



2012-2013  
Characterization of  
Residual Materials in  
Quebec's Residential  
Sector

**EXECUTIVE SUMMARY**



## Background

For the third time since 2006, Éco Entreprises Québec (ÉEQ) and RECYC-QUÉBEC have undertaken a joint *Characterization of Residual Materials in Quebec's Residential Sector*. This province-wide study of 4,270 Quebec homes was carried out from 2012 to 2013 to determine the characteristics of residual materials generated by Quebec households and Quebecers' sorting habits. The project focused on three main types of residential curbside collection, i.e. trash, recyclable materials and organic waste.

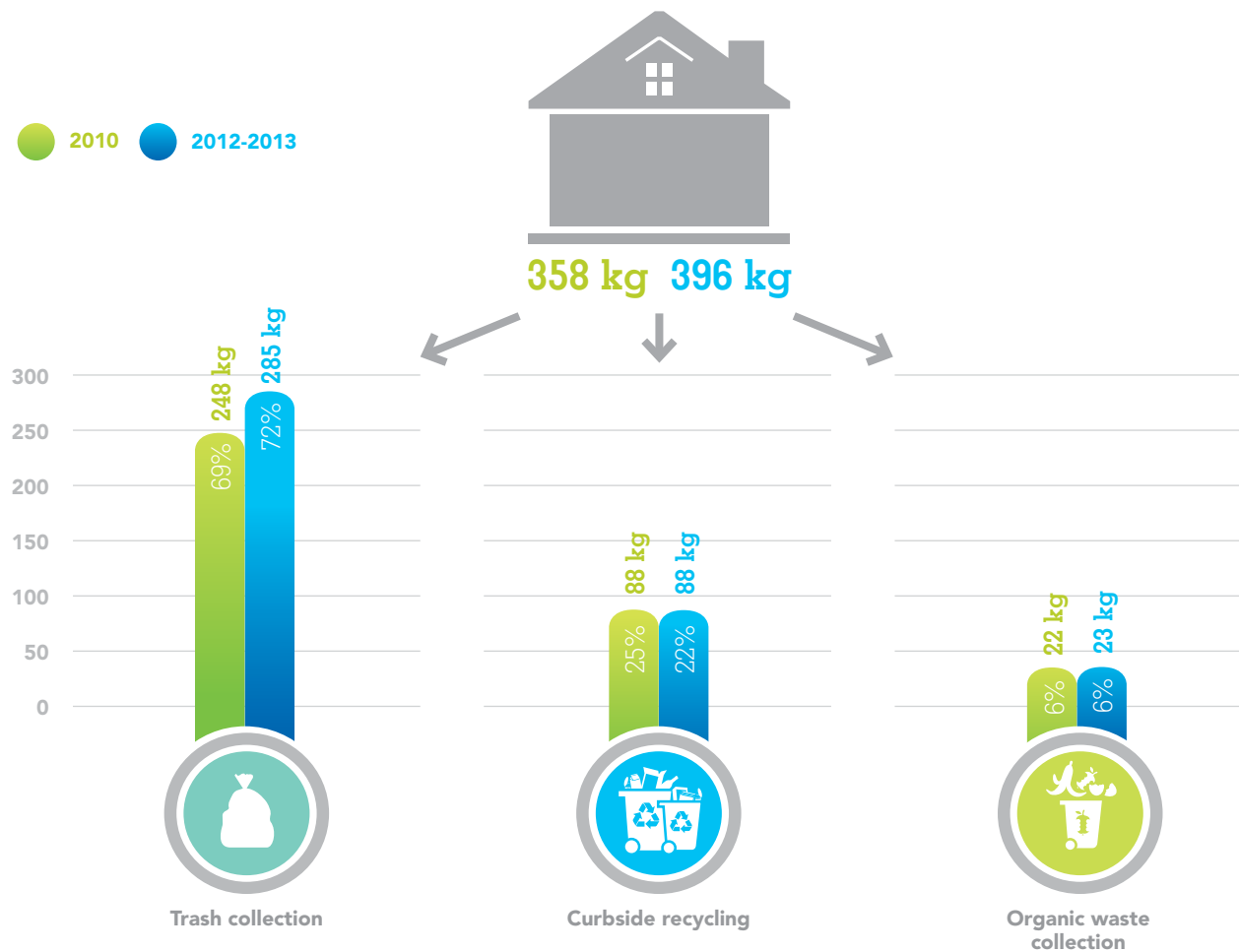
This document presents the highlights of that study, focusing on materials generally accepted by curbside recycling programs, specifically newspapers, printed matter as well as paper, cardboard, glass, metal and plastic containers and packaging. Complete results for all materials sorted during the study for all types of collection are presented in the detailed report.



# Fluctuation in the composition of residual materials placed curbside

All types of collections considered, citizens throughout Quebec each placed 396 kg of materials curbside in 2012-2013, an increase of 11% compared to quantities determined in 2010. That hike is mainly attributable to trash placed curbside, which increased by 15% in the period from 2010 to 2012-2013, growing from 248 kg to 285 kg per person. In fact, trash accounted for the greatest proportion of residual materials placed curbside (72% of quantities).

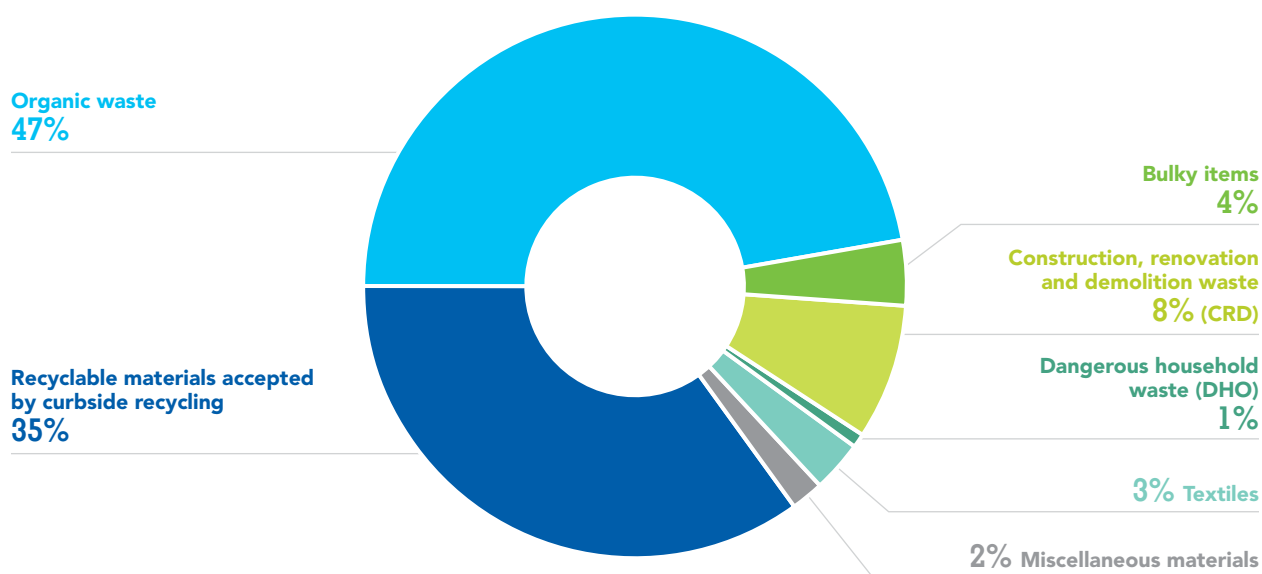
FIGURE 1: QUANTITY OF RESIDUAL MATERIALS PLACED CURBSIDE ACCORDING TO TYPE OF COLLECTION (IN KG/PERSON/YEAR)



## 2012-2013 CHARACTERIZATION OF RESIDUAL MATERIALS IN QUEBEC'S RESIDENTIAL SECTOR

In 2012-2013, organic waste accounted for 47% of residual materials placed curbside, while recyclables accepted in curbside programs represented 35% of quantities.

FIGURE 2: COMPOSITION OF RESIDUAL MATERIALS PLACED CURBSIDE



The amounts in each class of residual materials generated annually had changed significantly by 2012-2013. Table 1 compares the variations observed between 2010 and 2012-2013 for each class of materials. Construction, renovation and demolition (CRD) residual materials increased by 67% since 2010, while dangerous household waste (DHW) was 40% lower in 2012-2013. Overall, recyclable materials accepted in curbside recycling increased by 3%.

TABLE 1: GENERATION OF RESIDUAL MATERIALS PLACED CURBSIDE PER PERSON IN 2012-2013

Classes of residual materials	Quantities placed curbside (kg/person/year)		
	2012-2013	2010	Variation
<b>Organic waste</b>	<b>187</b>	<b>169</b>	<b>+ 11%</b>
<b>Recyclable materials</b>	<b>139</b>	<b>135</b>	<b>+ 3%</b>
Newspapers	12	16	- 28%
Printed matter	31	32	- 5%
Paper and cardboard containers and packaging	34	30	+ 11%
Glass	24	21	+ 15%
Metal	9	8	+ 8%
Plastics	30	27	+ 13%
<b>Bulky items</b>	<b>15</b>	<b>13</b>	<b>+ 10%</b>
<b>Construction, renovation and demolition waste (CRD)</b>	<b>32</b>	<b>19</b>	<b>+ 67%</b>
<b>Dangerous household waste (DHW)</b>	<b>3</b>	<b>5</b>	<b>- 40%</b>
<b>Textiles</b>	<b>12</b>	<b>7</b>	<b>+ 61%</b>
<b>Miscellaneous materials</b>	<b>8</b>	<b>9</b>	<b>- 1%</b>
<b>TOTAL — Residual Materials Generated</b>	<b>396</b>	<b>358</b>	<b>11%</b>

## Residential curbside recycling: The total tonnage recovered increased since 2010

Overall quantities of materials generally accepted in residential curbside recycling increased throughout Quebec by 3% compared to 2010 results. However, the quantity of recyclables found in trash collection increased even more (+14%), which translates to a slight decline (from 64.8% to 62.5%) in the recovery rate of materials generally accepted in curbside recycling. That drop in the recovery rate has also been observed in a number of other Canadian and European jurisdictions, particularly Ontario<sup>1</sup> and Belgium.<sup>2</sup>

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**THE FINDINGS OF THE 2012-2013 CHARACTERIZATION ONCE AGAIN REMIND US HOW IMPORTANT IT IS TO CONTINUE RAISING PUBLIC AWARENESS IN ORDER TO MAINTAIN AND IMPROVE CURBSIDE RECYCLING RECOVERY RATES.**

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The continual introduction of new types of products and packaging on the market, in combination with changes in consumption habits, has an effect on the composition of recyclables placed curbside. This evolution has an impact on the quantities of certain materials generated and, by extension, on the recovery rate of materials generally accepted in curbside recycling. A case in point is newspapers: the arrival of the digital age has resulted in a 27% decline in quantities generated by Quebec households, while newspapers have a higher-than-average recovery rate. By contrast, quantities of several types of plastic containers and packaging – such as stand-up pouches – are increasing while their recovery rates are below average. The decline in quantities of high-recovery materials combined with increased quantities of low-recovery materials exert a downward pressure on the overall recovery rate of materials generally accepted in curbside recycling.

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1 STEWARDSHIP ONTARIO. *Blue Box Performance*, [online], 2014.  
[<http://www.stewardshipontario.ca/blue-box-performance/>].

2 FOST PLUS. *2012 and 2013 Annual Reports*, [online].  
[<http://www.fostplus.be>].

## 2012-2013 CHARACTERIZATION OF RESIDUAL MATERIALS IN QUEBEC'S RESIDENTIAL SECTOR

Recovery rates for the main classes of materials generally accepted in curbside recycling and their variation compared to the 2010 characterization study findings are presented in the following table.

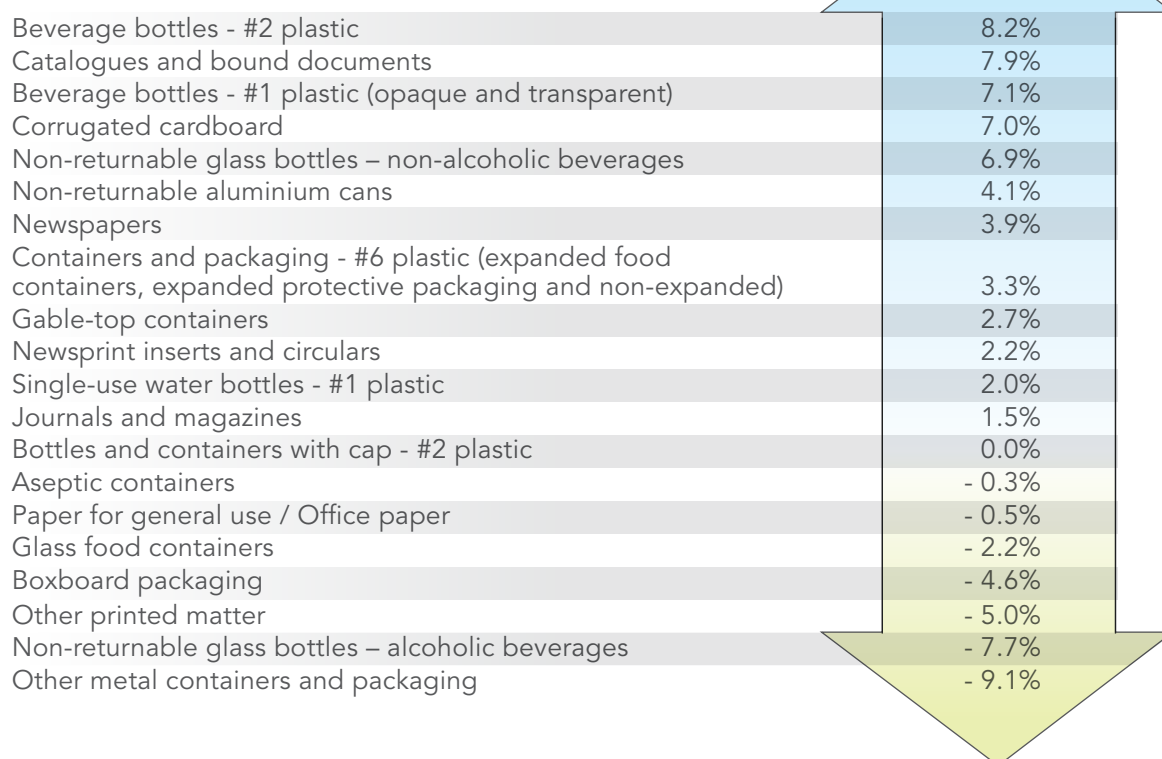
TABLE 2: RECOVERY RATES OF MATERIALS GENERALLY ACCEPTED IN CURBSIDE RECYCLING IN 2012-2013, AND VARIATION SINCE 2010

Classes of materials	2012-2013 Recovery Rate	Rate Variation Since 2010
Newspapers	83.8%	+ 3.9%
Printed matter	77.0%	+ 0.3%
Paper and cardboard containers and packaging	60.0%	+ 0.4%
Glass	77.2%	- 4.8%
Metal	43.3%	- 9.4%
Plastics	31.7%	- 0.8%

The following diagram shows variations in recovery rates since 2010 according to type of material, for 20 materials that account for almost 80% of materials generally accepted in residential curbside recycling. Despite the slight decline in the overall rate, recovery rates for three-quarters of the 20 materials remained stable or increased.

### 20 materials regularly placed in curbside recycling

#### Materials



## 2012-2013 CHARACTERIZATION OF RESIDUAL MATERIALS IN QUEBEC'S RESIDENTIAL SECTOR

The following table presents quantities and recovery rates for materials generally accepted in residential curbside recycling in 2012-2013.

**TABLE 3: QUANTITIES AND RECOVERY RATES FOR MATERIALS GENERALLY ACCEPTED  
IN CURBSIDE RECYCLING**

*(Totals may not equal the sum of the elements in the table due to rounding for presentation purposes)*

Category	Material	Quantity recovered (t)	Recovery rate
Newspapers, printed matter, paper and cardboard containers and packaging	Newspapers	79,000	83.8%
	Newsprint inserts and circulars	77,600	85.4%
	Catalogues and bound documents	28,500	80.2%
	Journals and magazines	24,200	84.2%
	Directories	5,000	90.0%
	Paper for general use / Office paper	16,400	66.2%
	Other printed matter	26,600	57.2%
	Other materials not designated by the compensation plan	1,700	67.0%
	Books	8,400	82.8%
	Kraft paper packaging	2,400	31.8%
	Kraft paper shopping bags	2,200	34.4%
	Corrugated cardboard	74,300	70.9%
	Laminated fibre containers	1,100	26.2%
	Laminated paper	600	14.3%
	Composite fibre containers	1,600	42.2%
	Molded pulp	4,000	49.2%
	Boxboard packaging	56,900	57.3%
	Other paper packaging	2,300	50.3%
	Gable-top containers	8,900	68.7%
Aseptic containers	4,000	52.3%	
<b>Total and Average – Paper/Cardboard</b>		<b>425,800</b>	<b>70.6%</b>
Glass	Non-returnable glass bottles – Alcoholic beverages	76,100	85.1%
	Non-returnable glass bottles – Non-alcoholic beverages	10,100	83.7%
	Food containers – Glass	25,400	59.2%
<b>Total and Average – Glass</b>		<b>111,600</b>	<b>77.2%</b>

## 2012-2013 CHARACTERIZATION OF RESIDUAL MATERIALS IN QUEBEC'S RESIDENTIAL SECTOR

TABLE 3 (CONT'D)

Category	Material	Quantity recovered (t)	Recovery rate
Metal	Non-returnable aluminium cans	300	48.0%
	Other rigid aluminium packaging	3,700	43.8%
	Aluminium foil and containers	800	10.7%
	Steel aerosol containers and tubes	700	18.5%
	Other metal containers and packaging	13,900	56.0%
<b>Total and Average – Metal</b>		<b>19,200</b>	<b>43.3%</b>
Plastics	Single-use water bottles - #1 plastic	7,400	63.9%
	Non-returnable beverage bottles – Transparent clear, blue or light green - #1 plastic	3,700	68.3%
	Non-returnable beverage bottles - Opaque - #1 plastic	500	49.7%
	Bottles and containers with cap – Transparent clear, blue or light green - #1 plastic	3,400	44.5%
	Bottles and containers with cap - Opaque - #1 plastic	1,000	47.0%
	Other opaque packaging - #1 plastic	1,300	44.7%
	Other transparent packaging - #1 plastic	4,700	48.8%
	Beverage bottles - #2 plastic	3,200	59.6%
	Bottles and containers with cap - #2 plastic	9,800	63.0%
	Other packaging - #2 plastic	400	47.5%
	Bottles and containers - #3 plastic	300	42.2%
	Containers and packaging - Rigid - #4 plastic	300	46.5%
	Containers and packaging - Rigid - #5 plastic	5,700	41.1%
	Pails, buckets and covers - #2 and #5 plastic	1,700	31.7%
	Other uncoded plastic packaging or #7 plastic (non-PLA)	4,300	28.5%
	Containers and packaging - Food - #6 expanded plastic	800	7.2%
	Containers and packaging - Protection - #6 expanded plastic	1,500	32.8%
	Containers and packaging - #6 non-expanded plastic	2,200	31.4%
	Other laminated and plastic bags and film	3,100	13.1%
	Stand-up pouches - Plastic	200	20.9%
	Packaging film and bags - #2 and #4 plastic	3,500	21.9%
	Non-degradable plastic shopping bags	2,300	13.0%
Other plastic (non-packaging)	2,600	11.1%	
<b>Total and Average – Plastics</b>		<b>63,800</b>	<b>31.7%</b>
<b>Total and Average</b>		<b>620,300</b>	<b>62.5%</b>



## 2012-2013 CHARACTERIZATION OF RESIDUAL MATERIALS IN QUEBEC'S RESIDENTIAL SECTOR

The following table presents materials placed in curbside recycling bins that are not generally accepted by curbside recycling, or that are designated by other recovery streams (organic waste, deposit containers, electrical appliances, textiles, etc.). Note that materials such as degradable shopping bags, PLA and other degradable plastics, are nevertheless containers and packaging designated by the compensation plan.

**TABLE 4: QUANTITIES OF MATERIALS DESIGNATED BY STREAMS OTHER THAN CURBSIDE RECYCLING**

Category	Material	Quantity (t)
Paper/Cardboard	Containers and packaging made of wood	2,200
<b>TOTAL – Paper/Cardboard</b>		<b>2,200</b>
Glass	Returnable bottles - alcoholic beverages	8,200
	Returnable bottles - non-alcoholic beverages	1,600
	Other glass (flat glass, ceramic, etc.)	7,700
<b>TOTAL – Glass</b>		<b>17,500</b>
Metal	Returnable cans	2,000
	Other metals (scrap metal, wiring, nails, cutlery, etc.)	5,600
<b>TOTAL – Metal</b>		<b>7,700</b>
Plastics	Returnable plastic bottles - beverages	1,800
	PLA and other degradable plastics	700
	Other plastics	9,600
<b>TOTAL – Plastics</b>		<b>12,100</b>
Organic waste	Grass, leaves and garden waste	400
	Table waste	6,200
	Other organic waste	5,100
<b>TOTAL – Organic waste</b>		<b>11,700</b>
DHW	Dangerous household waste	1,500
<b>TOTAL – DHW</b>		<b>1,500</b>
CRD	Furniture, bulky items and other	1,900
	Other CRD waste	4,400
	Lumber	1,900
	Small and large household appliances	5,500
<b>TOTAL – CRD</b>		<b>13,700</b>
Textiles	Textiles and footwear	5,300
<b>TOTAL – Textiles</b>		<b>5,300</b>
Miscellaneous materials	Miscellaneous items (toys, sports equipment, baby products, etc.)	5,600
	Other residual materials (disposable razors, electrical extension wires, bicycle inner tubes, animal carcasses, etc.)	2,700
<b>TOTAL – Miscellaneous materials</b>		<b>8,300</b>
<b>TOTAL</b>		<b>80,100</b>

## 2012-2013 CHARACTERIZATION OF RESIDUAL MATERIALS IN QUEBEC'S RESIDENTIAL SECTOR

SUMMARY TABLE

Category	Quantity (t)
Materials generally accepted by curbside recycling	620,300
Materials collected by other types of collection	80,100
<b>TOTAL</b>	<b>700,400</b>

# Methodology Details

## Scope of the Study

The 2012-2013 characterization study was carried out in 42 Quebec municipalities, distributed in 30 communities in a variety of cities, regional county municipalities (RMCs) and boroughs. The Characterization was conducted by Dessau and NI Environnement.

## Sampling

Twenty clusters, each with a minimum of five consecutive housing units, were studied in each of the communities, for a total of approximately 4,270 housing units. Materials placed curbside were examined over an 11-month period from May 2012 to March 2013. Single family homes, multiplex and apartment buildings were included in curbside pick ups, as were rural dwellings in targeted municipalities. A total of 68 tonnes of residual materials were collected and sorted into 70 categories of materials, of which about 50 are generally accepted in curbside recycling.

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