



Best Practices in Glass Recycling

Cullet Specifications for Container Manufacturing

Material: Recycled Glass

Issue: *Container manufacturing is the primary market for recycled glass cullet in the United States. Although all container manufacturers use some recycled cullet in glass batches, there is a lack of uniform specifications for both recycled glass and furnace-ready cullet. This can represent a significant market barrier to processors of recycled glass seeking to access the primary market. Often processors design systems to meet the needs of specific manufacturers. This can leave processors vulnerable to changes in the consumption patterns of a single manufacturer. Industry-wide quality requirements are needed to ensure that suppliers have equal access to container manufacturing markets. Further, specifications written at the corporate level are subject to interpretation at the plant level. Plant engineers may have expectations of cullet that are more or less stringent than the written specifications. As a result, the quality assurance procedures undertaken by those managers may tend to be more subjective than specifications suggest.*

Best Practice: The next page contains a specification derived from existing specifications and interviews with processors and users. It may serve to educate those unfamiliar with cullet specifications and as a starting point for development of uniform specifications.

Implementation: Incipient trading in recycled glass on the Chicago Board of Trade (CBOT) may help to open an industry-wide discussion for the establishment of uniform specifications. Whether or not CBOT trading succeeds, that discussion should continue within the glass manufacturing industry.

Benefits: The existence of well-defined industry specifications can potentially be a benefit to both processors and users of furnace-ready cullet. Processors can design their systems knowing that they are not subject to the whims of a single buyer. Buyers can purchase from multiple sources with confidence that processors understand industry quality standards.

Application Sites: Glass beneficiation facilities, Glass container manufacturing facilities, Material recovery facilities

Contact: For more information about this Best Practice, contact CWC, (206) 443-7746, e-mail info@cwc.org.

References:

CBOT Recyclables Exchange Literature, www.cbot-recycle.com, Sept. 1996.

Glass Specifications Memorandum, New York State Office of Recycling Market Development, Garrett Dolan Memorandum dated March 19, 1993.

Methods for Sampling and Testing Glass Cullet, ReTAP, Clean Washington Center, 1996.

Written Cullet Specifications: Anchor Glass Container, Owens-Brockway, Miller Brewing Company - New York Bottle Company Division, and Foster Forbes Glass.

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Specification for Container Manufacturing

Grade A: Processed Cullet

(Excerpted from CBOT Recyclables Exchange literature)

This specification covers food/beverage glass containers (soda-lime-silica) only and is representative of the quality needs of the glass container industry.

Size - 100% by weight of cullet must pass a 50 mm. (2 inch) screen and no more than 10% by weight shall pass No.140 screen. Ideal range between 19 mm. (3/4 inch) and 10 mm. (3/8 inch).

Color (three options)

Flint: Total non-flint colors not to exceed 5% by weight:

95 to 100 percent flint

0 to 5 percent amber

0 to 1 percent green

0 to 0.5 percent other colors

Amber: Total non-amber colors not to exceed 10% by weight:

90 to 100 percent amber

0 to 10 percent flint

0 to 10 percent green

0 to 5 percent other colors

Green: Total non-green colors not to exceed 30 percent by weight:

70 to 100 percent green

0 to 15 percent amber

0 to 15 percent flint

0 to 10 percent other colors

Example: Flint: 95% by weight of a total load must be flint within a maximum threshold of 5 weight percent of other colors. The combination of colors within the "other colors" category, however, must adhere to the specified limits for each color (no more than 5 weight percent of amber, or 4 weight percent amber and 1 weight percent green, or 3.5 weight percent amber and 1 weight percent green and 0.5 weight percent others colors).

Moisture - Cullet must be free of excessive moisture by showing no visual drainage while being tipped and be non-caking and free flowing.

Contamination

Organic materials - only glass packaging material (labels, plastic caps and plastic rings) may be present in quantities not to exceed 0.2 weight percent for flint and 0.4 weight percent for amber and green glass cullet.

Metals

- Ferrous metals (magnetic) - none permitted.
- Non-ferrous metals (non-magnetic) - no more than 5 particles per truck load and/or 2 particles per initial visual inspection.

Inorganic materials - no more than 1 particle over the size of 1/2 inch per truck load and/or 3 particles under 1/2 inch per initial visual inspection.

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