

# Quality Control Q&A

## For RC Owners & Operators

May 24, 2023



# Introduction

## **What we hope to accomplish with this webinar:**

- Provide RCs with an opportunity to better understand the QC process.
  - Make QC more transparent by providing insights into how Encorp's current QC measures work and what we look for during QC.
  - Introduce Encorp's new reporting tool (*Accuracy Trend Report*) and Excellence in Accuracy Awards, which will be launched in the fall.
  - Give RCs the opportunity to ask questions and voice concerns. We will be providing a summary of the concerns and actions taken to the Department of Environment.

## **QC team at Encorp:**

Colette Boucher – Vice-president - Finance

Gilles Doucette – Director of Operations

Angela Dow - Assistant Controller & Quality Control Officer

## **QC methodology used by Encorp:**

Jacques Allard – Statistician - Atlantic Statistical Analysis Inc.

**There will be an open Q&A session at the end of the webinar – please refrain from asking questions during presentations – take note of them or even write them in the chat – we will address them during the Q&A session..**

## In this webinar

### 1) Introduction

### 2) Encorp's QC Measures

- Why do we need QC?
- Fairness
- Open door policy
- Recent changes to QC (April 1, 2023)
- Monitored Mode
- Accelerate Mode
- Abnormal Bags/Tubs
- FAQ

### 3) What do we check for during QC?

- Procedures at processing centre
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- Non-acceptable containers
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### 4) New tool – QC Accuracy Trend Report

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### 5) Accuracy Awards

### 6) Open Q&A session



# Encorp's QC measures

## Why do we need QC?

- Redemption centres (RCs) are paid a handling fee to accurately sort and count deposit-bearing beverage containers.
- Inaccurate container counts can pose a financial burden on the New Brunswick Beverage Containers Program (BCP). QC measures enable the BCP to attain greater overall accuracy and recover lost revenue from inaccurate reporting so that it can continue to be sustainable to the benefit of all stakeholders.
- All Encorp QC measures, including bulk bag/tub sampling and container count adjustment methods, were developed using a statistical analysis model. These same methods have also been adopted by other Recycling Affiliates.

# Encorp's QC measures

## Fairness

- Provide leeway for honest human errors and mistakes that are out of RC control (examples: bulk bags ripping).
- Paints a true picture of accuracy in each RC over time – not based on one-time mistakes and isolated errors.
- Acceptable error range provides leeway/recognizes that counting beverage containers is never 100% exact.  
**Between -2 and +2%, RC is considered to have acceptable accuracy - no actions taken by Encorp, and no actions need to be taken by RC.**
- Goal is not to do the counting for RCs, but to validate if the processes RCs have in place (to ensure container count accuracy) are working. It is up to each RC to make their own adjustments if counts are off.
- Getting a chargeback during QC may be frustrating, but it is also an indication that irregular activities may be taking place in RC and/or that more staff training is needed.
- **Encorp recognizes the need for better QC reporting. New monthly *Accuracy Trend Report* from Encorp given to each RC starting this fall will help operators stay on top of their QC results and take action earlier.**

# Encorp's QC measures

## Open door policy

- Encorp staff are available and happy to answer questions regarding your RC's performance.

**Angela Dow - Assistant Controller & Quality Control Officer**

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**[angela.dow@encorpatl.ca](mailto:angela.dow@encorpatl.ca)**

**Gilles Doucette - Director of Operations**

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- RC operators who wish to better understand the process can also visit (by appointment) Encorp's third-party service providers' facilities (Hebert's Recycling and Rayan Investments) where bulk bags/tubs are QC-ed.

# Encorp's QC measures

## Recent changes to QC (April 1, 2023)

Encorp has continued to follow the same QC model since 2010, though adjustments are made when needed (program changes) to ensure its continued accuracy – we consult with statistician to review.

Recent changes to QC (April 1, 2023):

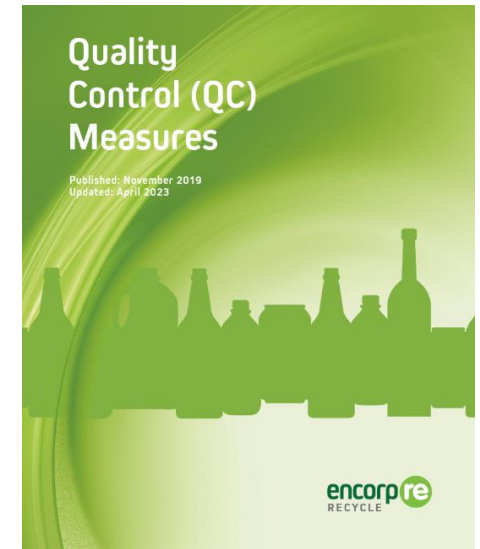
- **No longer any QC selection at redemption centres during pickup.**  
QC selection solely occurs when drivers unload at the processing centres.
- **Number of bags/tubs selected was adjusted** to account for the addition of alcohol container volumes.

### Monitored

NOW (**50 total**)    • **20 bags of PET**    • **20 bags of aluminum**    • **5 tubs of glass**    • 5 bags of the remaining material types  
BEFORE (25 total): • 11 bags of PET    • 9 bags of aluminum    • 5 bags of the remaining material types

### Accelerated

NOW (225 total):    • **95 bags of PET**    • 100 bags of aluminum    • **20 tubs of glass**    • **10 bags of the remaining material types**  
BEFORE (225 total): • 100 bags of PET    • 100 bags of aluminum    • 25 bags of the remaining material types

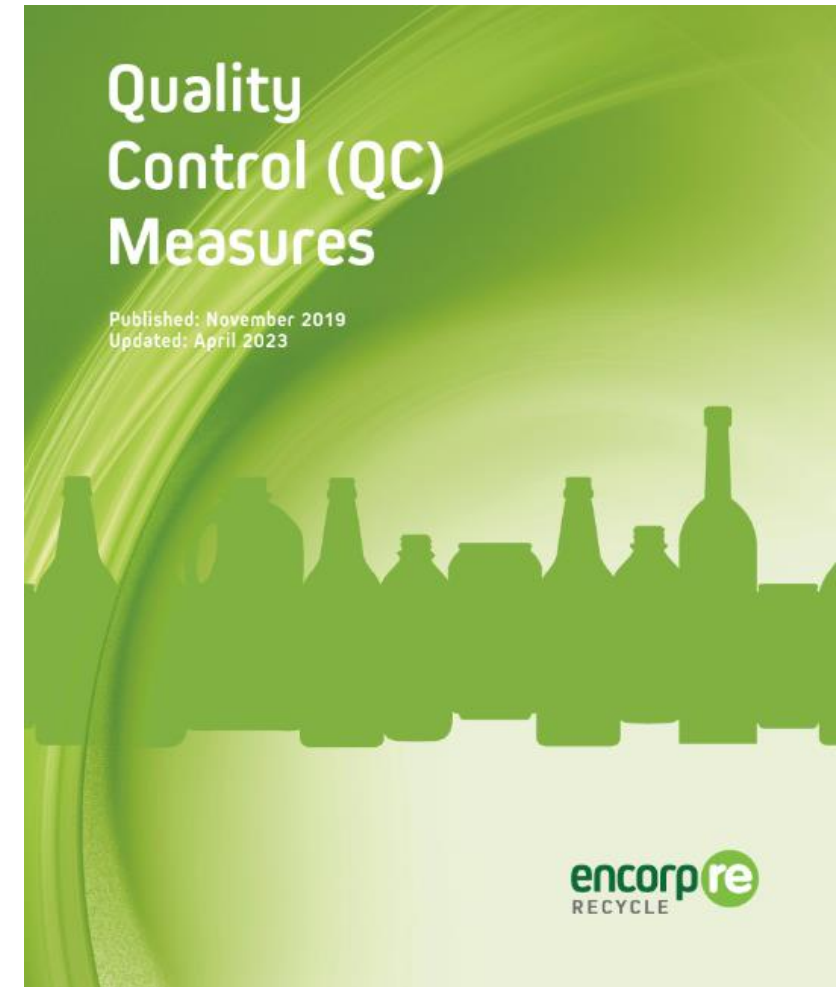


# Encorp's QC measures

## Recent changes to QC (April 1, 2023)

Recent changes to QC (April 1, 2023):

- Lead inspections at the QC facilities up to **four times** per year (blind recounts of bags/tubs and verification of procedures). (Used to be twice per year).
- **New - Randomly select one RC per year for the Accelerated Mode.**  
(Encorp will use a randomizer to select the RC – no human interference.)





# Encorp's QC Measures

## Monitored QC

### MONITORED QC MODE

Your redemption centre is evaluated for accuracy under the Monitored QC Mode.



We randomly select approximately **50 bulk bags/tubs** from your redemption centre over +/-6 months.\* QC selection takes place when the bags/tubs are unloaded at the processing centre.

• 20 bags of PET • 20 bags of Aluminum • 5 tubs of glass • 5 bags of the remaining material types

Each bulk bag/tub has its containers counted at the QC facility to ensure compliance with the number of deposit-bearing containers you have reported on its tag.

#### IF WE DETECT NO TRENDS OF INACCURACIES

- No adjustments are made.

RC remains in the Monitored QC Mode.

#### IF WE DETECT TRENDS OF INACCURACIES

- No adjustments are made.

RC is moved to the Accelerated QC Mode if the correction trend is below -2%.

#### “TRENDS OF INACCURACIES”

If container counts obtained at QC do not match quantities RC indicated on bags/tubs QC-ed - outside of the acceptable error range (between -2% to +2%) – an inaccuracy trend is detected.

Encorp sends RC to Accelerated Mode only if the correction trend is below -2%.

- Encorp reviews the number of bags/tubs that would have caused the inaccuracy.
- Encorp reviews the past history of RC for accuracy vs. inaccuracy.

The decision is then made – send RC to Accelerated Mode or keep RC in Monitored Mode.

# Encorp's QC Measures

## Accelerated QC

### ACCELERATED QC MODE



$$\frac{\text{Period of time}}{\text{Average / Accuracy}} = \%$$

We randomly select approximately **225 bags/tubs** from your redemption centre over +/-6 months.\* QC selection takes place when the bags/tubs are unloaded at the processing centre.

• **95 bags of PET • 100 bags of Aluminum • 20 tubs of glass • 10 bags of the remaining material types**

Each bulk bag/tub has its containers counted at the QC facility to ensure compliance with the number of deposit-bearing containers you have reported on its tag.

You receive a report if adjustments are required at the end of the Accelerated sampling period.

**Between +/- 2%:**  
**No adjustment**

#### **Over +2%: Reimbursement**

Calculated as follows: All bulk bags/tub picked up from your redemption centre by material sort during Accelerated Mode (including those not QCed) x Average correction per bags/tubs QCed = Number of units for which you are entitled to a reimbursement.

You are immediately reimbursed the refund and handling fee for these units with your next available payment letter.

#### **Under -2%: Chargeback**

Calculated as follows: All bulk bags/tubs picked up from your redemption centre by material sort during Accelerated Mode (including those not QCed) x Average correction per bags/tubs QCed = Number of units for which you will be charged back.

The chargeback (refund + handling fee + administration fee\*\*) for these units will be done over the same time period as it took to complete the initial Accelerated sampling.

\*\* Note that the administration fee is equal amount to the handling fee and is often waived unless the redemption centre is showing continuous inaccuracies.

After the Accelerated sampling period, RC returns to the Monitored QC Mode.

After the Accelerated sampling period, RC returns to the Accelerated QC Mode.

**Note: The “administration fee” is equal to the handling fee.**

# Encorp's QC Measures

## Abnormal Bags/Tubs

### ABNORMAL BULK BAGS/TUBS SPOTTED AT PICK UP

Drivers scan the tags of all bulk bags/tubs they pick up. Bulk bags/tubs are designed to hold a certain number of containers per sort. The scanner detects bulk bags/tubs with tags indicating a number of containers that falls outside of the normal accepted range (higher or lower).

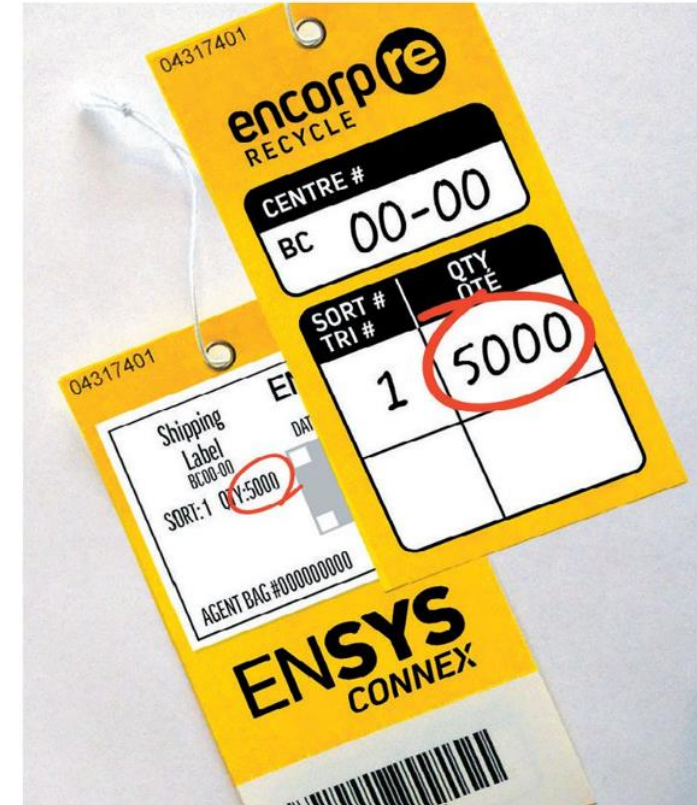
Photos are taken of these tags and kept in a database for review.

#### **Bulk bags/tubs identified with abnormally low quantities:**

Encorp will call your redemption centre regarding a bulk bag or tub which has an abnormally low quantity identified on its tag to see if an error was made and give you a chance to make a correction before your payment is processed.

**Bulk bags/tubs identified with abnormally high quantities:** Sent directly to QC to validate quantities.

**Abnormal bulk bags/tubs are adjusted (reimbursed or charged back) on a per bag/tub basis if the adjustment amount is more than \$10. Abnormal bulk bags/tubs are excluded from future adjustment computation.**



# Encorp's QC Measures

## FAQ

**Are damaged bulking containers (i.e., ripped bags) exempt from QC?**

Not necessarily.

We encourage RCs to inspect bulk bags/tubs before use and not use damaged bulk bags/tubs (ex.: holes big enough to drop containers, large tears, etc.). Damaged bulk bags/tubs should be returned to Encorp.

# Encorp's QC Measures

## FAQ

**Why aren't "trends of inaccuracies" clearly defined with a clear trigger point of when an RC's performance requires it to change from Monitored to Accelerated Mode?**

A trend of inaccuracy means that a substantial number of bags/tubs are reporting consistent errors. This may occur early in Monitored QC and require the RC to be moved to Accelerated Mode.

Experience has shown that using a mathematical algorithm to trigger Accelerated Mode is not feasible. Some RC's counts become inaccurate by a large amount within a short time period, others do so over a year, and others simply vary a lot but around 0.

An RC whose counts are only impacted by naturally occurring errors will not be penalized, even if it is moved to Accelerated QC mode.



# Encorp's QC Measures

## FAQ

**Why is it that upon completion of the Accelerated QC sampling process, if an RC is entitled to reimbursement, it returns to Monitored Mode, but if an RC is penalized with a chargeback, it remains in Accelerated Mode for another round of 225 bags/tubs?**

If we keep an RC that under-reports its counts in the Accelerated Mode, we are doing the counting for the RC – which is not the purpose of QC.

Once the RC receives its report that it is under-reporting along with its reimbursement, it should look into fixing the issue that is causing under-reporting.

Note that our new *Accuracy Trend Report* will also show RCs much earlier if they are under-reporting (or over-reporting) their counts – giving them the opportunity to correct.

# Encorp's QC Measures

## FAQ

**Why does an abnormally “high” quantity detected on a tag send the bag/tub directly to QC, but an abnormally “low” quantity detected on a tag does not?**

Low-quantity tags are not sent to QC because Encorp gives the RC an opportunity to correct the number on the tag. (Processing centre takes a photo and Encorp follows up with a phone call to RC.)

High quantity tags are sent to QC because it is the only way Encorp can truly validate if the quantity is indeed accurate. There is an expectation that most bulk bags/tubs can only fit a certain number of containers. When the count on the tag is flagged as abnormally high, it could be a counting error, or it could be because the bag/tub has lots of small containers, and the only way to know for sure is to verify via QC.

Note that Encorp has on many occasions reimbursed RCs for bags with tags flagged as having an abnormally high quantity - the container count was actually over what was reported on the tag.

**Abnormal bags/tubs that are sent to QC are verified, but they are not included in the Monitoring or Accelerated QC computations, or in the Accuracy Trend report, unless they have also been randomly selected within the Monitoring or Accelerated QC protocol.**

# What do we check for during QC?

## Procedures at processing centre

- Encorp's EnSys-Connex scanner identifies bags/tubs randomly for QC when unloading at the processing centre. Selected bags and tubs are sent to QC.
- Dedicated QC personnel empty the contents of the bag/tub being QC-ed and proceed to count the containers in order to verify the total unit count against the count (quantity) indicated by RC on the bag/tub's yellow shipping tag.
- Processing centre personnel reject and remove from the total unit count:
  - containers that are not deposit-bearing
  - containers which are not acceptable to Encorp due to being broken, contaminated, or unidentifiable.
- Note that "missorts" are not rejected/removed from the total unit count. Even if not in the right bag/tub, if they are refundable (deposit-bearing), have the same deposit value, and are in acceptable condition, they count as a unit for which Encorp pays the RC a refund and handling fee.

ENCORP

**TAG INFORMATION**

REDEMPTION CENTRE	
TAG NUMBER	
SORT NUMBER	COUNT ON TAG

**QC RESULTS**

SORT NUMBER*	QUANTITY (GOOD COUNT)

\*List all material sorts found in bag/tub.

REJECT COUNT
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**COMMENTS**


COUNTED BY
DATE



**What do we check for during QC?**  
**Deposit-bearing vs. non-deposit-bearing containers**

### **Accepted Beverage Containers (Deposit-Bearing)**

#### **Deposit paid = Refundable**

The types of beverages covered by the Beverage Containers Program are:

- water and flavoured water
- fruit and vegetable juices
- beverages with dairy (such as milk shakes, milk protein shakes, coffee drinks, drinkable yogurt, drinkable kefir, eggnog)
- plant-based milk alternative beverages not labelled as “fortified”
- plant-based milk alternative beverages labelled as “fortified” along with the warning “not a source of protein”
- sports drinks (such as protein drinks, energy drinks and electrolyte beverages)
- nutritional supplements not labelled as “meal replacements” or “formulated liquid diets”
- soft drinks
- beer, wine, and spirits
- low alcohol drinks
- cannabis beverages
- other types of beverages not explicitly listed as not included

### **Non-Accepted Beverage Containers (Not Deposit-Bearing)**

#### **No deposit paid = Non-refundable**

The following types of beverages are not included in the Beverage Containers Program (no deposit) at this time:

- apple cider that has not been heated, pasteurized or otherwise processed
- milk and flavoured milk, as defined under the Canadian Food and Drug Regulations (also applies to goat’s milk)
- plant-based milk alternative beverages that are labelled as “fortified” (Note the following exception: if a milk alternative is labelled both as “fortified” and “not a source of protein,” then it is included in the Beverage Containers Program and a deposit is charged.)
- nutritional supplements labelled as “meal replacements” or “formulated liquid diets”
- infant formula (labelled as “infant formula”)
- concentrated beverages (must be mixed or diluted before drinking), such as powdered or frozen juices, cocktail mixers, syrups, condensed milk, creamers, coffee or tea concentrates, extracts and flavour enhancers
- beverages in containers greater than 5 L
- beverages purchased outside of New Brunswick

Encorp website - <https://encorpatl.ca/rc-operators/beverage-container-lists/>

Tip: Check the *Searchable Reference Tool* on Encorp's website concerning the new products part of the program since 2020.

### Beverages with Dairy



**Milk 2 Go Sport Milk Protein Shake  
(all flavours)**

"Milk protein shake" means made with milk/contains milk.  
But the beverage is **not** real milk/labelled as milk.



### Real Milk



**Milk 2 Go – 1% and 2%  
(all flavours)**

Says **Partly Skimmed Milk** right on the front  
of the container.

This is **real milk** with an added flavour.



- Single Use Beverage Containers
- RC Operators
- Stakeholders
- Environ. Mgmt.
- Contact Us
- Feedback

Home / RC Operators / Beverage Containers Lists

## Beverage Container Lists

### Rules for Inclusion/Exclusion of Products – Beverage Containers Program

New Brunswick redemption centres accept and issue refunds to consumers for the empty containers of ready-to-drink beverage products they have purchased in the province that are deposit-bearing.

The current deposit and refund fee structure is shown below:

	DEPOSIT	REFUND
<b>Non-alcoholic beverages (Up to 5L)</b>	10¢	5¢
<b>Alcoholic beverages (Equal to or under 500ml)</b>	10¢	5¢
<b>Alcoholic beverages (Over 500ml)</b>	20¢	10¢
<b>Refillable</b> ("Longneck" industry standard glass beer bottles with twist off caps)	10¢	10¢

#### Accepted Beverage Containers (Deposit-Bearing)

Deposit paid = Refundable

The types of beverages covered by the Beverage Containers Program are:

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- fruit and vegetable juices
- beverages with dairy (such as milk shakes, milk protein shakes, coffee drinks, drinkable yogurt, drinkable kefir, egg nog)
- plant-based milk alternative beverages not labelled as "fortified"
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- sports drinks (such as protein drinks, energy drinks and electrolyte beverages)
- nutritional supplements not labelled as "meal replacements" or "formulated liquid diets"
- salt drinks
- beer, wine, and spirits
- low alcohol drinks
- carbonated beverages
- other types of beverages not explicitly listed as not included

#### Non-Accepted Beverage Containers (Not Deposit-Bearing)

No deposit paid = Non-refundable

The following types of beverages are not included in the Beverage Containers Program (no deposit) at this time:

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- nutritional supplements labelled as "meal replacements" or "formulated liquid diets"
- infant formula (labelled as "infant formula")
- concentrated beverages (must be mixed or diluted before drinking), such as powdered or frozen juices, cocktail mixes, syrups, concentrated milk, creamers, coffee or tea concentrates, extracts and flavour enhancers
- beverages in containers greater than 5 litres
- beverages purchased outside of New Brunswick

#### Pay Particular Attention – New Products Part of the Beverage Containers Program Since 2020

On April 1, 2020, changes to the Beverage Containers Program's Exclusion Policy came into effect. Many beverage products (non-alcohol) that used to be excluded from the program are now deposit-bearing and their containers are eligible for a refund. Redemption centres should pay particular attention to these categories and are encouraged to review the educational tools provided and maintained by Encorp below.

Note that additional tools for staff training, such as quizzes and educational videos providing helpful insights and clarifications regarding beverage products for which there are often inquiries, are featured on our [Education/Training for Redemption Centres](#).

#### Poster – Changes to the Beverage Containers Program

Supplied by Encorp

Intended for consumers and redemption centres – the poster explains the categories of beverage products affected by the April 2020 changes to the Beverage Containers Program.

Last updated December 11, 2020

#### Searchable Reference Tool – Product Examples

Supplied by Encorp

Showcases numerous examples. Red is non-refundable. Green check mark means the beverage product has a deposit. Red "X" means it does not. We update the tool regularly as new products come to our attention.

Last updated January 4, 2023

Alt: "Click on the 'Milkshakes' or 'CMF + F' (Milk) on your computer's keyboard to open up the search tool."

**What do we check for during QC?**  
**Non-acceptable containers**

- **BROKEN CONTAINERS**

Bottle is shattered into tiny pieces – can no longer identify the container. However, if the **bottleneck** is intact, then the container is accepted.

- **CONTAMINATED CONTAINERS**

- Container is filled with organic or hazardous waste (ex: dirt, garbage, sand, mud, rocks, needles, cigarette butts, dead mice, bodily fluids, etc.)
- Container is covered in excessive dirt, paint, or other significant residues.
- Container was modified for other uses (ex: drug pipe).
- Container is altered in a way that makes it unrecyclable.

- **UNIDENTIFIABLE CONTAINERS**

- Container has had its label removed (cannot identify any markings or see the *Return for Refund* message)
- Container is flattened like a hockey puck (cannot identify any markings or see the *Return for Refund* message)

- **OUT-OF-PROVINCE CONTAINERS**

How to spot them:

- The label may still have the *Return for Refund* message; however, not in both languages - English and French.
- Content volume may be only in imperial measurement – (i.e.: ounces) – not in metric (ml or L).

- **NON-BEVERAGE CONTAINERS**

(Container was not intended for a beverage)

- Chicken/beef broth
- Pasta sauce
- Olive oil
- Vinegar
- Vanilla extract
- Etc.

- **CONTAINERS GREATER THAN 5 L**

# What do we check for during QC?

## FAQ

### **Are ceramic beverage containers rejected?**

Ceramic is a contaminant for glass. It is very important that ceramic containers ARE NOT placed in bulk tubs with glass. Ceramic is NOT an acceptable container type. It is not one of Encorp's current material sorts.

Encorp is working with the Department of Environment to resolve the issue. ANBL will stop selling these containers.

In April 2023, Encorp advised RCs that they can refund ceramic alcohol containers to their customers – but that they should set these containers aside for now. Encorp will pay RCs the refund and handling fee on these, but we are still looking into the best way to collect them and track them until ANBL no longer has any on its shelves. A communication is in the works with instructions to RCs on what to do with ceramic containers.

# What do we check for during QC?

## FAQ

### Are private-label (homebrew) containers rejected?

Yes. RCs should NOT accept these from customers.

Homebrew containers usually have no label and cannot be found on ANBL's product list.

# What do we check for during QC?

## FAQ

### **Are RCs penalized if contaminants are found in bags/tubs?**

Any penalty Encorp charges for contamination would need to be supported with proof of costs being incurred and only done in extreme cases.

If you receive contaminated shipping materials (bags/tubs) from Encorp's service providers, please take a photo and send it to us (Gilles Doucette). You can still use it, but we will have proof that the contamination was not your fault.



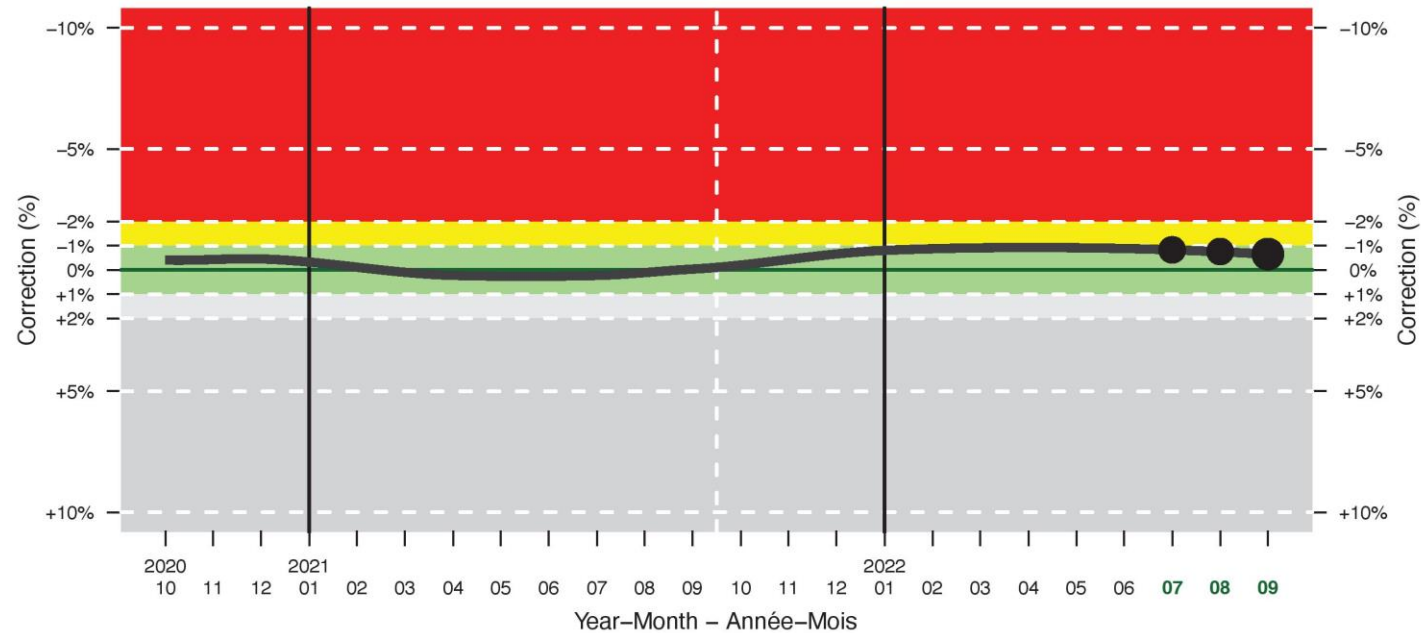
**New Tool: QC Accuracy Trend Report**  
**Example of an RC with a good accuracy trend**

# ACCURACY TREND TENDANCE DE L'EXACTITUDE



Redemption centre / Centre de remboursement : BC00-00 – Five Stars Recycling Inc.

Period ending at the end of the month / Période se terminant à la fin du mois : 2022-09



According to quality control data available:  
– Your total count for the last month is very accurate.

Selon les données de contrôle de qualité disponibles :  
– Votre décompte total pour le dernier mois est très précis.

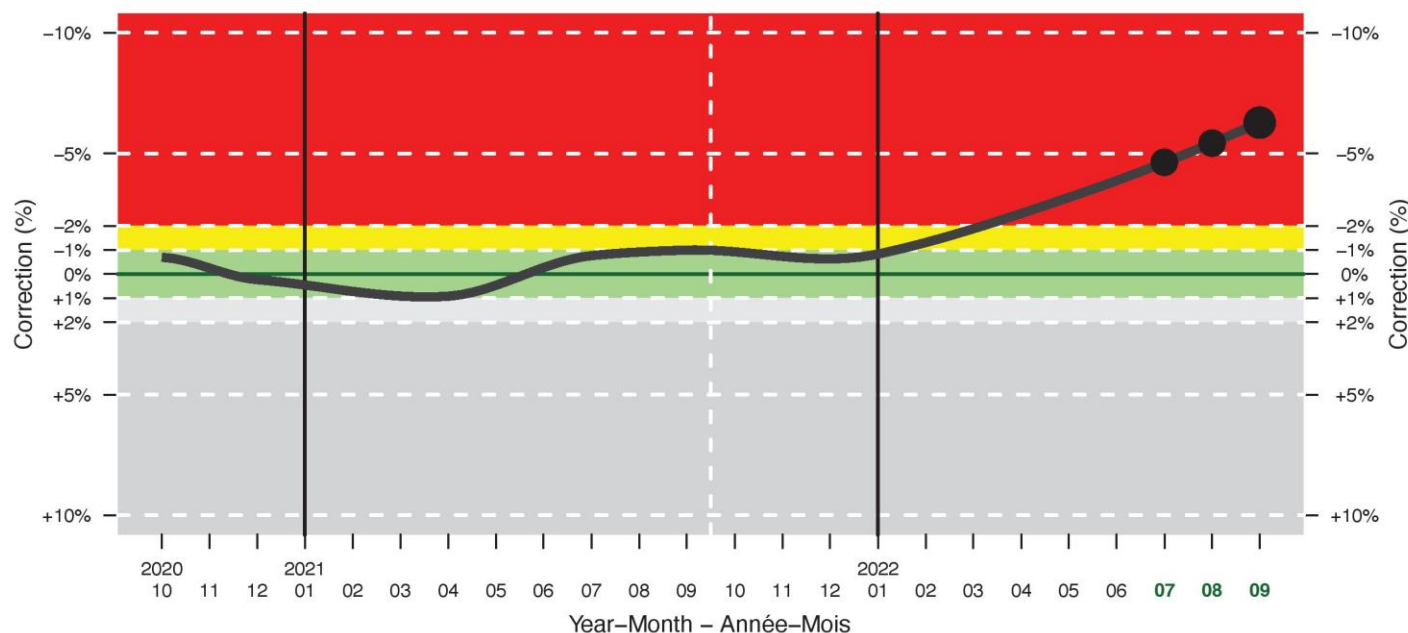
**New Tool: QC Accuracy Trend Report**  
**Example of an RC with a worrisome accuracy trend**

# ACCURACY TREND TENDANCE DE L'EXACTITUDE



Redemption centre / Centre de remboursement : BC99-99 – Centre de remboursement Deux Étoiles Inc.

Period ending at the end of the month / Période se terminant à la fin du mois : 2022-09



According to quality control data available:

- Your total count for the last month is much too high.
- The sort contributing most to the high total counts is Aluminum

Selon les données de contrôle de qualité disponibles :

- Votre décompte total pour le dernier mois est beaucoup trop élevé.
- Le tri qui contribue le plus aux décomptes totaux élevés est l'Aluminium.

# New Tool: QC Accuracy Trend Report

## FAQ

# ACCURACY TREND FAQ



## What is the “accuracy trend”?

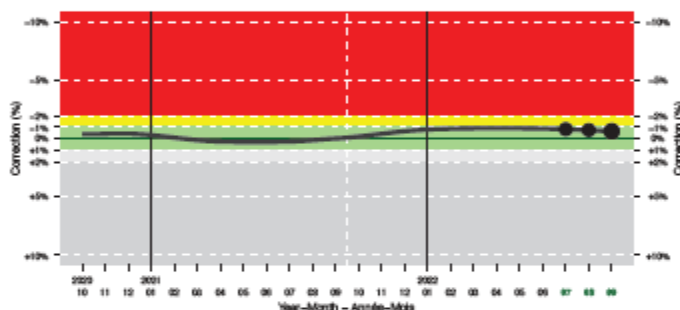
The data from a single month is not sufficient to provide a reliable estimate of a centre’s overall counting accuracy. By grouping several months, the data can provide a reliable estimate of the accuracy over time, that is, of the accuracy trend.

## Why can’t Encorp give me a precise report on the accuracy of my counts?

Obtaining a more precise report would require that the QC monitoring program verify many more bags and tubs from each RC. To be cost-effective, Encorp has opted to verify many bags and tubs only for RCs that appear not to be counting accurately or that appear to over-report counts.

## What does a good accuracy trend look like?

The accuracy trend shown below belongs to a very accurate RC. Its error remains well within our acceptable range, -2% and +2%.

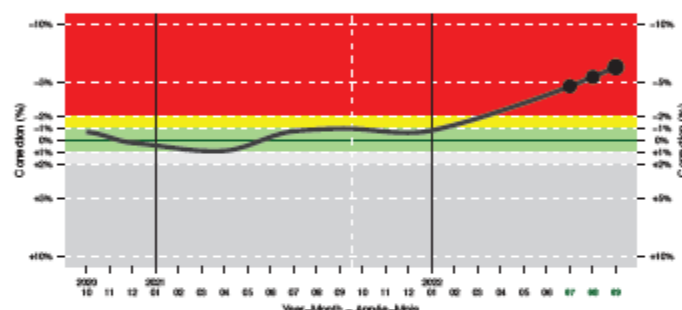


## What should this RC do?

This RC can keep its current methods of operation. For example, if there are new employees, the RC should train them to follow the same counting and recording methods.

## What does a “worrisome” accuracy trend look like?

The accuracy trend shown below illustrates an RC that had reported its container counts accurately for a long time. However, during the last several months, it has been over-reporting its container counts.



## What should this RC do?

Because the upward trend has lasted for several months, the RC should take immediate action. It should identify changes that occurred around the beginning of 2022 to find out which ones impacted its count accuracy.

## On my report, only the last month was in the red zone. What should I do?

You should probably wait a month or two before taking any action. Upcoming data will provide more information and a better understanding of any trend.

## Why does the graphic show up to two years of data?

Operations vary across seasons for many RCs. For those RCs, it may be informative to compare current results to the past year’s results.

## In my May report, the month of May was in the green zone. In the June report, the month of May is in the yellow zone. How can this happen?

For each month, the accuracy trend depends on data from the preceding months and, if available, the following months. The information from June, once it became available, impacted the trend for May.

## If my RC’s accuracy trend is “worrisome”, will my centre be moved to Accelerated QC?

Note that your RC may already be in Accelerated QC. If it is not, Encorp will assess the quality of its information and decide accordingly. Remember: Accelerated QC is costly for the Beverage Containers Program.

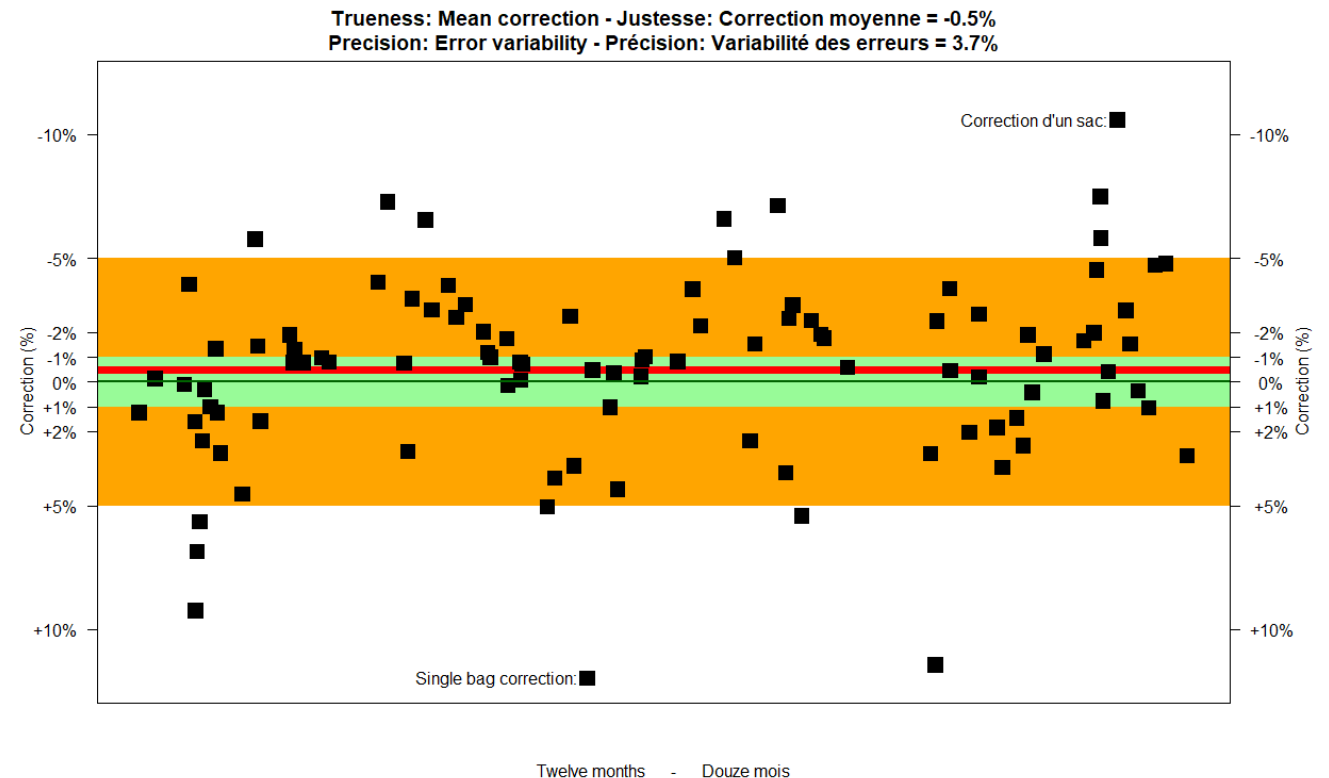
# Accuracy Award

- 2 times per year: fall, spring
- An Accuracy Award will be given to RCs whose counts for all material sorts, **over a period of 12 months**, satisfy the following two conditions:
  - Condition A – Trueness: The estimated average error is **between  $-1\%$  and  $+1\%$** : **The red line is in the green area**
  - Condition B – Precision: Refers to how similar the errors are. **We are looking for low variability.**  
The estimated relative standard deviation of the errors is less than 5%: **Most points are in the orange area**

*Each point in the figure represents the QC result for a single bag or tub. The final computation takes into account the relative importance of the sorts.*

## Accuracy Award:

- Recognition in Encorp RC Journal.
- Gift cards or other prizes for all employees in RC.



## Q & A Session

20 minutes for questions



## Q & A

### Question received by email

Historically PET and Aluminum represent 90% of redeemed containers in NB. In Monitoring QC, why does 20% of the sample consist of containers of type “Others”? That is twice the actual representation of product being processed at the RC.

When using a random sample to estimate an **average** (like the average error), most often the quality of the estimate depends only on the sample **size** (e.g., 10, 50, 100 bags or tubs) and **not** on the sampling **ratio** (e.g., 1%, 5%, 25% of the bags and tubs).

The quality of the estimate depends on the sampling **ratio** only when the sampling ratio is larger than approximately 25%, a situation which does not occur in the Encorp QC.

That is why sample sizes for non-PET and non-Aluminum recipients are relatively high.

When estimating the **total error**, the number of bags in each sort class (Aluminum, PET, Glass, Others) is taken into account: the average error is multiplied by the number of bags or tubs in the sort class.

The quality of the estimate also depends on the consistency of an RC's errors. It is much more difficult to assess an RC whose bag-level errors vary between, say, -500 and +500 than one whose bag-level errors vary between, say, -50 and +50. The sampling protocol also takes into account this dependency.

## Q & A

### Question received by email

**Why does the ratio of bags and tubs (PET vs Aluminum vs Other) change so dramatically when changing from Monitoring QC to Accelerated QC? The ratio of products being sent for QC should remain constant throughout the QC modes and be a correct representation of volumes being processed at an average RC in New Brunswick.**

While this statement may intuitively appear correct, it is mathematically incorrect. Encorp has chosen to focus on the accuracy of the RC's total count (i.e., the total for all sorts combined). The sample allocation between the sort classes is mathematically optimized to obtain the best estimate of the true total count given the sample sizes (50 or 225 bags and tubs per 6 months).

## Q & A

### Question received by email

The policy for charge back for abnormal tag quantities should ALSO require the error to be greater than 2%, not just greater than \$10. With the current model, a bag of sort 6 having a labelled quantity of 5000 units could be levied a chargeback of \$10 for an error rate of 1.3 %. (based on 5 cent deposit, 5.176 cent handling fee, and 5.176 cent administration fee). It should not be acceptable to levy a chargeback when the result is actually within the acceptable limits.

We seldom chargeback an administration fee on abnormal tag quantities. The chargeback does equate to roughly 2% if you only consider the handling fee and the deposit. However, we are going to review our policy on abnormal tag policy by reviewing data and past adjustments.