Container Glass Recycling in Virginia

The Issue

While container glass is infinitely recyclable, only about 10% of glass food and beverage containers recovered in Virginia actually get recycled. This means Virginia is wasting an estimated 315,000 tons of container glass each year—with much of it going to Virginia landfills for use as alternative daily cover or road construction. The reasons are somewhat complicated, but most recycling facilities are not equipped with the type of sorting and cleaning equipment necessary to prepare the glass material in a manner that is beneficial to the container glass industry. Glass bottles recycled in a typical “single-stream” recycling program are either broken during transport or during the recovery process; this so-called “glass” also can contain as much as 70% non-glass contamination. Container glass manufacturers have very strict quality requirements and it is very difficult for them to make new containers using that quality of feedstock. In addition, Virginia lacks specialized glass recycling facilities which means any glass collected for recycling has to travel out-of-state in order to be recycled which is not economical. Lastly, glass passing through a typical muli-material recycling facility results in tiny shards of glass become embedded in or attached to other materials (such as paper and plastic, for example), making it more difficult to sell these materials.

How is Glass Being Recycled Elsewhere?

Glass is being recycled in other parts of the country. Ten states have container deposit laws or so-called “bottle bills”, including California, Connecticut, Hawaii, Iowa, Maine, Massachusetts, Michigan, New York, Oregon, and Vermont. Under a bottle bill system, when you purchase a beverage container you pay an additional deposit amount (usually 5 or 10 cents per container) which is added to the cost of the product. Once the product has been consumed, you take the empty container to a redemption center where you receive your deposit back. The intent of bottle bill systems is to address concerns regarding litter and/or the recovery and recycling of the plastic, glass, and aluminum materials used to make beverage packaging. Glass recycling rates in bottle bill states average over 63% compared with just 24% for non-deposit states. Though effective at increasing glass recycling rates—bottle bills are not the only option for recycling glass. The inspiration for The Purple Can Club (see below) came from Ripple Glass in Kansas City, Missouri. Starting with 60 glass-only recycling collection bins across the Kansas City region, today Ripple recycles glass in nine states. In addition to Ripple Glass, glass-only recycling programs have been established in Denver, Phoenix, Nashville, Salt Lake City, and other parts of the country. The glass cullet generated by bottle bill state and programs like Ripple Glass is sold to companies that make fiberglass insulation, beverage containers, and other recycled products.

The Purple Can Club

The issue with glass recycling in the Commonwealth has gone on for far too long and many local governments in the region have removed container glass from their recycling programs altogether. The Purple Can Club was formed in March 2019 by several jurisdictions in Northern Virginia to collect and process glass. Purple dumpsters are located throughout the region, with the glass going to the I-95 Landfill Complex in Lorton where it is consolidated (and processed as necessary) for use by
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Glass bottle producers, fiberglass manufacturers, blast media users, and as a high-quality sand and gravel substitute for public works applications. Between March 2019 and September 2020, Northern Virginia residents dropped off more than 7,000 tons of glass to the purple bins. Because the glass collected has been very clean, market demand from container glass manufacturers has been strong.

Markets for Glass in Virginia?

Glass bottles recovered at local recycling plants require further processing in order to be useful to the glass bottle industry. These interim processing facilities, called glass beneficiation plants, remove the trash and other contaminants, and sort the glass according to color. Virginia currently does not host a glass beneficiation plant and the nearest such facilities are located in North Carolina and Pennsylvania. Because glass is very heavy and costly to transport, glass beneficiation facilities are often located close to recycling facilities and/or bottle manufacturing plants. Virginia is fortunate to have two glass bottle manufacturing plants, which are located in Toano and Danville. These plants, which are owned by Owens-Illinois (O-I), can recycle up to 200,000 tons of glass cullet per year. In addition to the two O-I plants, Fairfax County has invested in glass processing equipment that crushes source-separated glass into gravel and sand that can be used locally in construction projects.

Options for Improving Glass Recycling in Virginia?

There are several options for improving container glass recycling in the Commonwealth including enacting Extended Producer Responsibility (EPR) laws, which would require manufacturers, distributors, and retailers to develop a plan to take back the glass ("bottle bill"). Typically, bottle bills would also boost recycling for other container types such as plastic bottles and aluminum cans. Adopting a bottle bill could improve the quality and quantity of source-separated glass collected for recycling, increase the percentage of glass going back into container use, and could help address roadside and marine litter along the way. Any bottle bill should also include wine and liquor bottles, which are often excluded. To help improve the glass recycling infrastructure in the Commonwealth, Virginia could establish a recycling business development grant program to encourage the glass industry to make the necessary investments in glass infrastructure in the Commonwealth including glass drop-off depots for large collectors, glass beneficiation facilities and other glass recycling facilities. Lastly, private waste collectors and local government could encourage removal of glass containers from curbside and commingled drop-off recycling programs and continue to establish glass-only drop-off and/or collection programs.

Virginia SB 218

In response to SB218 (passed in 2018), the Virginia Department of Environmental Quality (VDEQ) conducted an evaluation of recycling rates in Virginia and provided a set of recommendations for improving the reliability of the supply of recycled materials during the next 10 years, in order to provide for beneficial use pursuant to Chapter 615 of the 2018 Acts of Assembly. The resulting evaluation, Senate Document No. 7 to the General Assembly, dated November 2019, characterized glass as "one of the larger challenges posed to recycling operators and facilities in Virginia..." VDEQ went on to make the following recommendations for improving the reliability of the supply of recycled materials: (i) Create a Waste Diversion and Recycling Task Force; (ii) Direct economic funding to recycling and beneficiation facilities; (iii) Increase resources for local recycling programs and efforts; (iii) Resources to support recycling initiatives at the state level.

Virginia SJR 42

Following the recommendation by VDEQ to establish a Waste Diversion and Recycling Task Force, the legislature passed SJR42 to do just that. The resolution requested that the Task Force include stakeholders to discuss (i) methods of improving recycling, reducing waste, and diverting waste from landfills; (ii) recommendations to reduce waste at the source, such as composting and recycling of organic material; and (iii) whether current recycling rates required by Virginia law should be increased and whether state policy should be changed to give landfills a greater role in the management of organic material. The resolution also requested that the Task Force discuss potential improvements in the goals and efficiency of the grant program funded by the Litter Control and Recycling Fund, which provides funding to local litter prevention, recycling grants to localities, and statewide and regional litter prevention and recycling educational program grants.