



Simplicity = Success

Answers to Six Common Questions About “All Plastic Bottle” Collection Programs and Their Impact on PET and HDPE Recovery, Contamination Rates and Your Bottom Line



The markets for post-consumer recycled plastic bottles are stronger than ever — especially for bottles made from polyethylene terephthalate (PET) and high-density polyethylene (HDPE). Unfortunately, the recovery rate for these containers — the supply — is not keeping pace with demand for the recycled material.

Public education can be effective in boosting collection of these valuable containers, but the more complicated the message, the weaker the results.

That's why the American Plastics Council (APC) has long recommended collecting “all plastic bottles” as a means of:

- **increasing the capture rate for PET and HDPE bottles**, which together represent 95 percent of the plastic bottle stream; and

- **reducing contamination by non-bottle plastic containers**, which can increase costs and create processing inefficiencies.

While many communities have successfully implemented the “all plastic bottles” approach, others have expressed reservations. In response, APC has conducted a series of field tests and surveys to answer recycling coordinators’ most common questions and to provide concrete evidence that **simplicity = success**.

Real-World Answers to Questions About “All Plastic Bottle” Collection Programs

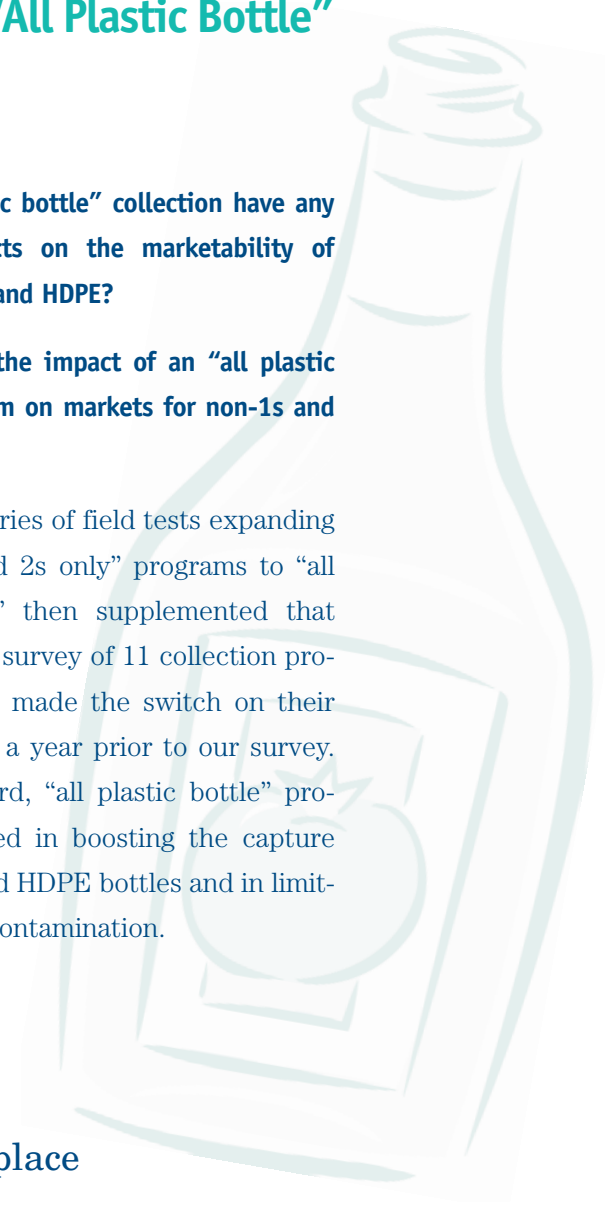
APC tailored its research efforts to identify both the short-term and long-term impacts of moving from “1s and 2s only” collection programs to a simpler “all plastic bottle” model, focusing on the following specific questions:

- Will implementing an “all plastic bottle” collection program increase the recovery of PET and HDPE bottles I want?
- If I really want just PET and HDPE bottles, won’t I increase my contamination rate by accepting all plastic bottles?
- Will my collection costs increase?
- Will “all plastic bottle” collection affect material recovery facility (MRF) sorting operations and costs?

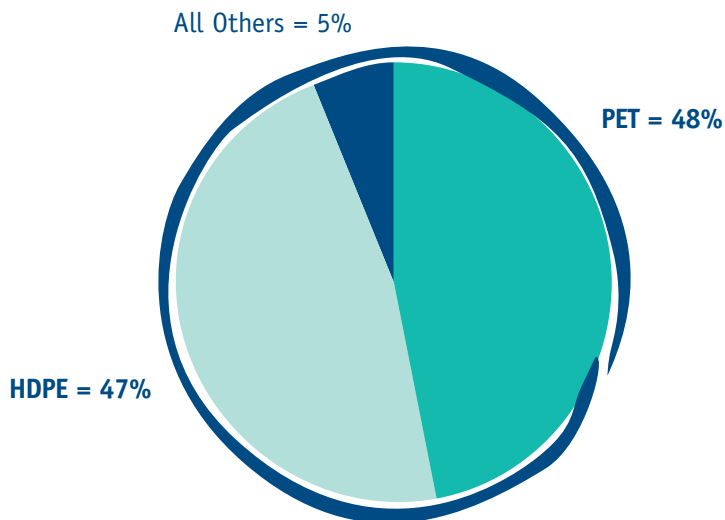
■ Will “all plastic bottle” collection have any negative effects on the marketability of recovered PET and HDPE?

■ What will be the impact of an “all plastic bottle” program on markets for non-1s and -2s bottles?

APC set up a series of field tests expanding existing “1s and 2s only” programs to “all plastic bottles,” then supplemented that research with a survey of 11 collection programs that had made the switch on their own more than a year prior to our survey. Across the board, “all plastic bottle” programs succeeded in boosting the capture rate for PET and HDPE bottles and in limiting non-bottle contamination.



Plastic Bottles in the Marketplace by Resin Type



Source: Plastics Industry Producers’ Statistics Group, 1999

Will implementing an “all plastic bottle” collection program increase the recovery of PET and HDPE bottles I want?

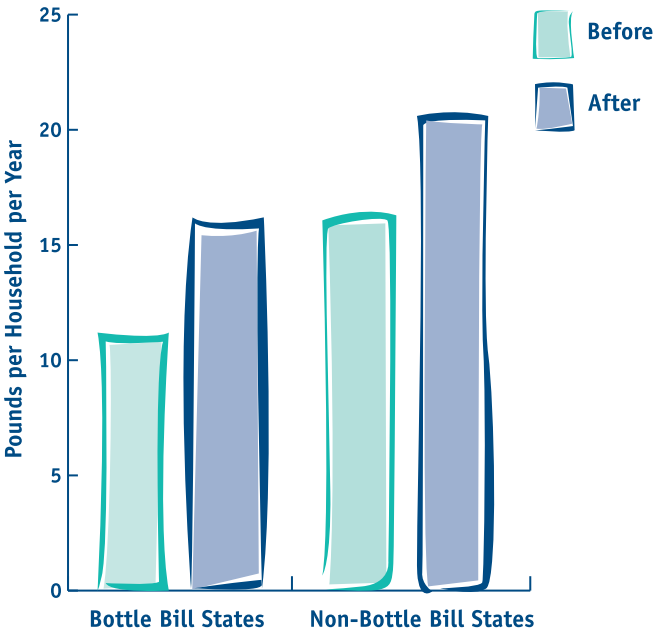
Yes. Allowing residents to set out all of their plastic bottles rather than having to identify specifically targeted resin types minimizes the effort required of them and, as a result, boosts participation and recovery rates.

■ In the case study communities, there was an immediate increase in the recovery rate for PET and HDPE bottles, ranging from a low of 2 percent to a high of 24 percent.

■ In randomly surveyed communities with long-term “all plastic bottle” experience, PET and HDPE recovery increased an average of 44 percent in bottle-bill states and 13 percent in non-bottle bill states.

■ With a corresponding public education campaign, more households chose to recycle plastics than before. Provided with a simple message to recycle “all plastic bottles,” recycling plastic bottles became easier and more popular among community residents.¹

Long-Term Impact of “All Plastic Bottle” Collection on PET and HDPE Recovery for Randomly-Selected Surveyed Communities



If I really want just PET and HDPE bottles, won't I increase my contamination rate by accepting all plastic bottles?

No. With appropriate education, overall contamination will not increase.² By asking for “all bottles,” it will be easier for your residents to identify which plastic containers are desired by your recycling program.

Of course there will always be consumers who want to “do the right thing” by recycling every container made of plastic, glass, paper or metal that enters their home. In these cases, even a comprehensive education campaign will not completely eradicate the inclusion of these unwanted containers.

However, because your program will be generating more PET and HDPE bottles, the percentage of undesired containers collected through the program will remain the same or decrease.

Furthermore, by placing clearer emphasis on plastic bottles, the percentage of non-bottle rigid containers (cups, tubs, trays, etc.) will decrease.

“Converting to an ‘all plastic bottles’ program has made it easier to educate the public and has cut down on our contamination rate for plastics.”

— Jennifer Means,
City of Mesa,
Arizona

The Catch-22 of “only 1s and 2s”

The majority of collection programs target HDPE and PET bottles *only*, which makes perfect sense given that these two resins comprise 95 percent of all plastic bottles available for recycling. Unfortunately, relying on consumers to identify the desired containers has its pitfalls:

- Consumer education materials often focus on the plastic resin identification code and devote inadequate attention to the distinction between bottles and other rigid plastic containers, such as cups, tubs and trays. This leads to contamination.
- Some consumers opt to avoid plastics recycling rather than spend the time looking for the resin identification code. Others may react negatively to being “corrected” when they place undesired containers in their bins. Together, these negative reactions cut into the recovery rate for the desired PET and HDPE bottles.

Limiting the consumer’s responsibility to identifying a bottle or jar (i.e., a container with a threaded neck or a neck smaller than its base) keeps things simple and promotes participation. Given the growing variety of plastic containers that could be recovered for recycling, language such as “recycle all plastic bottles and jars (no caps, lids, bags or tubs, please)” may also prove useful.

Think Outside the Ice Box

A key element in promoting “all plastic bottle” collection is encouraging residents to think outside the refrigerator when recycling their plastic bottles. While most people have become accustomed to recycling their milk jugs and 2-liter soft drink bottles, they need to be reminded to collect the bottles they use in their bathrooms, automobiles, pantries, laundry rooms, play rooms, etc. Using specific examples of bottles used beyond the ice box can help boost the number of shampoo, mouthwash, laundry detergent, peanut butter and convenience-size soft drink, juice and milk bottles that can be recycled along with commonly recycled milk and soda bottles. Check out APC’s web site for promotion ideas and clip art examples: www.plasticsresource.com/allbottle.

Will my collection costs increase?

Not in most cases. The cost impact of collecting “all plastic bottles” will vary depending on the collection system used:

- **There is no measurable impact on single-stream, commingled collection systems.**
- **In communities providing two-stream, commingled collection (i.e., fibers and containers collected separately), costs may actually decrease** because these systems often require the collection crew to conduct

front-line quality control. The decreased percentage of non-bottle plastic containers translates into less crew time.

- **Communities that separate materials at the curb may experience slight increases in collection costs** if changes are required to truck compartment capacities. For example, if an overall increase in volume of plastic bottles exceeds current capacity for the plastics compartment on-board a truck, then the collection equipment will need to be adjusted to meet the new volume requirements or more route trips will be required.



Will “all plastic bottle” collection affect MRF sorting operations and costs?

In volume only. Processing operations and costs will not be affected beyond the obvious (and desired) increase in the volume of material to be sorted.

■ Because programs that target only PET and HDPE bottles inevitably receive non-targeted plastic materials as contamination, MRFs are already equipped to manage them.

■ Properly promoted, an “all plastic bottle” collection program should yield a decrease in the relative percentage of non-bottle contaminants collected due to simplified consumer responsibilities.

■ By planning for and accommodating the receipt and handling of non-PET and -HDPE plastic bottles, processors may be able to identify new markets and/or less costly alternatives for their disposal.

Emphasis on “All Plastic Bottle” Recycling Can Improve MRF Sorting Operations

APC’s analysis of plastics processed at six U.S. MRFs in 1997-98 revealed an unintended consequence associated with targeting “1s and 2s only”:

■ Plastics collected from programs targeting PET and HDPE bottles **only** received the same percentage of other plastic bottles as “all plastic bottle” programs and, on average, received **three times as many** non-bottle rigid containers.

“It makes things much easier and simpler from a public education standpoint. Much time and money was spent trying to educate recyclers about the differences between bottle and non-bottle forms of plastic.”

— Phil Bresee,
Howard County,
Maryland

Does “all plastic bottle” collection mislead the public?

“The residents are happy because they don’t have to think too hard about which plastics can go in the bin, and we are happy because we are keeping material out of the disposal facilities.”

— Collin Davis,
Lee County,
Florida

Some community recyclers have expressed reluctance to tell the public that a program will recycle “all plastic bottles” when, in fact, only PET and HDPE (95 percent of all plastic bottles) may be consistently marketable.³ This is understandable. However, an “all plastic bottle” collection program need not be implemented under false pretenses. In every “all plastic bottle” community surveyed, more material overall is diverted from the waste stream for recycling. An honest discussion of the program’s goals with community residents generated widespread support by the residents.

When making the switch, be sure to communicate the following benefits of “all plastic bottle” collection:

- A significant increase in PET and HDPE bottle recovery (plastic bottles that otherwise would not have been recycled).
- Fewer contaminants introduced to the overall program, making the program more efficient and less costly to the community.
- The potential for other bottles to be recycled along with the PET or HDPE when market specifications allow for their inclusion.

If you still have reservations, it may help to ask yourself: “What is my goal in setting up a recycling program?” If the answer includes maximizing public participation, maximizing the volume of post-consumer materials recycled, and/or achieving maximum efficiency and cost-effectiveness, the “all plastic bottle” model merits serious consideration. Yes, some of the material you collect inevitably will be left out of the final recycling process, but that is true in any collection model. In the end, the bottom-line benefits of “all plastic bottle” collection can be persuasive to your public.



Will “all plastic bottle” collection have any negative effects on the marketability of recovered PET and HDPE?

No. While there will still be a need to ensure that quality control measures are implemented, there is no negative quality control or marketability impact associated with a move to “all plastic bottle” collection. In fact, because the relative percentage of PET and HDPE bottles collected remains constant or increases, the share of other bottles or contaminants collected remains unchanged or decreases.

By using a simple message, an “all plastic bottle” promotion can help reduce contamination by all non-bottle plastics. To further improve quality and reduce contamination, be sure to instruct residents not to include any caps, lids, bags or tubs in their recycling bin.

Recyclers face critical shortage of PET and HDPE bottles

Members of the Association of Postconsumer Plastic Recyclers (APR) support* efforts to increase the supply of PET and HDPE through such programs as an “all plastic bottle” collection program.



“Predicted problems in switching to an ‘all plastic bottles’ program never occurred.”

— Joe Kowalski,
Windham Solid
Waste Management
District, Vermont

* Formal motion approved June 9, 2000

Will an “all plastic bottle” program guarantee new markets for non-PET and -HDPE bottles?

Not at this time. In and of itself an “all plastic bottle” program is not expected to secure new markets for current low-volume resin types (refer to the following figure for a breakdown of plastic sales by resins). However, a proliferation of “all plastic bottle” programs may provide a more effective and meaningful opportunity to feed non-targeted bottles into an existing,

albeit limited, low-volume resins market infrastructure. This, in turn, may help those markets grow. Furthermore, if a large-volume community switches to an “all plastic bottle” collection program, over time the program may be able to accumulate marketable quantities of bottles beyond PET and HDPE.

What About the Rest?

Resin types 3-7 comprise only 5 percent of total plastic bottle sales, so any increase in recovery of all bottles is not likely to increase the collection of 3-7s substantially. However, viable markets do exist for truckload (and sometimes smaller) quantities of these other resin types.

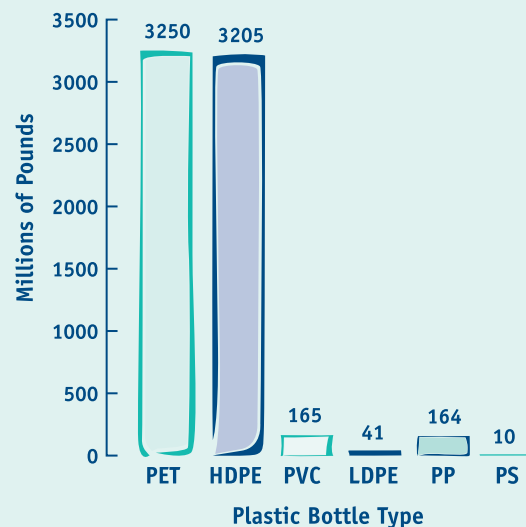


Vinyl: If a community can accumulate enough vinyl bottles to ship in quantity, viable markets for floor coverings and other vinyl products do exist. Visit the Vinyl Institute’s web site for a complete listing of companies who manufacture products using recycled vinyl — www.vinylinstitute.org.



Polypropylene: Polypropylene plastic bottles can be recycled along with pigmented HDPE in many markets. Be sure to check with your market before including these bottles in with your HDPE bales.

Plastic Bottle Production
(by 1999 Resin Sales)



ACKNOWLEDGMENTS

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Case Study Communities

- City of Mesa (Arizona)
- Windham Solid Waste Management District (Vermont)

Randomly Selected Surveyed Communities

Bottle Bill/Redemption States:

- Broome County (New York)
- Marion County (Oregon)
- City of Oakland (California)

Non-Bottle Bill States:

- Clark County (Washington)
- Elkhart County (Indiana)
- Hennepin County (Minnesota)
- Howard County (Maryland)
- Lee County (Florida)
- Montgomery County (Maryland)
- Palm Beach County (Florida)
- City of Virginia Beach (Virginia)

¹ Results will vary depending on local geographic conditions, consumer purchasing habits, consumer participation in recycling and educational techniques selected.

² Examples of promotional strategies and education campaign ideas are available on APC's web site at www.plasticsresource.com/allbottle.

³ HDPE and PET bottles have readily available markets in most areas that collect plastics for recycling. In addition, polypropylene (PP) and low-density polyethylene (LDPE) bottles can often be included in bales consisting predominantly of HDPE. Together, these four resins (PET, HDPE, PP and LDPE) account for more than 98 percent of all bottles manufactured based on 1999 data collected by the APC Plastics Industry Producers' Statistics Group.



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