

Plastic Cups Bale Sort Study: The Overview

Background

Knowledge is critical to moving new types of recycling forward. Plastic foodservice packaging can be recovered through several commonly traded mixed plastics commodities, however it was not known how prevalent they were in each of these bale types. Consequently, to gain knowledge on how plastic cups were traveling through the recycling marketplace, the Foodservice Packaging Institute's Plastics Recovery Group participated in the Association of Plastic Recyclers's 2015 Rigid Plastic Bale Sort Study.

The Study

The study, the most comprehensive post-consumer plastic container bale sort done in North America, was undertaken by APR to strengthen and advance non-bottle rigid recycling investment by providing plastic reclaimers with detailed data on feedstock for their current and future business endeavors.

By participating in the study, PRG was able to get a better understanding of which rigid plastics bales contained plastic cups as well as the plastic resin types and volume of plastic cups in each bale type. Note that the study focused on cups rather than other foodservice containers, since other container types are used in multiple applications and distinguishing between foodservice and non-foodservice applications (such as pre-packaged food) is not feasible in the context of a bale sort.

The bale sort included a total of 23 bales from four North American recycling facilities: three US facilities and one Canadian. Nine bale types were sorted:

- All Rigid Plastics: With Bulky
- All Rigid Plastics: No Bulky
- Pre-picked Rigids Plastics: With Bulky
- Pre-Picked Rigids Plastic: No Bulky
- Tubs & Lids
- Bulky Rigid Plastics
- HDPE Injection: Bulky
- HDPE Bottles & Containers
- PP Bottles & Containers

A handheld resin ID unit was used to spot check for resins not easily identifiable.



The Results

Resulting data showed that cups made up a small portion of all the bales sorted; at the greatest, less than 10 percent by weight of a bale. Tubs & Lids bales had the highest percentage of cups, with PP Bottles & Containers and Pre-picked/no bulky (#3-7) bales in second and third place. There were no cups found in Bulky Rigid and HDPE Injection: Bulky Rigid bales.

Four resin types of cups were sorted: polyethylene terephthalate, polypropylene, polystyrene and poly lactic acid. By far, the majority of plastic cups found in bales were PP, with PET cups and PS cups found in nearly equal proportions. Very few PLA cups were found during the bale sort.

Additional sorting was done to determine the breakdown of cup color (clear, white and colored) and printing on cups. The majority of PP cups were clear with printing. Almost all PET cups were clear, the majority of which had print. Upwards of three quarters of PS cups were opaque and colored.

A comparison of the 2015 cup data and data from APR's 2011 Rigid Plastic Bale Sort provides an insight on changes to and possible trends on plastic cup recycling in recent years. Both 2011 and 2015 data revealed that the greatest quantity of plastic cups is contained in Pre-picked/no bulky (#3-7) and PP bales – over 6 percent in Pre-picked/no bulky bales and almost 8 percent in PP bales. Additionally, the quantity of plastic cups being recycled has increased; in 2015 there were considerably more cups found in each of these bale types (an average of 48 percent more in Pre-picked/no bulky (#3-7) and 23 percent more in the PP bales than in 2011). This is perhaps a result of the growing number of communities across North America that are accepting all rigid plastic bottles and containers, rather than only #1 and #2 bottles, in their curbside recycling programs.

This bale sort study easily shows that plastic cups are successfully reaching plastic reclaimers, where they can be recycled into new products. The prevalence of single stream recycling throughout North America has enabled residents to place all rigid plastic bottles and containers into their recycling collection bins thus enabling cups to begin their recycling journey.

Complete results from the Plastic Cups Bale Sort Study are available to PRG members. More information on recycling of foodservice packaging may be found at www.recyclefsp.org.