Effects of Glass Recycling in the Glass Container Industry

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Anchor Glass Container Locations

Locations

Map Legend
- Corporate Headquarters
- Glass Manufacturing Facility
- Support Facility
Cullet Impact By Location – 10-45% usage today

- **Elmira, NY**
  - Bottle Bill cullet excellent quality excess suppliers in the region

- **Shakopee, MN**
  - Bottle return that we process ourselves
  - MRF Processed cullet – quality issues

- **Jacksonville, FL**
  - Brewery return cullet very clean
  - MRF Processed cullet – major quality issues

- **Henryetta, OK**
  - MRF Processed cullet – quality issues
  - Local cullet processors no quality issues

- **Warner Robins, GA**
  - Good clean cullet from the East Coast BB region
  - MRF Processed cullet – quality issues

- **Lawrenceburg, IN**
  - Produces own cullet purchases very little from industry
Benefits of Using More Cullet

• **Positives**
  • Requires less energy to melt than raw material ($2.00/mmbtu?)
  • 100% recyclability (no wasted material) in the melting & forming process
  • Lower furnace emissions and temperatures
  • Reduces material going to landfills

• **Obstacles**
  • Consistent supply and reliability with quality
  • Contamination in recycled glass (cullet) supply causes imperfections in glass containers
    • Container rejects due to “stones”
    • Lost production efficiency
    • Increased accident potential from glass-related injury
  • Difficult to identify & reject incoming cullet supply
  • Difficult to prevent all contamination related defects from reaching our customer.
Cullet Contamination

- **Types of Contamination**
  - Ceramics (Coffee Cups, Dinner Plates)
  - Opal Borosilicate
    - Hi temp cookware/Corelle, Visionware
  - Non-Ferrous Metal
    - Copper, Stainless Steel, Aluminum
    - Bottle Crowns (caps)
  - Medical Waste
    - Spent needles

Stones can be very small and hard to detect due to size and location in the container.

- **Cullet Specifications**
  - ½ inch in size or slightly larger
  - No ceramics/Opal Borosilicates
  - No plastic
  - No metals
  - No medical waste
  - Properly color sorted cannot exceed specs in other colors
Cullet World Keeps Shrinking

• SMI buys Reflective Industries
  – SMI advises this is good for everyone in the industry!

• MRF sellers struggle with relationships but cost to enter market are capital intensive upfront

• WM removing glass from recycle stream in Atlanta – no end use claimed (how many more markets will this happen)

• How do we expand bottle bill recycling or local recycling such as hospitality bins

• Transportation is key to expanding cullet use – we are truck and rail capable at all Anchor sites

• We are on board to improving the recycling and consumption of glass in our business
### Glass Recycling Rates By Country

#### 1996/1998 vs. 2010

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Sources: FEVE, Europen (for Belgium and Luxembourg 1998 rates)
Note: 1998 glass recycling rates were used for Belgium and Luxembourg because these data were missing from the 1996 dataset

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