



Best Practices in Glass Recycling

Typical Generation and Collection Rates for Recycled Glass

Material: Recycled Glass

Issue: *Before decisions can be made regarding the design of collection programs and target markets, it is important to be able to estimate the amount of recycled glass that may be available for collection, and the amount that can reasonably be collected. This Best Practice translates national generation and collection figures into numbers that can be meaningful to local programs.*

Best Practice: Franklin and Associates estimated that 12.1 million tons of waste glass containers were generated in the United States in 1994. The scale of national figures like Franklin's does not necessarily translate into data that are usable by local programs. Using the Franklin figure and a population estimate of 260 million, the generation of glass containers averaged 93 pounds per person in the U.S. In terms of tonnage, each 21.5 people in the United States generate, on average, one ton of waste glass per year. Local usage varies, of course. Some of the reasons for variance are given below. In addition, remote or cold areas like Alaska generate lower than average rates because of shipping costs for glass versus plastic and the fear of freezing containers. In contrast, areas whose dominant industry is resorts, like San Juan County, Washington, or Blaine County, Idaho, tend to generate waste glass at considerably higher rates than expected for the permanent population base. Given all of these caveats, the following rules of thumb have been found to work well:

To estimate glass container generation, in tons per year:

- divide the base population by 20 in regions with mild winters. For example, in Seattle, with a population of 500,000, generation of 25,000 tons per year can be estimated. In Portland, Oregon, with a population of 400,000, generation of 20,000 tons per year can be estimated.
- divide the base population by 25 in regions with more severe winters. For example, in Richland, Washington, with a population of 25,000, generation of 1000 tons per year can be estimated.

To estimate the amount of generation that can be easily collected:

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- multiply the generation figure by $\frac{2}{3}$ in an area with curbside collection and bottle deposit laws. For example, Portland, Oregon, can expect to collect about $20,000 \times \frac{2}{3} = 13,000$ tons per year.
- multiply the generation figure by $\frac{1}{2}$ in an area with curbside collection and no bottle deposit laws. For example, Seattle, Washington can expect to collect about $25,000 \times \frac{1}{2} = 12,500$ tons per year.
- multiply the generation figure by $\frac{1}{4}$ in an area with only drop boxes and no bottle deposit laws. For example, Richland, Washington can expect to collect about $1000 \times \frac{1}{4} = 250$ tons per year.

With regard to color, the distribution changes with both locale (urban areas tend to consume more green glass from wine bottles and rural areas consume more amber glass from beer bottles) and season (more green in the winter and more amber in the summer). However, a rule of thumb that generally works well is:

- 50% clear
- 25% amber
- 25% green

None of the rules of thumb described in this Best Practice can be expected to be accurate within a few percentage points. However, they can be used as starting points for discussion and as checks against more complete analyses.

Implementation: The rules of thumb shown above can be used to estimate the amount of glass available for collection and the amount of glass easily collectible.

Benefits: Knowing the potential generation and collection figures can help a program to optimize both collections and markets.

Application Sites: Glass recycling programs

Contact: For more information about this Best Practice, contact CWC, (206) 443-7703, e-mail info@cw.org.

References:

Characterization of Municipal Solid Waste in the United States 1995 Update, Franklin Assoc., 1996.

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