

## American Beverage: Plastic Footprint 2018 to 2020

In order to drive progress and transparency on its Every Bottle Back Initiative, the American Beverage Association (ABA) and its major brand owners, Coca-Cola, Keurig Dr Pepper, and PepsiCo, have developed an innovative metric for tracking the use and impact of its plastic bottles, which we are calling our plastic footprint. For now, this is limited to PET bottles and consists of both production data and data on the fate of bottles in the environment.

ABA developed the parameters of the plastic footprint and engaged with its partner, World Wildlife Fund (WWF), to ensure the metrics are based on sound principles. The footprint is consistent with WWF's [ReSource: Plastic Footprint Tracker](#), and represents a sector-specific expansion of this measurement framework.

ABA's footprint is a composite of indicators that look at how containers are produced and what their fate is in the environment after use to create an index that can be tracked over time. The four indicators that are combined make up the footprint index are:

- Alternatives to virgin PET – post-consumer recycled PET (RPET) and PET from plant-based sources (BPET) replace PET from petroleum (virgin resin), reducing the environmental impact of bottle production. The goal is to drive down the share of virgin resin in the average bottle sold.
- Recyclability guidelines. The Association of Plastics Recyclers has established Preferred for Recycling guidelines for PET bottles and our goal is to reach 100 percent compliance with those guidelines, eliminating those bottles from our portfolio which have components that may interfere with the recycling process.
- Recycling rate for PET. ABA calculates a recycling rate for PET refreshment beverage bottles sold in the US. As the rate increases, the amount of PET disposed will decrease.
- PET bottles in the environment. PET bottles are among the many products found mismanaged in the environment, which we generically call litter. The indicator tracks the prevalence of PET beverage bottles in litter.

ABA has committed to collecting the data to calculate the footprint on a regular basis, with 2018 as the baseline. We now have data through 2020 and this report summarizes our initial findings and the value of the footprint index. Over time, ABA and its member companies will reduce the score by making packages more recyclable and using less virgin PET, while working to improve recycling and prevent and cleanup litter.

### Plastic Footprint: 2018 Baseline and Results for 2019 and 2020

The industry's plastic footprint index has declined 1.6 percent from its 2018 baseline. This is despite a drop in the recycling rate, owing in large part to the impact of the pandemic on recycling and bottle redemption.

The 2018 to 2020 footprint calculations are summarized in Exhibit 1. The goal of the Every Bottle Back initiative is to lower the index from its 2018 baseline. Comparing the baseline to 2020, we found the following changes in the components that make up the index:

- An increase in the share of containers that meet preferred for recycling guidelines from 85% to 89%
- A reduction in the share of virgin resin in the average bottle from 91% to 89%
- A reduction in the share of PET bottles recycled from 31% to 28%
- Plastic beverage bottles were 7.9 percent of large litter from the national litter study (note: baseline is from a 2020 study discussed below)

The plastic footprint increased slightly in 2019 but declined in 2020 and stands 1.6 percent below the baseline of 2018. The improvements were attributable to changes in production – use of more recyclable bottles and more recycled content. Unfortunately, the recycling rate has slipped during this period, offsetting some of the gains made on the production side; the 2020 reduction in recycling rates is largely attributable to the impact of COVID-19 on recycling collection programs around the country and the world.

The footprint is an index calculated across four metrics designed to show how changes in production and in materials management will reduce the impact of PET bottles on the environment. The index itself does not have any intuitive meaning – it is simply a scoring mechanism to combine data that help to tell a story. The fact that the baseline score is 46 does not signal anything positive or negative; we will monitor changes in the index over time to assess our progress.

## **Production-Related Metrics**

ABA members have direct control over how they design and manufacture the containers used for their products but far less control over the fate of those containers after they are sold. The production data collected addresses the share of virgin PET in the average bottle (which will decrease as more recycled PET and bio-based PET are used) and the percentage of PET bottles that do not meet preferred for recycling standards. We then calculate the footprint as a score combining those two indicators along with the recycling rate and the litter rate.

Suppliers or bottlers who purchase resin and make preforms – the precursor to the bottle – report the amount of resin used to make new bottles. We have combined supplier and bottler data across the Coca-Cola, Keurig Dr Pepper, and PepsiCo systems. All of the data were collected under confidentiality agreements, and we are reporting only aggregate results in a form that cannot disclose data from an individual respondent.

We selected 2018 as a baseline and have completed data collection for 2019 and 2020. The key findings that feed directly into the footprint calculation are:

- In 2020, 89% of the PET in member company bottles was from virgin resin (Exhibit 1). The rest is RPET or BPET. This is a slight improvement over the baseline of 91%.
- 11% of members' 2020 PET bottles did not meet the preferred for recycling definition established by the Association of Plastic Recyclers (APR). These containers had components that hinder recyclability of the PET bottle, or they were awaiting evaluation by the association. This metric also showed improvements compared to the 2018 baseline of 15%.

Exhibit 1

## ABA Plastic Footprint - 2018 Baseline; 2019 and 2020 Data

	Improve Recyclability	Increase Alternatives to Virgin PET	Increase Recycling	Reduce Litter	Footprint Reduction	
<b>Definition of Metric Used In Calculation</b>	<i>Coke, KDP, and Pepsi PET bottles not meeting APR standards for recyclability</i>	<i>Coke, KDP, and Pepsi systems' use of virgin resin in the average bottle sold</i>	<i>Share of PET bottles not recycled (i.e.,landfilled or burned)</i>	<i>National prevalence of liquid refreshment beverage PET bottles (all brands) in litter</i>	<i>An index for monitoring progress computed as the simple weighted average of scores for the four parameters</i>	
<b>Objective</b>	<i>Reach 100% recyclability for bottles, caps, and labels</i>	<i>Increase use of recycled content and bio plastics to replace virgin</i>	<i>Policies and investments to increase recycling</i>	<i>Eliminate bottles in the environment (litter) through prevention and control</i>	<i>Reduce the footprint as measured by the index</i>	
<b>Calculations</b>	<b>Share of Bottles Not Meeting APR Preferred for Recycling Guidelines*</b>	<b>Virgin Resin Share in the Average PET Bottle*</b>	<b>Share of PET Bottles Disposed**</b>	<b>Share of PET beverage bottles in litter***</b>	<b>Weighted Score</b>	<b>Percentage Change from Baseline</b>
Baseline 2018	15%	91%	69%	7.9%	46	
2019	15%	91%	70%	7.9%	46	0.5%
2020	11%	89%	72%	7.9%	45	-1.6%

\* Data from member company surveys of suppliers and internal company data, compiled by Breezeway

\*\* Annual PET recycling rate calculation prepared by Breezeway for ABA from supplier data

\*\*\* Keep America Beautiful 2020 National Litter Survey - PET beverage share of large litter from roadway and waterway sites

The data also enable us to draw a more complete picture of members' PET bottles, beyond the snapshots that we incorporated into the footprint index. For example (Exhibit 2):

- For the first time, the majority of bottles contained at least some RPET in 2020. 52% of bottles included RPET, up from 41% in 2018. The average recycled content in those bottles was 19 percent, up from 13% in the baseline.
- 61% of bottles contained RPET or BPET in 2020, up from 55% in 2018
- Across the entire portfolio, the recycled content of members' PET bottles rose to 9.6% from 5.7% in 2018.

*Exhibit 2*

### Summary of PET Bottle Data from ABA Members

	2018	2019	2020
Average Virgin Resin Share (by weight)	91%	91%	89%
Bottles Not Meeting APR Recyclable Definition	15%	15%	11%
Bottles Containing RPET or BPET	55%	59%	61%
Bottles Containing RPET (by container)	41%	46%	52%
Average RPET Content in Those Bottles	13%	13%	19%
Average RPET Content in All Bottles	5.7%	6.4%	9.6%

*Source: Breezeway analysis of confidential member data*

Finally, the total weight of virgin PET used by the members was 0.8 percent lower in 2020 than in the baseline year of 2018, despite growth in the number of bottles sold over the period.

### Fate of Containers

ABA members have much less direct control over how their containers are managed once the beverages have been consumed. But the impact of packaging and therefore the plastic footprint tracks both production and disposition of the material. While these bottles are made to be recycled into new bottles, many do not make it into the recycling system and those that do may find their way to products other than new bottles. Further, some containers are littered, intentionally or accidentally.

### Recycling Rate

The recycling rate for PET liquid refreshment beverage (LRB) bottles has dropped nearly three percentage points from the 2018 baseline of 31.0 percent. Most of the decline was in 2020 when the rate fell to 28.2 percent, driven down by interruptions in bottle redemptions in deposit states owing to the pandemic. While curbside collection of PET was steady between 2018 and 2020, deposit redemptions fell nearly eight percent. This means that the share of bottles disposed (by

weight) was 69 percent in 2018 and 72 percent in 2020, leading to an increase, rather than a decrease, in this component of the footprint.

The recycling rate for LRBs is developed from the overall [PET bottle recycling rate](#), calculated annually by NAPCOR.<sup>1</sup> Because the NAPCOR report includes all PET bottles, not just those for liquid refreshment beverages, we work with NAPCOR and others to adjust the sales and recycling data to focus solely on LRBs. This work includes:

- Research by SBA-CCI related to PET sales
- Two projects coordinated by NAPCOR to sort bales of recycled PET and then to weight the volume of material recycled through different types of programs to produce a second recycling rate report specifically for LRBs

We use proprietary data from SBA-CCI to adjust NAPCOR data on pounds of PET bottles in the market to calculate the portion of PET by weight used for LRB bottles.

Adjusting recycling data from all PET bottles to only LRB PET bottles is more complex. The process begins with an annual sort of PET bales collected from a range of states and collection program types from across the country. Typically, thousands of pounds of PET and well over 100,000 bottles are sorted to characterize the share of bales made up of LRBs (as well as other important characteristics such as beverage type and bottle color). Next, NAPCOR and ABA estimate the amount of PET redeemed in the various deposit systems around the US with the remainder allocated to curbside and dropoff programs. That material is apportioned to LRBs vs. other PET bottles based on the bale composition data. The resulting weight of PET sold to end markets is used as the numerator of the recycling rate. In 2020, for example, 36 percent of the LRB PET bottles recycled came through deposit redemption systems; 64 percent of the material came through curbside and dropoff programs.

### *PET Bottles in Litter*

Plastic beverage containers represented 7.9 percent of “large” litter across all environments tracked in the [2020 national litter survey](#) conducted by Keep America Beautiful. ABA provided methodological and financial support for the survey, partly because of the need to develop a benchmark for the litter component of the plastic footprint.

For this analysis, we combined all plastic LRB container litter defined as large litter (>4” in at least one dimension). These were drawn from both waterway and roadway-proximate sites in a wide range of demographic locations, weighted together to be representative of national conditions. Large litter is sometimes used as a proxy for visible litter and bottles in this size range are more readily identifiable as whole bottles than small litter which is much more numerous and consists of many small fragments of items that cannot be identified beyond simply the material from which it was made.

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<sup>1</sup> National Association for PET Container Resources represents manufacturers and reproducers in the PET supply chain. The Association has compiled data on PET recycling dating back to the 1990s and conducts research with ABA funding to support this report and related projects.

We note that while the plastic footprint is based on PET, the litter data include all types of plastic beverage bottles. PET dominates the LRB market, accounting for more than 95 percent of bottles, but it is important to remember that HDPE and 3 through 7 bottles are included as well. This should not affect the validity of this metric as a benchmark for showing future improvements in the prevalence of these bottles in litter.

Finally, we must acknowledge that the baseline litter survey was conducted in 2020, not 2018 when the other data were collected. Because of the cost and complexity of a survey like this, it is likely to be repeated only infrequently, so we will not see annual changes in this metric the way we will for the others. We are collaborating with Keep America Beautiful and expect to update the study in 2025. And, unfortunately, the baseline data collection occurred in the fall of a year that saw unprecedented changes in Americans' way of life and consumption patterns.

### **Next Steps**

ABA will continue to collect production data from its members on an annual basis and work to improve the efficiency and timeliness of reporting. Changes and disruptions in supply chains and procurement operations both pose challenges to this work. We also plan to continue the multi-pronged analysis necessary to compute recycling rates for LRBs as we have since 2005. We continue to explore ways to streamline and speed up this process, which has a long lead time and is the last element of the footprint index to be available each year. Finally, we are planning updates to the litter study every five years due to the expense of this research (which captures hundreds of components of litter, not just beverage containers) and will work with KAB and others to refine the methodology of the study.

