

SINGLE-STREAM CONTAMINATION REDUCTION TOOLKIT



SINGLE-STREAM COLLECTION

Overview

Single-stream collection is a collection method where materials accepted from homes (paper, cardboard, metal, plastic containers, and paper cartons) are mixed in the same recycling collection box, cart or bin. Single-stream collection can occur either as curbside collection (households that set out material individually for pick up) or as multi-family collection (collection from a central location in residences with five or more units).

Recycle BC has 148 curbside and multi-family collectors as part of its network. Of those collectors, 99 are single-stream collectors and 49 are multi-stream collectors.

Over the past number of years, single-stream contamination rates are approximately double the contamination rates of multi-stream collectors.

We want to support our single-stream collectors and their residents with resources and information to encourage correct recycling habits.

Considerations for single-stream collection

Glass	Glass is not permitted comingled in single-stream collection and must be either taken to a depot by residents or collected separately from other single-stream materials.
Sorting	Residents are not required to sort paper and containers from each other; they both go in the same bin for collection.
Labour	Collectors can have reduced labour and collection costs for single-stream collection. Bins can be collected manually or automated using an 'arm' on the truck to grab, lift and tip the bin.
Contamination	On average, single stream contamination rates are close to double contamination rates of multi-stream collectors and depot collectors.

CONTAMINATION

Defining Contamination

Contamination impacts our ability to recycle collected material and is made up of the following:

Incompatible material:

- Not-accepted materials
- Unsortable material
- Contaminated packaging and paper (10% or more of the product remaining in the package)
- Hazardous materials

Mis-sorted materials

- Comingled glass
- Flexible plastics
- Foam

Measuring Contamination

Contamination rates are determined using Recycle BC's audit data. Recycle BC conducts over 1600 collection samples which are audited at the Centre for Material Intelligence each year. Samples are taken from a randomized selection of collectors designed to provide insight into the materials placed out for recycling around the province. The audit categories enable feedback to collectors and residents. Audit results are formulated into score cards and provided to majority of collectors quarterly.

Contamination Rate refers to materials that are not accepted in the Recycle BC program. While mis-sorted materials can cause significant challenges, they aren't included as contamination when calculating the contamination rate for collectors.

Impacts of Contamination

Contamination has significant impacts on the recycling system and our ability to effectively recycle materials. In addition to decreasing the recycling rate of collected materials, increased contamination limits our ability to access domestic end markets, which we continually strive for. Low contamination improves the quality of materials, allowing access to more North American end markets. In turn,

accessing onshore end markets mitigates environmental impacts by reducing Green House Gas (GHG) contributions from program operations.

In addition, there are a number of other factors that support reducing contamination.

- Ensures the health and safety of all those handling materials throughout the supply chain.
- Mitigating potential damage to facilities and machinery.
- Supports provincial understanding of recycling options.
- Reduces program costs by removing out-of-scope materials and the need to manage materials that are more appropriate for landfill or other recycling programs.
- Promotes environmental integrity.

Contamination Reduction

Recycle BC supports the reduction of contamination throughout our supply chain and we recognize the majority of contamination enters our system by residents including incompatible material for collection. To support reduction at the source, Recycle BC and its team support collectors with the following recommendations.

1. Conduct regular promotion and education (P&E) such as:
 - Resident recycling calendars and guides that clearly outline accepted and non-accepted materials.
 - Social media campaigns and seasonal reminders.
 - Promotional videos and infographics.
 - Newsletters or direct mail education to residents.
 - Education inserts in utility mailings.
 - Mentorship opportunities with other community groups to increase awareness and distribution of information (e.g. Rotary Club, Lions Club, local environmental groups, gardening clubs, etc.).
 - Educational stickers or labels for collection containers:
 - Updates about upcoming changes
 - Accepted/not accepted material lists
 - 'Oops' stickers for rejected materials or 'gold star' stickers for carts containing only accepted material.
 - 'Door hanger' style tags for cart programs.
 - Advertisements (newspapers, bus shelters, billboards etc.).
 - Wraps or decals on collection trucks.
 - Press releases and media engagement.
 - Website that is easy to navigate and provides critical information.
 - Information booths at farmers markets, community events, etc.
 - Door to door surveys to gauge recycling program awareness.
 - Mobilization and coordination with community champions and local groups.
 - Lobby education events (multi-family).
 - Posters in recycling rooms by category above respective carts or with full accepted material list (multi-family).
2. Monitoring:
 - Conduct collection ride-alongs.
 - Supervisory and management staff can gain valuable information when doing ride-alongs with collection teams. Recycle BC staff regularly perform ride-alongs with vehicle

drivers in our direct service communities. In our experience, this is one of the best ways to see firsthand what the issues are, where they are occurring and how to address them. By getting in the field and assisting with actual collection (even if only for a couple hours), critical information can be gathered to assist in contamination reduction strategies.

- Conduct curbside audits.
 - As an alternative to ride-alongs, supervisory and management staff can perform regular surveys of the material being set out for collection, even if just a representative sample (street, neighborhood or route). This tactic has been employed successfully by Recycle BC to gather critical information on issues in the field and to gauge improvement. Recycle BC field staff are available to participate in such surveys with collector representatives, if requested. This tactic can also be combined with the type of enforcement actions outlined below (e.g. 'oops' stickers). Select various demographics, including new and old neighborhoods, and vary neighborhoods dependent on income levels and age of residents.
- Conduct bin inspections.
 - Utilizing supplemental staff, even seasonally, such as 'summer students' or ambassadors to conduct regular and systematic cart or bin inspections can gather valuable information and increase the number of residents that receive doorstep education.
- Use audit or inspection results to pinpoint problematic routes and materials.
- Do regular check-ins with collection staff.
 - Supervisory and management staff (e.g. local government staff) should meet regularly with route supervisors and collection drivers, even if using a contractor and not in-house staff, to review issues, brainstorm strategies and celebrate successes. Collection staff often have a direct window into what strategies are working and what areas of their routes are more problematic than others.
- Use onboard collection truck technology.
 - Implementation of a Radio Frequency Identification Device (RFID) system can be used as a critical element of quality control procedures to identify and manage contamination.
- Use technology for cart or bin inspections.
 - Having inspectors equipped with a device to record data at the time of inspection (such as an iPad) can ensure consistent data collection and can save information for follow up in one convenient location. Software can also be used to upload information immediately to the office staff.
- Use Recycle BC audit results to understand truck/route contamination levels and pinpoint specific regions in the service area with higher contamination, trends in material composition etc., allowing tailored messaging to specific regions.
- Have route drivers pre-screen a set number of collection containers each collection day and have drivers pre-screen repeat offenders. Contaminated containers can be rejected, and the address of the resident recorded to submit to administrative staff for follow-up education.

3. Training:

- Train collection crews and office/support staff to recognize all accepted and not-accepted materials, including:
 - Collection crews and contractors.
 - Route supervisors and managers, whether in house or contracted.
 - Inspectors or student ambassadors.

- Administrative staff responsible for receiving public inquiries.
- Bylaw and enforcement staff.

4. Enforcement:

- Leave contamination behind in bins with an 'oops' sticker attached indicating why it was left.
- Identify and record contamination by drivers, triggering a letter or postcard sent to individual households.
- Change bylaws to allow fines to be administered or temporary cart removal to households with repeat contamination issues.
- Implement onboard truck monitoring technology.
- Leave small amounts of contamination behind in plastic bags (easily found in recycling) tied to cart handles or taped to bins so material left behind isn't placed on the ground.
- Leave entire bins/carts uncollected at the curb with 'oops' stickers attached.
- Offer a training session to residents that have had their bin taken away or a fine issued as a way to waive the fine, or have the bin reinstated.
- In cart-based or bin programs, have a pilot vehicle or ground staff monitor carts, and reject them prior to pick up.
- Identify procedures for enforcing contamination and repeat contamination.
- Switch out overhead bins for carts in multi-family units.

5. Tracking:

- Maintain a database of households audited.
- Track the number of rejected bins/carts.
- Monitor the number of "oops" stickers administered.
- Ensure documentation takes place for any fines implemented.
- Record the number of contamination notices given/mailed to residents.
- Identify addresses with repeat offenses as 'consistent contaminators'.
- Detail the outreach activities performed.
- Document any door-to-door resident engagement.
- Compile any resident engagement delivered through website, social media, or call in center related to contamination concerns.
- Log onboard technology infraction notifications issued.
- Identify specific routes or neighborhoods that are problematic that may require more monitoring.

Available Resources

- Cart decal template (customizable)
- Cart decal template (ready for use)
- Cart hanger 'oops' tag, double sided (customizable)
- Cart hanger 'oops' tag, double sided (ready for use)
- 'Oops' sticker (single sided)
- Recycling Guide template (customizable)
- One page poster (customizable)
- One page poster (ready for use)
- Sample key messages, website, social media and blog post copy