP only
4. Bulky Rigids			



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APR Rigid Plastics Recycling Program

National Bale Audit, Market Destination & Supply Analysis for Rigid Plastics

The Issue.....

Verifiable data on rigid plastic bales composition and what plastic material is still available in the waste stream to be recycled.

The lack of this data could stymie expansion of non-bottle rigid plastics recycling.



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APR Rigid Plastics Recycling Program

National Bale Audit, Market Destination & Supply Analysis for Rigid Plastics

The Project.....

Sorted 50 bales from 3 US and 2 Canadian locations into 17 different categories and, using a wide range of data sources –

1. What are the types, volumes & destination of rigid plastics currently being recycling?
2. What is the type & tonnage of rigid plastics available for recycling?

Results available for purchase from the APR



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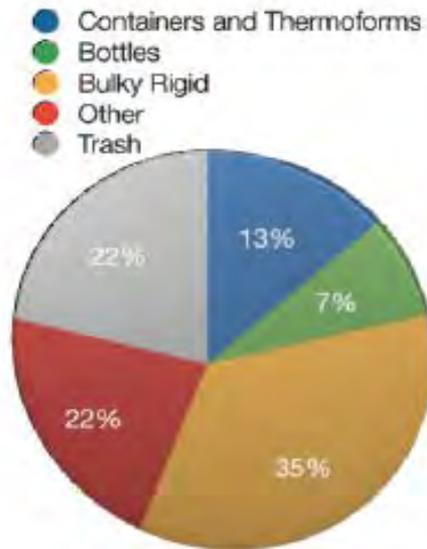
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APR Rigid Plastics Recycling Program

National Bale Audit, Market Destination & Supply Analysis for Rigid Plastics

Sort Results.....Pre-Picked Rigid Bales



Non-PET/HDPE Bottles, all household non-bottle containers (includes thermoform packaging, cups, trays, clamshells, food tubs) and all bulky rigid plastic



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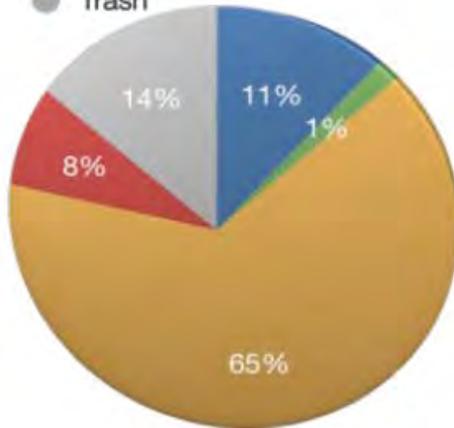


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National Bale Audit, Market Destination & Supply Analysis for Rigid Plastics

Sort Results.....Bulky Rigids Bales

- Containers and Thermoforms
- Bottles
- Bulky Rigid
- Other
- Trash



All bulky rigid plastic
(includes carts, crates, buckets,
baskets, toys, lawn furniture)



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Residential Bulky Rigid Plastic Collection Project

PROJECT FOCUS – Increase the collection of PP and HDPE

- **Municipalities and MRFs throughout North American – increased interest in residential bulky rigid plastics recycling.**
- **Rigids Committee’s Bale Audit – “Bulky Rigids Bales” Composition**
 - **Approximately 50% HDPE and 25% PP**
- **Researched lessons learned by those currently recycling residential bulky rigids.**



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Plastic Waste Study - Categories

#1 PET Bottles EBB
#1 PET Bottles BB
#1PET Food and Dairy Bottles and Jars
#2 HDPE Beverage Bottles EBB
#2 HDPE Beverage Bottles BB
HDPE Food and Dairy and Detergent
3 - 7 Bottles EBB
3 - 7 Bottles BB
3 - 7 Bottles Non
3 - 7 Bottles PP
Plastic Cups PET
Plastic Cups PP
Plastic Cups PS
Plastic Cups Keurig
Plastic Cups Other
Tubs and Lids PE
Tubs and Lids PP
Tubs and Lids PS
Tubs and Lids Other
Bulky Rigid >1 Gallons PE
Bulky Rigid >1 Gallons PP
Bulky Rigid >1 Gallons Other
Bulky Rigid >1 Gallons PE Buckets

Thermoforms PET
Thermoforms PS
Thermoforms PVC
Thermoforms PP
Thermoforms PLA
Thermoforms Other
Film, Retail Bags
Film, Other Bags
Film, Wrap
Film, Garbage
Film, Other
Film, Other Metalized
Ag Pots PE
Ag Pots PP
Ag Pots PS
Ag Pots Other
Pouches New
Pouches Old
Pouches Other
Other Plastic Blister
Other Plastic All Other
Bottles PLA
Tubs and Lids PLA
Thermoforms PLA



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APR Rigid Plastics Recycling Program

APR Recycled Resin Subcommittee

What is the demand and physical properties for recycled resins?

- ***“Fit for Use” Survey for Polypropylene***
- ***Brand Owners queried on their future polypropylene post consumer recycled resin (PP PCR) needs***
- ***Resulting data provides “demand side” information to potential PP PCR suppliers specifying***



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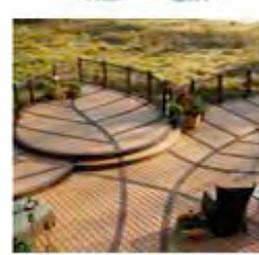


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APR Recycled Resin Subcommittee

Polypropylene PCR "Fit for Use" Survey

Typical applications	Melt Flow Index	Enter your application	Tonnage	Odor	Color	FDA Approved	Unique Criteria	Timeframe
			Potential PCR usage Pounds / Year	Is your application 'extremely' sensitive to malodor? 1) Yes 2) No more than typical	Which PCR color might you use? 1) Light color 2) Gray (Blend for darker colors) 3) Dark	Is FDA approval required? 1) Yes 2) No	What other performance criteria or concerns are applicable?	When might you use this PCR? 1) < 1 year 2) 1-3 years 3) 3-5 years



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APR Recycled Resin Subcommittee

Polypropylene PCR "Fit for Use" Survey

- 65 Brand Owners & Converters were surveyed - 22 responses
- Total identified demand ~ *1 billion pounds per year!*
 - All identified demand will occur within the next 3 years, with 100MM lbs. to occur in less than 1 year
 - At maturity, annual demand will be the equivalent to the capacity of two world scale PP plants and > 5% of total PP industry capacity



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Grocery Store Rigid Plastic Recycling

Phase 1:

1. Estimated annual volume & resin type of recyclable rigid plastics

- a. 354 million pounds annually
- b. Approximately 50% PP and 50% HDPE

2. Identified obstacles preventing future rigid plastics recycling

*Data gathered from five grocery chains,
representing stores from throughout US*



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Grocery Store Rigid Plastic Recycling

Phase 2: Pilot Programs

- ❖ “Best Operational Practices”
- ❖ Two national grocery store chains
(Representing approximately 8% of US stores)
- ❖ Pilots in one district for 12 - 16 weeks
- ❖ Model educational material
- ❖ Various handling and processing methods tested
- ❖ Some pharmaceutical material collected



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Grocery Store Rigid Plastic Recycling

Phase 2: Pilot Programs Results

1. Maximizing Volume –

-Stacking like size rigids is feasible, baling preferred

2. Minimizing costs –

-No additional employee time is needed to recycle rigids

3. Maximizing revenue –

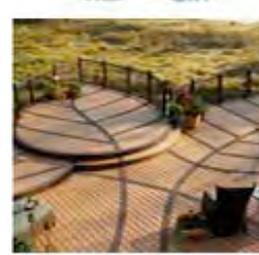
Multiple markets are available for clean material

4. Addressing obstacles–

a. Washing rigids is simple & quickly done

b. No additional labor is needed to recycle rigids

c. Sorting rigids by resin type is easily accomplished



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Grocery Store Rigid Plastic Recycling

Phase 2: Pilot Programs Results

What are grocery rigid plastics?

Where are they?

Why recycle them?

How to recycle them?

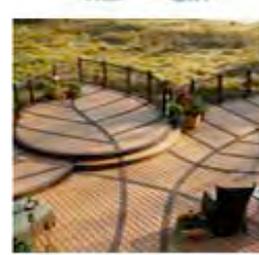


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WHAT are grocery rigid plastics?



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WHAT are rigid plastics?



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WHERE are rigid plastics?



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WHY recycle rigid plastics?

*US supermarkets (with annual sales of \$2 million or more) generate huge quantities of rigid plastics very marketable rigid plastics

*Over 90% of grocery rigid plastics is #5 PP and #2 HDPE

Reduce Costs.....

**Less waste in compactor = less costs!*

**Reduced compactor hauls & disposal costs*

**Reduced compactor odor*

**Possibly less compactor maintenance*



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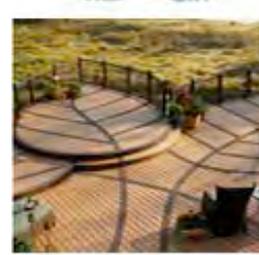


Grocery Store Rigid Plastic Recycling

WHY recycle rigid plastics?

Recycling revenue.....

- *Supermarkets (with pharmacies) – up to 6,000 # annually*
- *Stacked rigid plastics, with bagged lids placed on top = 1 to 2 cents/#, shipped with other baled recyclables*
- *Baled rigid plastics have strong market value – 14 to 18 cents/#*



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WHY recycle rigid plastics?

Sustainability goals.....

- *Key component of growing commitment of “Zero Waste” strategy*
- *Pivotal change from long standing habit of **giving away** valuable recyclable material to employees, customers, others*
- *Help provide more **recycled feedstock** to packaging industry (much returning to the grocery shelves)*
- *More sustainable practice – sends **consistent message** to employees, customers, community*



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HOW TO recycle rigid plastics?

Grocery store associates take the product out of the containers



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HOW TO recycle rigid plastics?

Rigid containers are quickly cleaned.



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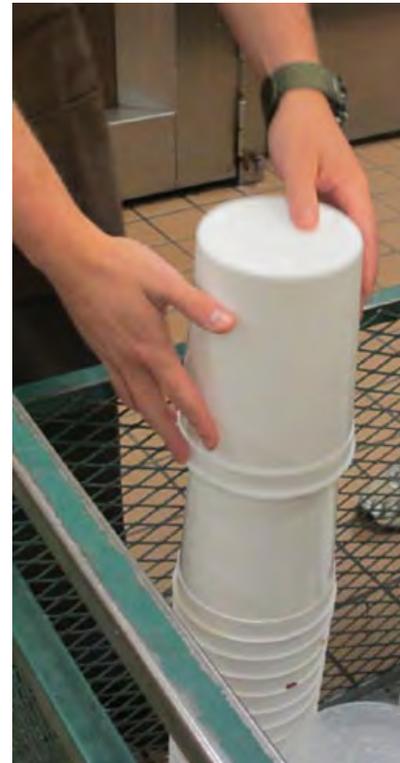
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HOW TO recycle rigid plastics?

Rigid containers, now cleaned, are temporarily stored in each department



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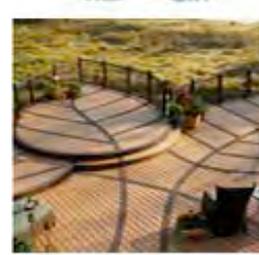
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HOW TO recycle rigid plastics?

Rigid containers are stacked in a watermelon bin



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HOW TO recycle rigid plastics?

Watermelon bin of properly stacked rigid plastics are back hauled to Distribution/Recycling Center.



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Grocery Store Rigid Plastic Recycling

Phase 3: National Promotional Campaign

1. Website – www.recyclegroceryplastics.org
2. Interactive, on-line “Best Practices” Guide
3. “How To” Videos
4. Market Lists
5. Worksheets
6. Off-site Technical Assistance
7. On-Site Technical Assistance



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Grocery Store Rigid Plastic Recycling

Website - www.recyclegroceryplastics.org



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[How To Videos](#)

[How To Photos](#)

[Available Markets](#)

[Helpful Resources](#)

[In-Store Associates](#)

Divert Waste. Reduce Cost. Enjoy New Revenue.

What types of grocery plastic are we talking about? Rigid.

The two primary types of rigid plastics in grocery stores are...

- #2 HDPE - High Density Polyethylene
- #5 PP - Polypropylene

Rigid plastics discussed in this Program are open top, nestable FOOD containers with a separate lid/cover.

[Learn More](#)



[What](#)

[Why](#)

[Where](#)

[How](#)

Program Overview



The Association of Post-consumer Plastic Recyclers (APR), North America's largest alliance of plastics reclaimers, regresses companies totaling over 94% of the post-consumer plastic processing capacity in the United States, Mexico and Canada. APR actively seeks new ways to strengthen the economically viable, and environmentally responsible recycling of post-consumer plastics.

There is strong demand for new feedstock to meet the ever-growing demand for recycled resin material. Recyclable rigid plastics, of the

type found "behind the counter" in full-line supermarkets, provide valuable feedstock to plastics reclaimers and other industry stakeholders.

This website has been developed by APR, with assistance from the American Chemistry Council, and is the result of 2-1/2 years of work that included two studies. It has been created to provide a useful tool for the grocery industry as they look for new ways to "green" their operations.

How To Recycle Grocery Rigid Plastics Entire HOW TO Recycle Guidebook



Grocery Store Rigid Plastic Recycling

Phase 3: National Promotion Campaign “Market List”

AVAILABLE MARKETS for Grocery Rigid Plastics

Below is a listing of companies interested in purchasing grocery store rigid plastics. Please note, that those markets interested in truckloads of rigid plastics stacked in bins may be geographically sensitive.

In addition to those listed below, also consider other alternatives, such as those companies who are currently taking your other recyclables, and your local MRF – especially if you are creating bins of stacked rigid plastics.



Company Information	Truckloads of Rigid Plastics stacked in bins, #2 HDPE and #5 PP resins <u>mixed together</u>	Truckloads of Rigid Plastics stacked in bins, #2 HDPE and #5 PP <u>sorted</u> by resin type	Baled Rigid Plastics #2 HDPE and #5 PP resins <u>mixed together</u>	Baled #2 HDPE Rigid Plastics	Baled #5 PP Rigid Plastics



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Grocery Store Rigid Plastic Recycling

Phase 3: National Promotion Campaign “How To” Worksheets

Calculate The Financial Benefit

Example: A group of 20 supermarkets collectively generating 4,800 lbs/month for a total of 57,000 lbs (29 tons)/year.

RIGIDS RECYCLING REVENUE

Pounds rigid plastics recycled	57,000 lbs/year
Market value per pound of recycled rigid plastics	x 10¢/lb*
Recycled Rigid Plastics Revenue	\$5,700.00

* Net Revenue assumes some capital and operating costs for baling materials. The pilot studies indicated no cost for watermelon bins or labor for segregating rigids. As a result no additional costs are included in calculations.

WASTE DISPOSAL COST SAVINGS

Grocery Store's Disposal Cost/ton	\$150.00/ton
Tons rigid plastics recycled	x 29/tons
Waste Disposal Cost Savings	\$4,350.00

Note: Discuss reduced hauls with your waste company.

FINANCIAL BENEFIT OF GROCERY RIGID PLASTIC RECYCLING

Recycled Rigid Plastics Revenue	\$5,700.00
Waste Disposal Cost Savings	+ \$4,350.00
Financial Benefit Total	\$10,050.00

Note: Including pharmacy stock bottles in a grocery rigid recycling program, can significantly increase the \$ benefit.



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Grocery Store Rigid Plastic Recycling

Phase 3: National Promotion Campaign

FREE Offsite Technical Assistance

- An introductory, exploratory call with supermarket leadership,
- A follow up development call,
- Training design and development assistance, and
- Up to three “progress assessment and troubleshooting” conference calls.

FREE Onsite Technical Assistance

- In partnership with Grocery Store chains
- APR underwrites Brown Sustainability Solutions
- Grocery store chain underwrites travel costs



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APR Rigid Plastics Recycling Program

In conclusion -

The APR Rigids Program is.....

- *A very active stakeholders committee*
- *Working as a team to expand plastic recycling*
- *Addressing supply and demand issues for non-bottle rigid plastics.*



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Thank you

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