

Glass Packaging Institute

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Glass is ENDLESSLY Recyclable



Glass Packaging Institute



The **Glass Packaging Institute (GPI)** represents the North American glass container industry:

- 6 member glass container producers (with multiple plant operations)
- 40 associate member supplier companies

Through GPI, glass container manufacturers advocate job preservation and industry standards; provide education; and promote sound energy, environmental, and recycling policies.

www.gpi.org

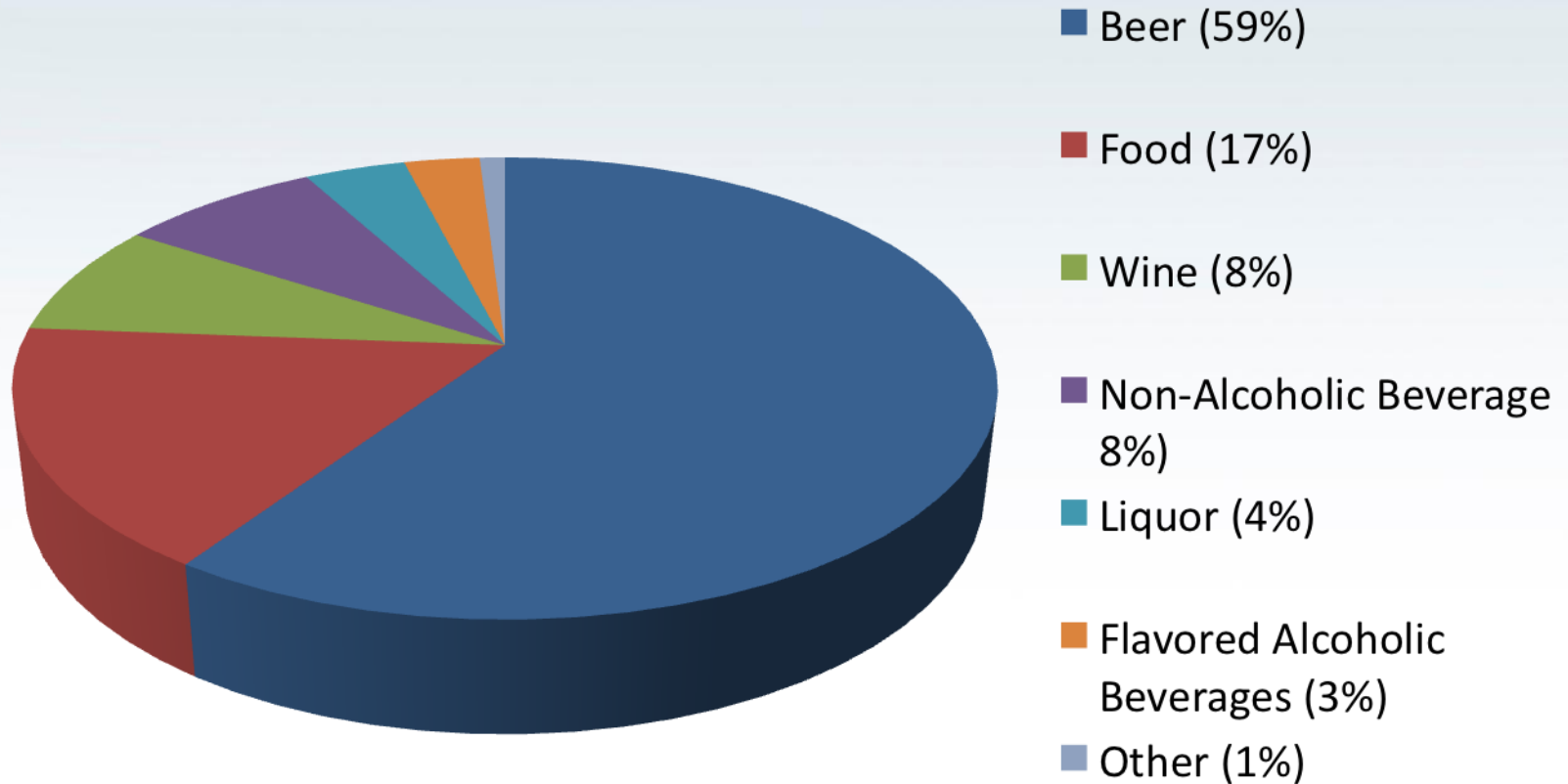


Glass Packaging Industry

- 48 glass container plants in 22 states comprise a **\$5.5 billion dollar industry**
- 102 glass container furnaces produce approximately **30 billion glass food, beverage, cosmetic, spirits, wine, and beer containers annually**
- The industry employs approximately **18,000 employees nationwide**



2012 U.S. Glass Container Shipments by Category

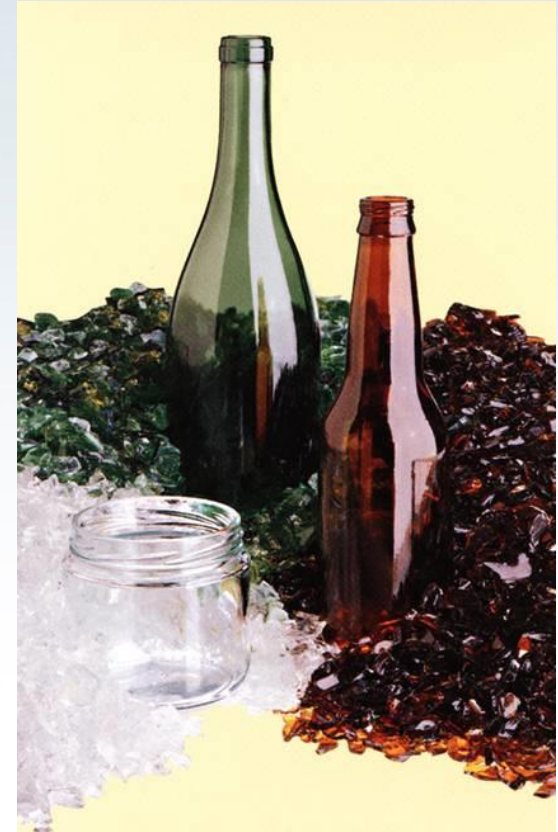


Source: Glass Packaging Institute (GPI)



Why Recycle Glass?

- Glass is **100% recyclable**; it has an unlimited life and can be recycled endlessly
- Over a ton of **natural resources saved** for every ton of glass recycled
- **Energy costs drop** about 2-3% for every 10% recycled glass used in the manufacturing process
- Six tons of recycled container glass used equals one ton of **carbon dioxide reduced**



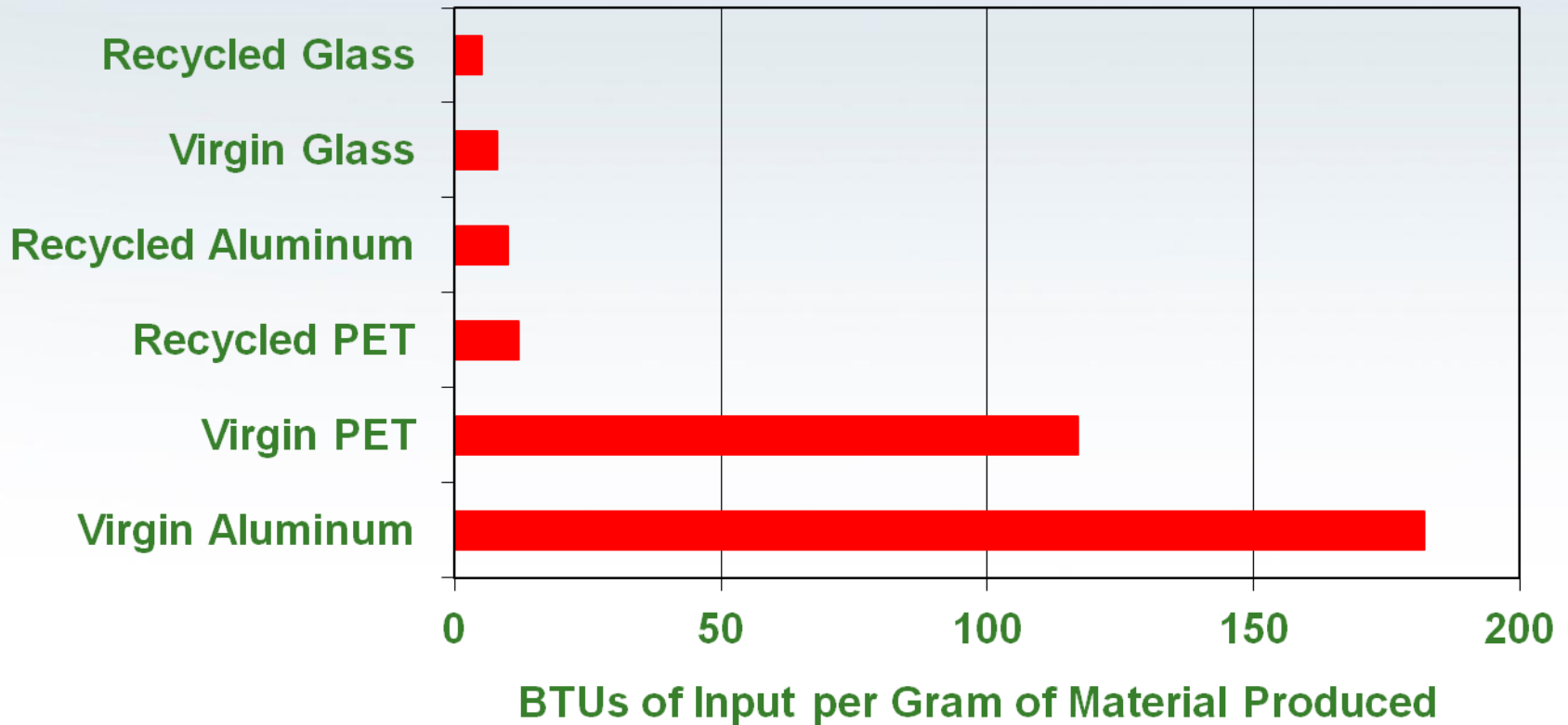
Why Recycle Glass?

- **Lessens greenhouse gas emissions:** for every 6 tons of recycled glass used, one ton of carbon dioxide reduced
- **Minimizes consumption of raw materials,** lowering costs and extending furnace life
- **Reduces landfill dependence** and helping communities avoid disposal costs



U.S. Packaging Industry

Energy Required to Make Various Packaging Materials

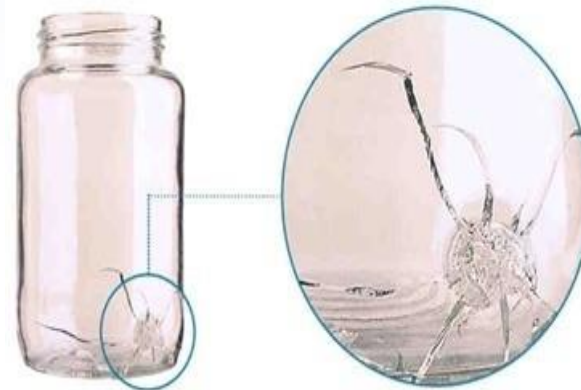


Source: Daniel Imhof *Paper or Plastic*, <http://www.environmentaldefense.org/home.cfm>



Closed-Loop Glass Recycling: Critical Issues

- Collection systems
- Cullet quality and markets
- Competition for other uses
- Costs



The effects of ceramic contamination.

Closed-Loop Glass Recycling

High-quality recycled glass =
New glass bottles and jars



=



Primary Markets for Quality Cullet

Glass bottles
and jars



Fiberglass



Secondary Markets for Cullet

- Countertops and floors



- Landscaping



- Tile



Secondary Markets for Cullet



▪ Bead



▪ Frictionators



▪ Filtration



▪ Fluxes/Additives

- Abrasives/sand blasting
- Brick manufacturing
- Roadbed Aggregate - **Diversion**
- Landfill Cover - **Diversion**

Sources for Recycled Glass Containers



- **Curbside** (usually single-stream)
- **Drop-off**
- **Beverage container deposits** (currently 10 states)
- **Commercial** (bars, restaurants, hotels, etc.)
- **Unused inventory**
- **In-house cullet**

Achieving Increased Glass Recycling

GPI is working to improve the quantity and quality of recovered recycled glass:



- Partnerships with stakeholders to improve glass recycling/recovery rates
- Improved data collection/analysis – understanding
- Effective legislative initiatives at federal and state levels
- Currently examining how single stream and bottles bill can work together, both in terms of materials recovered and financially.
- Expanded bar, restaurant, and hotel collection programs



Recycling Collection Systems

- **Curbside single-stream recycling collection**
 - 60% of glass could be recycled into new glass containers or fiberglass; another 19% goes to secondary uses; and 21% to landfills*
- **Mixed glass collected in dual-stream systems**
 - yields an average of 90% of glass being recycled into glass containers and fiberglass
- **Container deposit systems**
 - color-sorted materials results in 98% glass being recycled

Source: Container Recycling Institute, 2009 Study; *Container Recycling Institute, 2012 survey



Closed-Loop Glass Recycling: Current Cullet Usage Criteria

- **Container Glass Only:** no ceramic coffee cups, drinking glasses, Pyrex, ovenware, mirrors, etc.
- **Contaminant Free:** No ferrous materials, ceramics, etc.
- **Color Sorted:** Clear, Amber, and Green
- **Meets plant specifications** as to particle size (usually 3/8 inch)



Closed-Loop Glass Recycling: Cullet Quality and Markets

MRF Processing and Quality

- Glass handling
- Sorting equipment
- Negative sort



Markets for Closed-Loop Glass Recycling

- Additional costs to sort at cullet processor
- Poor quality leads to diversion alternatives



Cullet Processor Locations and Sorting Technology

- Growth in cullet processor locations:
 - 5 new facilities in 2012
- Expansion in sorting technologies:
 - Cullet processors with optical sorting technologies becoming the new standard
 - In 2012, cullet processor SMI had three-mix color sorting technology in nearly half of its 40+ facilities

83 Cullet Processor Locations in 35 States

- California 11
- Pennsylvania 9
- Ohio 4
- New Jersey 4
- New York 4
- North Carolina 4
- Florida 3
- Georgia 3
- Indiana 3
- Minnesota 3
- Texas 3
- Connecticut 3
- AZ, CO, KY, MI, MO, WA 2
- AL, IA, IL, KS, MA, MD, ME, MS, NE, NV, OK OR, SC, TN, UT, VA, WI 1

Improving Recycled Glass Markets and Revenue

- To improve markets—and revenue—for recovered glass:
 - **Step up quality control** to weed out contamination
 - **Retain glass size** during collection and processing
 - Set up **recycling contract incentives** with a shared revenue component
 - Use new, **high-tech equipment**, such as optical sorting

Questions?

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