RRS

MIXED PAPER AND STEEL BALE AUDITS
SPIRAL WOUND CONTAINERS

Audit Report for Sonoco

PURPOSE

The goals of the study are:

- To better understand the quantity of spiral wound containers of various formats that are recovered through the residential curbside recycling system in communities that accept them
- To document the relative prevalence of these items in the stream
- To provide an updated snapshot of the prevalence of study materials in mixed paper and steel bales for comparison to other studies

METHODOLOGY

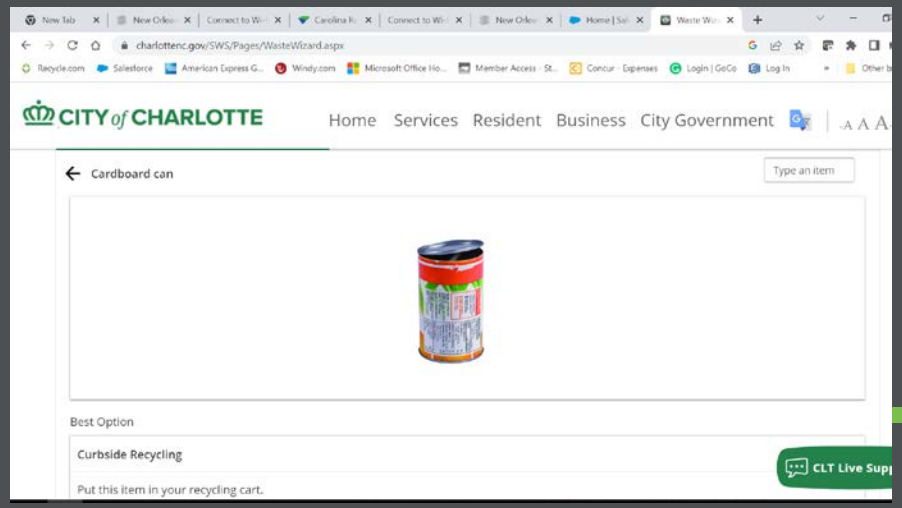
APPROACH

- A team led by RRS sorted mixed paper and steel bales produced at the Mecklenburg County MRF (operated by Republic Services).
- The Mecklenburg County MRF processes material from the City of Charlotte.
- Mecklenburg County produces County-wide education tools that are made available for residents in the City of Charlotte.
- The City of Charlotte also uses an independent Waste Wizard on their recycling website.
- "Cardboard Cans" are listed on the Charlotte Waste Wizard and directed to recycling.
- The MRF was chosen based on acceptance of spiral wound containers and certain other target items in residential recycling programs.
- The bales, procured in August 2022, included:
  - three mixed paper bales
  - three steel bales
- Sorting was conducted in September 2022 at Sonoco's Charlotte material recovery facility.

ACCEPTED MATERIAL

MECKLENBURG COUNTY RECYCLING GUIDANCE (SEPT 2022)

- Spiral wound cans are NOT explicitly called out in Mecklenburg County recycling instructions. These same instructions are provided on the CLT website
- The Charlotte Waste Wizard DOES provide recycling instructions for “cardboard can”



CLT Waste Wizard

SORT METHODOLOGY

- The six bales were received at the MRF and stored for auditing. No pre-sort of the bales was conducted by the MRFs prior to audit by the RRS team.
- Sequentially, the bales were moved into an isolated area by Sonoco staff for wires to be removed and the bales to be broken.
- Bales were broken and three samples of approximately 150 lbs. were taken from discrete sections of each bale to ensure sorted materials were representative of bale composition.
- Bale samples were spread onto specialized sorting tables
- Under the direction and instruction of RRS staff, the samples were sorted into the categories defined by the RRS team and sponsors.
- Determination of sort categories was done through visual inspection, based on brand or package format (e.g., Snack Can). Surface appearance and package format were used for determination of poly-coat vs. non-poly-coat. Examples of packages found within each sort category were listed for the sort team in advance for use as a reference during sorting.

Figure 1: Steel bale broken for sorting

Figure 2: Mixed paper bale sorting

SORT CATEGORIES

Steel bale

Item Category	Description & Further Breakdown
Snack Cans	N/A
Cans with a Diameter Wider than a Snack Can	Broken into two subsets: specifically nuts or coffee
Unwound Spiral Cans	Broken into two subsets: dough or juice

Figure 3: steel bale

Mixed paper bale

Item Category	Description & Further Breakdown
Snack Cans	N/A
Cans with a Diameter Wider than Snack Cans	Broken into two subsets: nuts or coffee cans
Unwound Spiral Cans	Broken into two subsets: dough or juice cans
Paper Bottom Cans	N/A

Figure 4: mixed paper bale

RESULTS AND ANALYSIS

CATEGORIES BY WEIGHT %, BY BALE

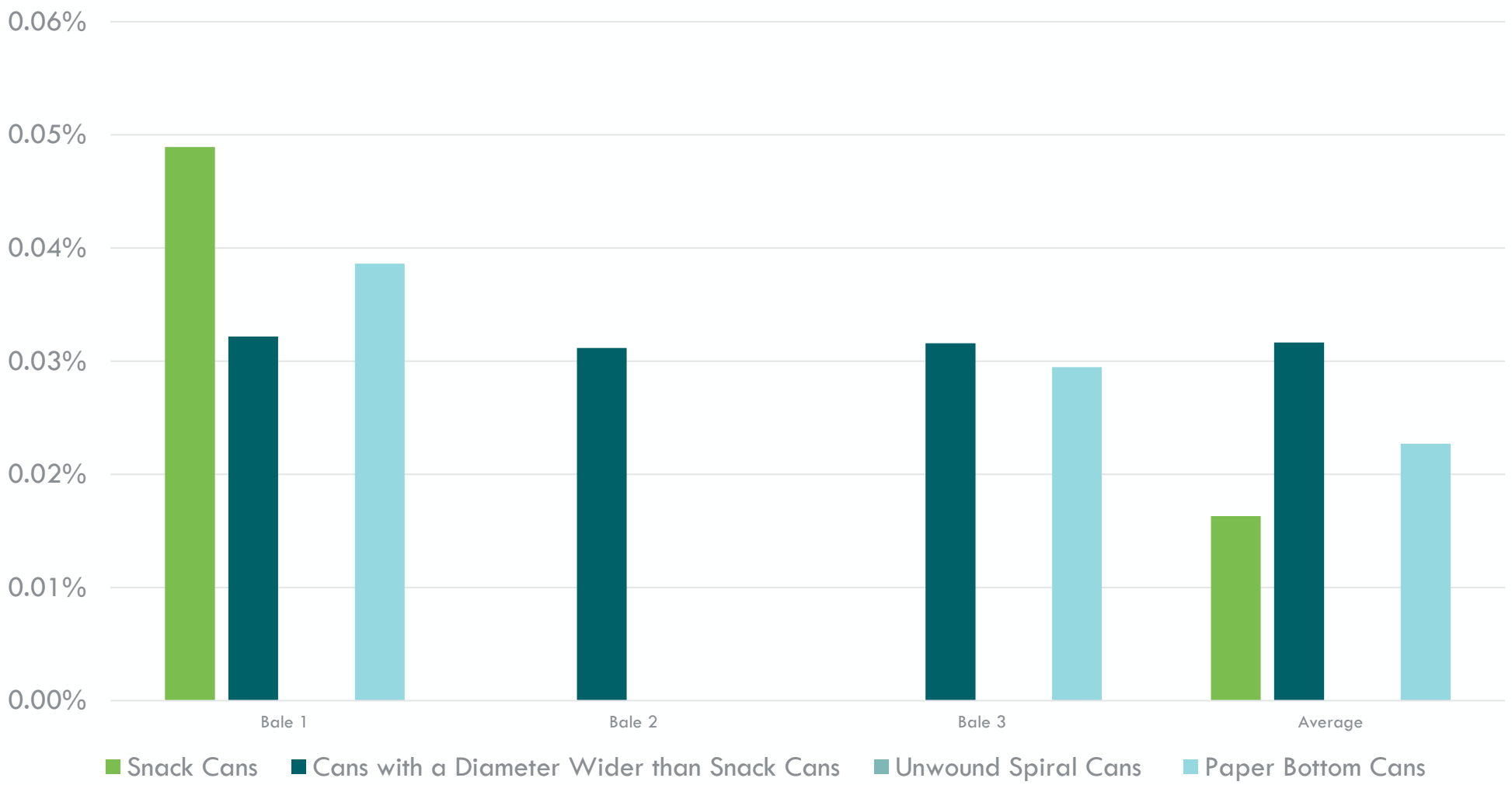
	Mixed Paper				Steel			
	Bale #1	Bale #2	Bale #3	**Avg**	Bale #1	Bale #2	Bale #3	**Avg.**
Snack Cans	0.049%	0.0000%	0.0000%	**0.016%**	0.1%	0.047%	0.1%	**0.086%**
Cans with a Diameter Wider than Snack Cans	0.032%	0.031%	0.032%	**0.032%**	0.79%	0.34%	0.75%	**0.63%**
Unwound Spiral Cans	0.000%	0.000%	0.000%	**0.000%**	0.097%	0.48%	0.041%	**0.20%**
Paper Bottom Cans	0.039%	0.000%	0.03%	**0.023%**	N/A	N/A	N/A	**N/A**
TOTAL	**0.12%**	**0.031%**	**0.061%**	**0.071%**	**0.99%**	**0.86%**	**0.90%**	**0.92%**

CATEGORIES BY COUNT, BY BALE SAMPLES*

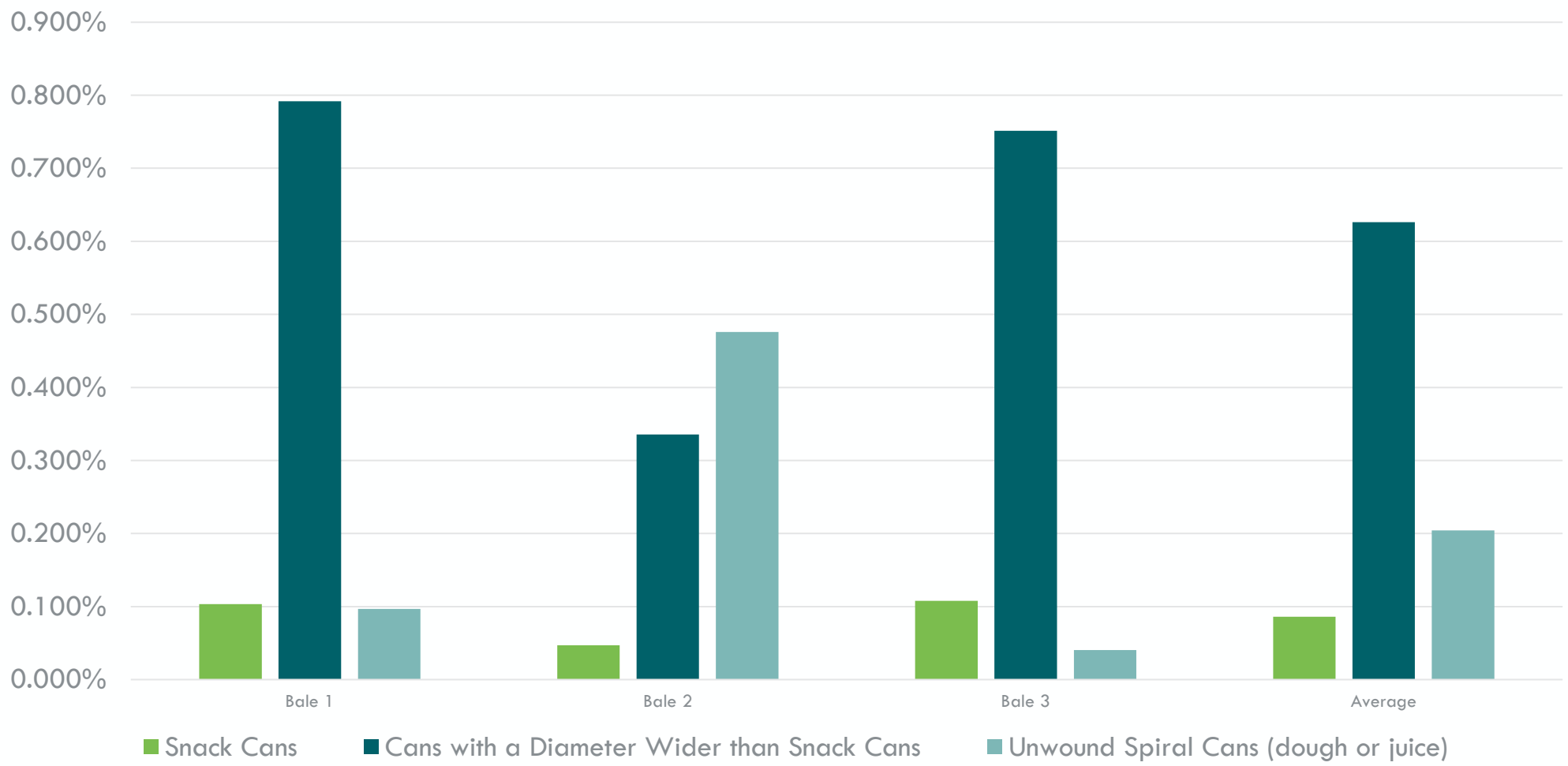
	Mixed Paper			Steel		
	Bale #1 Samples	Bale #2 Samples	Bale #3 Samples	Bale #1 Samples	Bale #2 Samples	Bale #3 Samples
Snack Cans	2	0	0	8	4	8
Cans with a Diameter Wider than Snack Cans	0	1	1	33	11	22
Unwound Spiral Cans	1	0	0	8	16	4
Paper Bottom Cans	1	0	1	N/A	N/A	N/A
TOTAL	**4**	**1**	**2**	**49**	**31**	**34**

* For whole bale count estimates (vs. samples), multiply the mixed paper numbers by 5.8 and the steel bale numbers by 4.7

SORT CATEGORIES AS % OF MIXED PAPER BALE



SORT CATEGORIES AS % OF STEEL BALE



SUMMARY – SPIRAL WOUND CANS

- Spiral wound cans make up a very small percentage of both bale types
- Spiral wound cans were more prevalent in the steel bales (0.92%) than in mixed paper bales (0.071%).
- “Cans with a diameter wider than a Snack Can” made up a majority of the can formats sorted as part of the steel bale (0.63%).
- The average number of spiral wound cans in each steel bale is approximately 181, with a range from the three bales sampled of 146 on the low end to 230 on the high end.
- The average number of spiral wound cans in each mixed paper bale is approximately 14, with a range from the three bales sampled of 6 on the low end to 23 on the high end.

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