

GROTON RECYCLING COMMITTEE

Meeting Minutes, Thursday, December 12, 2019 7:00 pm

Town Hall Small Meeting room, 1st floor

Attendance Diana Keaney, Val Prest, Jamie King, Nancy Ohringer, and Tessa David

Meeting was opened at 7:10

Welcome

Minutes from 11/14/19 meeting were reviewed. Motion was made to accept as presented and were unanimously accepted.

Update: Black Earth Compost-Groton Food Waste Collection. Tom said he's still working on it. After DPW construction is completed improvements to proposed compost area can be made to facilitate traffic as needed.

Brainstorm Reduction Techniques:

- Glass, Val distributed material on possible uses for crushed glass. Buyers for glass. Nancy recommended that we revisit glass down the road.
- Tessa noted that Keith said he wants to separate #5 because he gets more money.
- If we purchase reusable bags we can put logo on bag as used on pens at GrotonFest.
- How can we remember to take reusable bags into stores?
 - Write on grocery list, stamp remember bag, grocery pad "remember your reusable bags"
 - Buy A frame to remember your bags
 - Refuse, don't accept bags.
- Single-use item reduction
 - Diana recommended sending out single use ideas to public via the paper, website and various publicity outlet.

Single-use item reduction was discussed and how to educate the community around this issue.

- Single use water bottles – Jamie will locate video of Chronicle show, which highlighted Concord Mass ban on sale of single size water bottles and installation of water fill stations, and will email the link to the committee
- Potentially work with Groton restaurants to dissuade automatic straw distribution and/or use of hay or paper straws.
- Articles in the Herald and Nashoba Valley Voice with tips on how to reduce use of single-use items (i.e. Say no to Straws; Waste free Halloween; return hangers to dry cleaners)
- Diana took a picture at local dry cleaners to show rows of hangers with plastic bags to show juxtaposition against African country's reusable bags to post on Facebook
- 2nd hand markets (buy more high-quality items which will last longer for 1st time buyer and be in 2nd hand market longer)
- Add some of the above information to the Transfer Station website.

Action items

- Tessa Still waiting for PDF descriptions to be posted to go along with videos on Transfer Station part of town website
- Val action item check with Keith and Tom on meeting/support for Transfer Station

Future items

- Field trip to other transfer station(s)
- Set up volunteer rotations to help assist Transfer Station users with better recycling
- Update on School Recycling
- Brainstorm Clean Recycling Practices, RecycleSmartMa.org

Meeting adjourned: 8:35

Next meeting: January 9, 2020 7:00 p.m.

SHOPPING LIST



15 horizontal lines for writing a shopping list.

SHOPPING LIST



15 horizontal lines for writing a shopping list.

SHOPPING LIST



15 horizontal lines for writing a shopping list.

Glass recycling

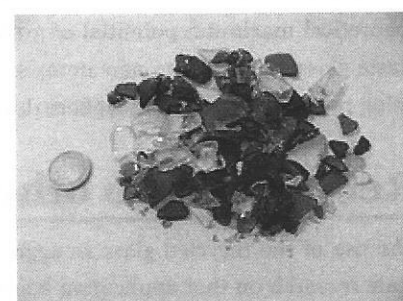
Glass recycling is the processing of waste glass into usable products. Glass that is crushed and ready to be remelted is called **cullet**.^[1] There are two types of cullet: internal and external. **Internal cullet** is composed of defective products detected and rejected by a quality control process during the industrial process of glass manufacturing, transition phases of product changes (such as thickness and colour changes) and production offcuts. **External cullet** is waste glass that has been collected or reprocessed with the purpose of recycling. External cullet (which can be pre- or post-consumer) is classified as waste. The word "cullet", when used in the context of end-of-waste, will always refer to external cullet.

To be recycled, glass waste needs to be purified and cleaned of contamination. Then, depending on the end use and local processing capabilities, it might also have to be separated into different colors. Many recyclers collect different colors of glass separately since glass retains its color after recycling. The most common colours used for consumer containers are clear (flint) glass, green glass, and brown (amber) glass. Glass is ideal for recycling since none of the material is degraded by normal use.

Many collection points have separate bins for clear (flint), green and brown (amber). Glass re-processors intending to make new glass containers require separation by color, because glass tends to retain its color after recycling. If the recycled glass is not going to be made into more glass, or if the glass re-processor uses newer optical sorting equipment, separation by color at the collection point may not be required. Heat-resistant glass, such as Pyrex or borosilicate glass, must not be part of the glass recycling stream, because even a small piece of such material will alter the viscosity of the fluid in the furnace at remelt.^[2]



Bottles in different colors



Mixed color glass cullet



Public glass waste collection point for different colors of containers

Contents

Processing of external cullet

Recycling into glass containers

Recycling into other products

By country

Australia

Germany

United Kingdom

United States of America

See also

References

External links

Processing of external cullet

To be able to use external cullet in production, any contaminants should be removed as much as possible. Typical contaminations are:

- Organics: Paper, plastics, caps, rings, PVB foils for flat glass
- Inorganics: Stones, ceramics, porcelains
- Metals: Ferrous and non-ferrous metals
- Heat resistant and lead glass

Manpower or machinery can be used in different stages of purification. Since they melt at higher temperatures than glass, separation of inorganics, the removal of heat resistant glass and lead glass is critical. In the modern recycling facilities, dryer systems and optical sorting machines are used. The input material should be sized and cleaned for the highest efficiency in automatic sorting. More than one free fall or conveyor belt sorter can be used, depending on the requirements of the process. Different colors can be sorted by optical sorting machines.

Recycling into glass containers

Glass bottles and jars are infinitely recyclable.^[3] The use of recycled glass in manufacturing conserves raw materials and reduces energy consumption.^[4] Because the chemical energy required to melt the raw materials has already been expended, the use of cullet can significantly reduce energy consumption compared with manufacturing new glass from silica (SiO_2), soda ash (Na_2CO_3), and lime (CaCO_3). Soda lime glass from virgin raw materials theoretically requires approximately 2.671 GJ/tonne compared to 1.886 GJ/tonne to melt 100% glass cullet^[5]. As a general rule, every 10% increase in cullet usage results in an energy savings of 2–3% in the melting process, with a theoretical maximum potential of 30% energy saving.^[5] Every metric ton (1,000 kg) of waste glass recycled into new items saves 315 kilograms (694 lb) of carbon dioxide from being released into the atmosphere during the manufacture of new glass.^[6]



A variant of the "Tidyman" symbol, intended to encourage people to recycle glass

Recycling into other products

The use of the recycled glass as aggregate in concrete has become popular, with large-scale research on that application being carried out at Columbia University in New York. Recycled glass greatly enhances the aesthetic appeal of the concrete. Recent research has shown that concrete made with recycled glass aggregates have better long-term strength and better thermal insulation, due to the thermal properties of the glass aggregates.^[7] Glass which is not recycled, but crushed, reduces the volume of waste sent to landfill.^{[8][2]} Waste glass may also be kept out of landfill by using it for roadbed aggregate or landfill cover.^[9]

Glass aggregate, a mix of colors crushed to a small size, is substituted for pea gravel or crushed rock in many construction and utility projects, saving municipalities, such as the City of Tumwater, Washington Public Works, thousands of dollars (depending on the size of the project). Glass aggregate is not sharp to handle. In many cases, the state Department of Transportation has specifications for use, size and percentage of quantity for use. Common applications are as pipe bedding—placed around sewer, storm water or drinking water pipes, to transfer weight from the surface and protect the pipe. Another common use is as fill to bring the level of a concrete floor even with a foundation.

Other uses for recycled glass include:

- Fiberglass insulation products
- Ceramic sanitary ware production
- As a flux in brick manufacture
- Astroturf
- Agriculture and landscape applications, such as top dressing, root zone material or golf bunker sand
- Recycled glass countertops
- As water filtration media
- Abrasives

Mixed waste streams may be collected from materials recovery facilities or mechanical biological treatment systems. Some facilities can sort mixed waste streams into different colours using electro-optical sorting units.

By country

Australia

In 2019, many Australian cities after decades of poor planning and minimum investment are winding back their glass recycling programmes in favour of plastic usage.^[10]

For many years, there was only one state in Australia with a return deposit scheme on glass containers. Other states had unsuccessfully tried to lobby for glass deposit schemes.^[11] More recently this situation has changed dramatically, with the original scheme in South Australia now joined by legislated container deposit schemes in New South Wales^[12], Queensland^[13], Australian Capital Territory^[14], and the Northern Territory, with schemes planned in Western Australia (2020) and Tasmania (2022). Victoria is the only state not yet planning to introduce such a scheme.

Germany

In 2004, Germany recycled 2.116 million tons of glass. Reusable glass or plastic (PET) bottles are available for many drinks, especially beer and carbonated water as well as soft drinks (*Mehrwegflaschen*). The deposit per bottle (*Pfand*) is €0.08-€0.15, compared to €0.25 for recyclable but not reusable plastic bottles. There is no deposit for glass bottles which do not get refilled.

United Kingdom

Glass collection points, known as *bottle banks* are very common near shopping centres, at civic amenity sites and in local neighborhoods in the United Kingdom. The first bottle bank was introduced by Stanley Race CBE, then president of the Glass Manufacturers' Federation and Ron England in Barnsley on 6 June 1977.^[15] Development work was done by the DoE at Warren Springs laboratory, Stevenage, (now AERA at Harwell) and Nazeing Glass Works, Broxbourne to prove if a usable glass product could be made from over 90% recycled glass. It was found necessary to use magnets to remove unwanted metal closures in the mixture.

Bottle banks commonly stand beside collection points for other recyclable waste like paper, metals and plastics. Local, municipal waste collectors usually have one central point for all types of waste in which large glass containers are located. There are now over 50,000 bottle banks in the United Kingdom,^[16] and 752,000 tons of glass are now recycled annually.^[16]

The waste recycling industry in the UK cannot consume all of the recycled container glass that will become available over the coming years, mainly due to the colour imbalance between that which is manufactured and that which is consumed. The UK imports much more green glass in the form of wine bottles than it uses, leading to a surplus amount for recycling.

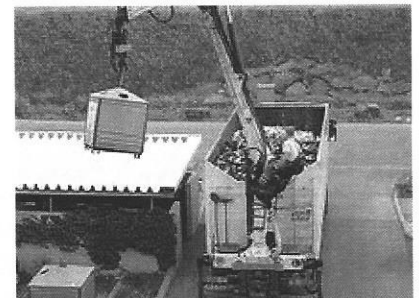
The resulting surplus of green glass from imported bottles may be exported to producing countries, or used locally in the growing diversity of secondary end uses for recycled glass.^[17] As of 2006, Cory Environmental were shipping glass cullet from the UK to Portugal.^[18]

United States of America

Rates of recycling and methods of waste collection vary substantially across the United States because laws are written on the state or local level and large municipalities often have their own unique systems. Many cities do curbside recycling, meaning they collect household recyclable waste on a weekly or bi-weekly basis that residents set out in special containers in front of their homes and transported to a materials recovery facility. This is typically single-stream recycling, which creates an impure product and partly explains why, as of 2019, the US has a recycling rate of around 33% versus 90% in some European countries.^[19]

Apartment dwellers usually use shared containers that may be collected by the city or by private recycling companies which can have their own recycling rules. In some cases, glass is specifically separated into its own container because broken glass is a hazard to the people who later manually sort the co-mingled recyclables. Sorted recyclables are later sold to companies to be used in the manufacture of new products.

In 1971, the state of Oregon passed a law requiring buyers of carbonated beverages (such as beer and soda) to pay five cents per container (increased to ten cents in April 2017) as a deposit which would be refunded to anyone who returned the container for recycling. This law has since been copied in nine other states including New York and California. The abbreviations of states with



Vehicle emptying a glass recycling container in Vienna

deposit laws are printed on all qualifying bottles and cans. In states with these container deposit laws, most supermarkets automate the deposit refund process by providing machines which will count containers as they are inserted and then print credit vouchers that can be redeemed at the store for the number of containers returned. Small glass bottles (mostly beer) are broken, one-by-one, inside these deposit refund machines as the bottles are inserted. A large, wheeled hopper (very roughly 1.5 m by 1.5 m by 0.5 m) inside the machine collects the broken glass until it can be emptied by an employee. Nationwide bottle refunds recover 80% of glass containers that require a deposit.^[20]

Major companies in the space include Strategic Materials, which purchases post-consumer glass for 47 facilities across the country.^[21] Strategic Materials has worked to correct misconceptions about glass recycling.^[22] Glass manufacturers such as Owens-Illinois ultimately include recycled glass in their product. The Glass Recycling Coalition is a group of companies and stakeholders working to improve glass recycling.^[23]

See also

- Baler
- *Castlemaine Tooheys Ltd v South Australia*,^[24]
- Container-deposit legislation
- Glass crusher
- Reuse of bottles
- Waste management

References

1. "Glass, Common Wastes & Materials" (<http://www.epa.gov/osw/conservematerials/glass.htm>). US EPA. Retrieved 22 April 2012.
2. "First in glass: 10 homegoods for Recycle Glass Month" (<http://www.mnn.com/lifestyle/recycling/blogs/first-in-glass-10-homegoods-for-recycle-glass-month>). *MNN - Mother Nature Network*.
3. "Glass Recycling Facts | Glass Packaging Institute" (<http://www.gpi.org/recycling/glass-recycling-facts>). *www.gpi.org*. Retrieved 24 January 2019.
4. <http://www.gpi.org/sites/default/files/DoE%20-%20Industrial%20Energy%20Efficiency%20One-Pager.pdf>
5. team, FPFIS (2 February 2012). "End-of-Waste Criteria for Glass Cullet: Technical Proposals" (<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/end-waste-criteria-glass-cullet-technical-proposals>). *EU Science Hub - European Commission*. p. 61. Retrieved 24 January 2019.
6. "Glass recycling information sheet" (<https://web.archive.org/web/20061118213834/http://www.wasteonline.org.uk/resources/InformationSheets/Glass.htm>). *wasteonline.org.uk*. Archived from the original (<http://www.wasteonline.org.uk/resources/InformationSheets/Glass.htm>) on 18 November 2006. Retrieved 26 November 2006.
7. K.H. Poutos, A.M. Alani, P.J. Walden, C.M. Sangha. (2008). Relative temperature changes within concrete made with recycled glass aggregate. *Construction and Building Materials*, Volume 22, Issue 4, Pages 557-565.
8. British Standards Institute (2005) PAS 101, Recovered container glass, Specification for quality and guidance for good practice in collection
9. <http://www.gpi.org/sites/default/files/DoE%20-%20Industrial%20Energy%20Efficiency%20One-Pager.pdf>
10. "Its time to pass on glass recycling" (<https://www.thecourier.com.au/story/6409359/its-time-to-pass-on-glass-in-your-yellow-recycling-bin>). *The Courier Ballarat Australia*. 27 September 2019. Retrieved 27 September 2019.
11. "Why is there rubbish here dad? go ask Coca-Cola Amatil" (<https://www.abc.net.au/news/2013-08-08/ritter---bottle-recycling/4873740>). *ABC News Australia*. 3 August 2013. Retrieved 3 August 2013.
12. mir-rachel. "About Return and Earn" (<https://returnandearn.org.au/about-return-and-earn/>). *Return and Earn NSW*. Retrieved 30 November 2019.
13. "A recycling scheme to keep Queensland beautiful" (<https://www.containersforchange.com.au/qld>). *CoEx - Container Exchange*. Retrieved 30 November 2019.
14. "Home" (<https://actcds.com.au/>). *ACT Container Deposit Scheme*. Retrieved 30 November 2019.
15. "Bottle bank celebrates birthday" (http://news.bbc.co.uk/1/hi/england/south_yorkshire/6724099.stm). *BBC News*. 6 June 2007. Retrieved 3 May 2010.
16. "Big British bottle bank birthday" (<http://uk.reuters.com/article/domesticNews/idUKL0586716920070606>). *reuters.com*.
17. British Standards Institute (2005) PAS 102, Specification for processed glass for selected secondary end markets

18. Cory shipping mixed glass to Portugal direct from Cornwall (<http://www.letsrecycle.com/materials/glass/news.jsp?story=6296>), www.letsrecycle.com. Retrieved 2006-11-28
19. "Why glass recycling in the US is broken" (<https://cen.acs.org/materials/inorganic-chemistry/glass-recycling-US-broken/97/i6>). *Chemical & Engineering News*. Retrieved 29 August 2019.
20. <http://www.gpi.org/sites/default/files/DoE%20-%20Industrial%20Energy%20Efficiency%20One-Pager.pdf>
21. "Glass recycling giant acquired by investment firm" (<https://resource-recycling.com/recycling/2017/10/24/glass-recycling-giant-acquired-investment-firm/>). *Resource Recycling News*. 24 October 2017. Retrieved 29 August 2019.
22. "Busting myths about glass recycling" (<https://www.recyclingtoday.com/article/busting-myths-about-glass-recycling/>). *Recycling Today*. Retrieved 29 August 2019.
23. Breen, Scott (12 October 2018). "How a unique industry collaboration is bottling a new future for U.S. glass recycling" (<https://www.greenbiz.com/article/how-unique-industry-collaboration-bottling-new-future-us-glass-recycling>). *GreenBiz*. Retrieved 29 August 2019.
24. *Castlemaine Tooheys Ltd v South Australia* [1990] HCA 1 (<http://www.austlii.edu.au/au/cases/cth/HCA/1990/1.html>), (1990) 169 CLR 436 (7 February 1990), High Court.

External links

- "Plant Chops Old Bottles For New", August 1949, Popular Science (https://books.google.com/books?id=OSQDAAAAMBAJ&pg=RA1-PA154&dq=popular+science+August+1949&hl=en&ei=6zPiTNmRAY39nAfsp7zpDw&sa=X&oi=book_result&ct=result&resnum=4&sqi=2&ved=0CDwQ6AEwAw#v=onepage&q=popular%20science%20August%201949&f=true) article on the basics of glass recycling

Retrieved from "https://en.wikipedia.org/w/index.php?title=Glass_recycling&oldid=928723369"

This page was last edited on 1 December 2019, at 06:28 (UTC).

Text is available under the Creative Commons Attribution-ShareAlike License; additional terms may apply. By using this site, you agree to the Terms of Use and Privacy Policy. Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a non-profit organization.

Buying Scrap

[Post Buy Offer](#)

[Browse Sell Offers](#)

[Scrap Suppliers](#)

Selling Scrap

[Post Sell Offer](#)

[Browse Buy Offers](#)

[Scrap Buyers](#)

Buyers

- General

Scrap Metal
Aluminium Scrap
Copper Scrap
Lead Scrap
Electronic Scrap
Battery Scrap
Brass Scrap
Glass Scrap
Other

- Plastic

PET
HDPE
PolyVinylChloride
LDPE
PolyPropylene
Polyethylene
Polycarbonate
ABS
Mixed
Nylon
Other

- Paper

Baled
Cardboard
Other

- Rubber

Butyl
Granules
Tyres
Rubble
Other

Scrap Buyers

Please input a keyword

[Search](#)

[Advanced Search](#)

Home > Scrap Buyers > general > glass

Sell Offers	Buy Offers
Suppliers	Buyers

Refine by Country

[United States \[88\]](#)

[India \[73\]](#)

[Pakistan \[42\]](#)

[China \[28\]](#)

[United Arab Emirates \[21\]](#)

[Malaysia \[21\]](#)

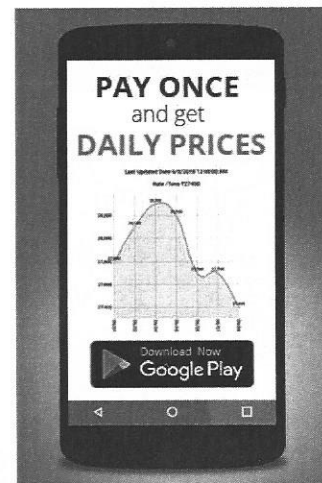
[Canada \[17\]](#)

[United Kingdom \[15\]](#)

[Philippines \[13\]](#)

[Australia \[11\]](#)

[\[show more...\]](#)



General: Glass Scrap Buyers from United States!

Find buyers for glass scrap from United States. glass scrap buyers from United States who are verified by RIM will have a "RIM Verified" Icon. The Trust Mark for scrap buyers is an indication of the authenticity of the glass scrap buyer. Higher the Trust Mark, better the trust. You can sort the glass scrap buyers from United States by Trust Marks, RIM Verified, Posted date etc. by selecting the appropriate field in the drop down menu.

[Select All](#)

[Add to Basket](#)

[Contact Buyer](#)

Show: [All Buyers](#)



Liberty International Trading Inc

Liberty International Trading Inc. is one of the top Metal Scrap Trading and Recycling Company based in Shrewsbury, United States. We are al [...>>](#)

420, BOSTON TURNPIKE
Shrewsbury

Phone : [View Details](#)

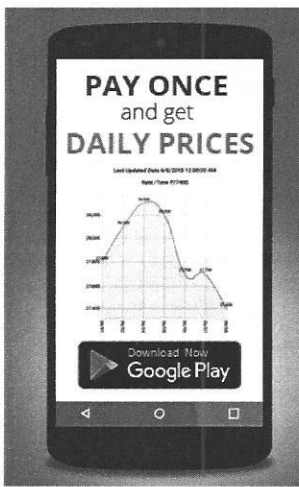
[Global Buyer / Importer](#)

Shrewsbury [United States](#)

[Contact Buyer](#)

[Pace Glass Inc](#)

Founded in 2013, Pace Glass Inc is a Glass Scrap recycling company located in New York, United States. We accept commingled glass, regardless [...>>](#)



31-10 37th Avenue Suite
500, LLC,
New York

Phone : [View Details](#)

Global Buyer / Importer

New York United States

Contact Buyer



D Trading Solutions, LLC

D Trading Solutions, LLC is established in the year 2017 and located at United States. We are committed to deliver the best experience in re [...>>](#)

7500 NW 25 ST, Unit # 216-
A
Miami

Phone : [View Details](#)

Global Buyer / Importer

~~69~~

Miami United States

Contact Buyer



CMKR INC.

CMKR INC. is a US based Electronic Scrap Recycling Company established in the year 2016. We do have a Government owned recycling factory in [...>>](#)

2424 Broad Street
Houston

Phone : [View Details](#)

Global Buyer / Importer

Houston United States

Contact Buyer



Ontiveros Polymer Recovery.LLC

Grind/shred post and non-consumer PET & HDPE bottles into [...>>](#)

Global Buyer / Importer

Contact Buyer



Mindo Usa, Inc.

Mindo Usa, Inc. is an US based Outdoor Furniture company established in the year 2013. We specialize in outdoor furniture with extra glass t [...>>](#)

Local Buyer (United States)

Conover United States

Contact Buyer

No image available

Artesia Metals, Inc

Artesia Metals, Inc is a leading scrap metal recycling company based in Artesia, New Mexico. We specialize in recycling scrap metals(Alumin [...>>](#)

Global Buyer / Importer

Artesia United States

Contact Buyer

No image available

Community Conservation Center

Community Conservation Centers (CCC) has been operating Berkeley Recycling at Second and Gilman Streets in Berkeley since September 1982. CC [...>>](#)

Global Buyer / Importer

Berkeley United States

Contact Buyer

No image available

Bruno's Iron & Metal Recycling

Bruno's has been in operation since the early 1950's, when Bruno Tosi started the business. Today, Bruno's is run by Randy Tosi, the third g [...>>](#)

Global Buyer / Importer

Fresno United States

Contact Buyer

No image available

Delta Scrap & Salvage, Inc

Delta Scrap and Salvage has been a leader in the field of Recycling, Investment Recovery and Demolition since 1975. We've been helping comp [...>>](#)

Global Buyer / Importer

Oakley United States

Contact Buyer

Know about RIM

About RIM

SiteMap

Buying at RIM

Browse sell offers

Browse Sellers

Selling at RIM

Browse buy offers

Browse Buyers

RIM Scrap Prices

US Scrap Prices

UK Scrap Prices