



BENEFICIATED CULLET SPECIFICATIONS (GLASS)

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1. Purpose

These specifications are designed to achieve best practice in beneficiated glass cullet recycling, covering the following:

- Chemical composition
- Sizing
- Colour
- Moisture content
- Contaminants
- Purchase agreement; and,
- Testing methods and sampling

This specification document is a benchmark for buyers and suppliers within the Australian recycling industry. ACOR welcomes feedback on all specifications at any time to ensure they reflect current industry practice. Individual buyers and sellers can use it as a workbook or a reference for trading and negotiation. It is not compulsory for buyers and sellers to comply with the standards. However, buyers and sellers are strongly encouraged to work together and reach an agreement regarding terms and conditions.

2. Definitions

Beneficiated glass: glass cullet that has been sorted, cleaned, crushed and is ready for sale to manufacturers.

Processed glass cullet: Crushed and contaminate- free glass.

Unprocessed glass cullet: A piece of whole or broken glass.

Organic matter: Non- glass items that consist of organic materials, including, but are not limited to, paper labels.

Ferrous materials: Magnetic metals, such as iron, steel, etc.

Non- ferrous materials: Non- magnetic metals, such as aluminium, copper, lead, etc.

3. Container Glass Recycling

The highest and best use of recycled container glass is bottle- to- bottle. However, other uses exist such as aggregate and building materials. Container glass includes:

- Clear, green, amber or brown bottles, including wine, beer, juice, soft drink and sauce bottles
- Glass jars that are used to contain jams or spreads

4. Chemical Composition

The table below outlines the chemical composition of beneficiated glass cullet. This composition applies to a majority of glass containers used for beverage and food packaging.

Chemical components	Content
Na ₂ O + K ₂ O + Li ₂ O	12- 15%
CaO + MgO	10- 13%
Al ₂ O ₃	1-2%
Other Oxides (except SiO ₂)	0-1%
SiO ₂	Balance
Lead (Pb) (ppm)	Maximum 100 ppm

5. Colour

Colour

Specifications

Flint	<ul style="list-style-type: none"> • Minimum flint glass 98.0%, of which 2.0% may be pale blue. • Maximum glass of other colours 2.0%, of which not more than 0.3% may be dark green or dark blue glass.
Amber	<ul style="list-style-type: none"> • Minimum amber glass 90.0%. • Maximum glass of other colours 10.0%, of which not more than 5.0% may be dark green and not more than 5.0% may be dark blue glass.
Green	<ul style="list-style-type: none"> • Minimum green glass 90%, of which 5.0% may be pale blue. • Maximum glass of other colours 10.0%, of which not more than 1.0% may be dark and pale blue glass.

6. Sizing

- All pieces must be less than 50mm to pass a screen.
- Agreement has to be reached by both parties if the cullet size is larger than 50mm. No more than 10% of pieces are to be less than 8mm.

7. Moisture Content

- The maximum moisture content in processed cullet should not be more than 3%.
- A processed cullet should not be accepted with obvious water or moisture leaching from the material.

8. Contaminants

8.1.Hazard

Other non- glass materials should not exceed the contamination levels that are listed below:

Contaminants	Content
Organic matter	Maximum of 3kg per tonne of cullet
Ferrous materials (e.g. Iron, steel, etc.)	Maximum of 3g per tonne of cullet
Non- ferrous metals (e.g. Aluminum, brass, etc.)	Maximum of 15g per tonne of cullet
Ceramics, refractory, glass- ceramic, etc.	Maximum of 15g per tonne of cullet

In addition, the maximum size of any piece of contamination should not be more than 1cm.

8.2.Prohibited

A cullet should be free from any materials below:

- Non- glass containers, including aluminium cans and containers, plastic bottles and containers, and steel containers
- Any Pyroceramic materials, including, but not limited to clear amber, clear cranberry and white, and opaque Visionware

9. Purchase Agreement

9.1. Grade specifications

Each glass cullet grade should be specified in accordance with these specifications.

9.2. Quantity

The quantity should be specified in tonne(s).

9.3. Packaging

- It should be clearly stated whether shipped units are to be boxed, or transported in bulk by car, truck or trailer.
- The approximate sizes and weights should be clearly and concisely specified.

9.4. Price

- The agreed price should be clearly stated in Australian currency per tonne, including the relevant agreed shipping terms.
- If overseas currencies are used, both parties should agree with the payment terms, regarding the exchange rates either on the day of transaction or the day of payment.

9.5. Rejection

If the shipment is NOT aligned with the order, shipping notice and/ or other parameters that are agreed between both parties and/ or does NOT conform to any requirements set forth in these specifications, the buyer may seek to reserve the right to totally or partially reject the cullet.

10. Testing and Sampling

A representative 100 kg sample of processed cullet should be taken and tested according to the following methods:

Ceramics and Metals

- The 100 kg sample must be spread on a suitable table, hand sorted, have the contaminants removed and weighed.
- Under normal circumstances, this test should take one person and no more than 30 minutes.

Colour

- 5kg of the processed material should be passed over a screen with square holes between 6mm and 7 mm in size.
- Flint: 1kg of the cullet retained on the screen should be removed and hand sorted to determine the level of non- flint glass present.
- Amber: 500g of the cullet retained on the screen should be removed and hand sorted to determine the level of amber glass present.
- Green: 500g of the cullet retained on the screen should be removed and hand sorted to determine the level of green glass present
- Mixed: 500g of the cullet retained on the screen should be removed and hand sorted to determine the amounts of each glass present.