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Blue Box Fee Setting Process and Data Inputs

Stewardship Ontario sets steward fees each year for industry to fund their share of the Blue Box Program to recycle printed paper and packaging.

The objectives of the Blue Box Program are:

- To deliver curbside recycling to consumers with the most effective and efficient material management at all levels of the program
- Ensure the widest range of printed paper and packaging is recycled
- Make the stewards' and municipalities' experience with the program partnership as positive as possible

The objectives of the Blue Box Program fee setting process are to:

- Share all of the program costs equitably among stewards
- Provide signals and incentives to increase the diversion of all materials

The principles of the methodology Stewardship Ontario uses to set fees, are based on:

- Fees should meet the policy objectives of the WDA
- All materials will contribute to support the cost of the program
- Fees should reflect the cost of managing each material or group of similar materials in the Blue Box system
- Fees should reflect the recovery rates of each material within the Blue Box system
- There should be no arbitrary cross subsidization of cost among materials
- The fee setting process will be transparent to all stewards

The PIM (Pay-in model) is a proven and effective way to allocate the obligated costs of operating the program to stewards of the various printed paper and packaging materials, and has been in use since the commencement of the program. It has been reviewed and updated periodically to reflect the ever-changing dynamic of the Blue Box Program. It ensures that all materials share the cost of supporting the program and is consistent with the methodology used in Quebec and Manitoba.

The fee setting process contains three main stages, of which the various waste studies (Activity Based Cost Allocation Study, Curbside Material Composition Study and MRF Material Composition Study) form a major part.

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The fee setting process has three broad steps:

1. Determine all program costs
2. Allocate costs to individual materials
3. Determine fee rates

Each of these steps depends on key information about the program and recycling system. These are provided by stewards and municipalities, as well as studies undertaken by third parties on behalf of Stewardship Ontario.

1. **Determining program costs** includes:
    i. The cost of municipal BB recycling programs (stewards share responsibility for the net cost of the recycling system) is calculated in the following way:
        i. Municipalities report the volume of each material managed under the Blue Box Program that they collected and marketed through the Blue Box, and also the cost incurred in doing so. This information is reported through an annual on-line survey, the Waste Diversion Ontario (WDO) Datacall
        ii. Representatives from Stewardship Ontario, Association of Municipalities of Ontario (AMO) and the City of Toronto meet to review the data and together determine a 'Best Practice' cost, which is used to negotiate the stewards' obligation to municipalities for their share of the cost of running the Blue Box Program. The agreed amount is recommended to WDO who formally approves the stewards' obligation for a given year
    ii. MOE and WDO charges for program support – The MOE provides support for compliance and enforcement and WDO provides program oversight and administers the municipal Datacall
    iii. Stewardship Ontario program costs for program delivery, including monitoring and data gathering as well as investments in program efficiency and market development if required
2. **Allocating costs to individual materials** is based on the actual cost to manage each material in the municipal Blue Box system and on the recovery rate for each material according to a three-factor formula[1]. These calculations draw on material composition studies, including:

[1] - 40% of the cost of the program is assigned to each material category based on how much it costs to manage each material in the system

- 35% of the cost of the program is assigned based on the recovery rate achieved by the material

- 25% of the cost of the program is assigned based on how much it would cost to manage the material, if it were recovered at a rate of 60%

i. The results of the **Activity-Based Cost Allocation Study** of the cost of managing individual materials in municipal recycling operations
ii. **Curbside Material Composition Study** of materials put out by Ontario residents for recycling and in the garbage
iii. **MRF Material Composition Study** of the processed recyclables sold by municipalities to re-processors
iv. Steward reports of sales into the Ontario market

3. **Determining the fee rates** involves two steps:
   i. Spreading the costs allocated to each material over the quantity of materials supplied into the Ontario market, as reported by stewards, and
   ii. Aggregating the fee rates for some materials as applicable:, i.e. for printed paper, some paper packaging and some plastic packaging

The activity based cost allocation study, curbside and MRF material composition studies are critical components of fee setting as they inform the cost to manage each type of material, and their respective recovery rates for the purpose of setting fees.

Curbside and MRF material composition studies are undertaken every year, and the activity based cost allocation study every three or four years. This assures that fees are being set using the most recent and relevant data on municipal recycling operational costs, changes in what residents are recycling in their Blue Box and discarding in their garbage, and changes to the way materials are sorted and sold and shipped to market for reprocessing into new materials.

A description is provided of the methodology for each of three types of waste studies undertaken by Stewardship Ontario. As well, a summary is provided of the main findings for each of the studies undertaken in 2012 that in large part informed the fee setting for 2013 fees.

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Activity Based Cost Allocation Study

A key principle of the fee setting process is that fees paid by stewards should fairly reflect the costs of managing the materials. Since the establishment of the Blue Box program in 2004, activity-based cost allocation studies have been considered to be an objective method to identify the cost centres and drivers within the municipal recycling system and to allocate such costs to individual materials.

Activity-based cost allocation studies are used to determine the costs incurred to collect, sort and bale each product for sale to re-processors based on activities performed and the resources used throughout the entire process. This is more precise than simply allocating the cost based on weight or volume metrics.

Activity-based cost studies are based on field measurements in municipal recycling programs. Past studies were conducted in 2004 and 2008. The approved cost of the municipal recycling system each year has been allocated to each material based on the resulting data. In 2012, Stewardship Ontario initiated a new activity-based cost allocation study in conjunction with the Continuous Improvement Fund (CIF) to determine the current material management costs of each Blue Box material category for the purpose of fee-setting for 2013.

Methodology

The methodology for the activity-based cost allocation study has been developed over many years with stakeholders including municipalities, material and packaging suppliers and stewards. The methodology was reviewed by a third party, KPMG, in 2007 in conjunction with EEQ and MMSM.

Principles have been defined for allocating the capital, labour and operating cost of collection (11 principles), transfer and processing operations (54 principles), based on direct expenses for a material or drivers such as time expended on each activity, building space allocated to each activity, and the relative volume and weight of materials on which each activity is performed.

Field studies are undertaken in representative programs according to program size, collection and sorting technology and materials handled. Field observations are combined with data provided from the WDO Datacall to generate an estimated cost per tonne to manage each Blue Box material. Stewardship Ontario has engaged third parties to undertake the field measurements and initial analysis, according to specifications provided by Stewardship Ontario. Stewardship Ontario supervises and reviews the analysis.

The material-specific costs are then combined with previous material-specific cost data and used within the pay-in model (PIM) to calculate fees.

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2012 Activity Based Cost Allocation Study

In the summer of 2012, Stewardship Ontario engaged a team of waste management experts to conduct this study at six different municipalities across the province with the purpose of updating the material management costs from the past study.

Cost allocation studies are typically conducted every three or four years. Municipalities selected in 2012 were similar, where possible, in their size, make-up and tonnage collected to municipalities that participated in previous studies, providing for accurate tracking over time.

The chart below outlines the municipalities that participated in the 2012 and 2008 ABC studies:

Audited Municipalities (2008 and 2012 ABC studies)

Current ABCs' (2012)			Past ABCs' (2008)		
Municipality	Tonnes	% Part of All Munis	Municipality	Tonnes	% Part of All Munis
TOTAL (ALL Munis)	**904,850.3**	**100.0%**	**TOTAL (ALL Munis)**	**929,528.6**	**100.0%**
BLUEWATER RECYCLING ASSOCIATION	12,199.5	1.3%	HALDIMAND, COUNTY OF	2,942.4	0.3%
HAMILTON, CITY OF	39,840.7	4.4%	HAMILTON, CITY OF	40,831.8	4.4%
LONDON, CITY OF	26,247.0	2.9%	PEEL, REGIONAL MUNICIPALITY OF	93,801.3	10.1%
NIAGARA, REGIONAL MUNICIPALITY OF	40,429.3	4.5%	NORFOLK, COUNTY OF	3,904.9	0.4%
NORTHUMBERLAND, COUNTY OF	5,719.2	0.6%	NIAGARA, REGIONAL MUNICIPALITY OF	38,106.4	4.1%
YORK, REGIONAL MUNICIPALITY OF	76,073.0	8.4%	QUINTE WASTE SOLUTIONS	11,288.7	1.2%
SUBTOTAL (Audited Munis)	**200,508.7**	**22.2%**	**SUBTOTAL (Audited Munis)**	**190,875.4**	**20.5%**

Cost drivers

In general, the amount of resources and activities required to collect, transfer, sort and process a material from its origin at curbside to the final material bale will determine the costs allocated to it. As defined by the cost allocation principles, some of the specific drivers include:

- the weight and volume (density (m^3)) of the material
- the amount of labour it consumed
- the amount of time it consumed for all activities
- the amount of floor space and capital equipment it used
- the number of compartments in the truck and/ or the area (equipment, bunker, etc.) it occupied
- the number of loads of material moved
- the number of bales produced

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Key Findings

Some general changes were noted overall in terms of cost trends:

- Increase in overall cost as reported in WDO Datacall
- Increased quantities recovered in general as recycling matures
- Increase in quantities of lighter, harder to handle materials generated due to new product formats and targeted by recycling programs
- Decrease in some materials, e.g. newspapers, directories, glass, etc.
- Shift to single-stream MRFs
- Sorting by recycling operators according to fluctuating commodity markets to maximize revenue

Cost trends

The results show that the most expensive materials to collect and process included polystyrene, plastic film, polycoat containers, and 'other plastics', e.g., plastic tubs, pouches, tubes, trays etc.

These materials represent less than ten per cent of the total tonnes collected in the Blue Box, although the allocated costs for these specific materials represent one third of total Blue Box operating costs. This is predominantly because the need for sorting labour is significant for these categories to achieve the best revenue. In addition, polystyrene, plastic film, and other plastics occupy significant amounts of space in the collection trucks when compared to their actual tonnes collected given their light-weight and low density characteristics.

The lowest cost materials to manage included glass, newsprint, and OONP #8, which together with mixed fibres and cardboard represent over 70 per cent of the total tonnes.

These materials are dense and heavy so are easily transported in bulk volumes. They are also established recycling stalwarts, with solid processing and end markets in place, and require minimal manual labour to move and sort in the MRFs.

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Curbside Material Composition Study

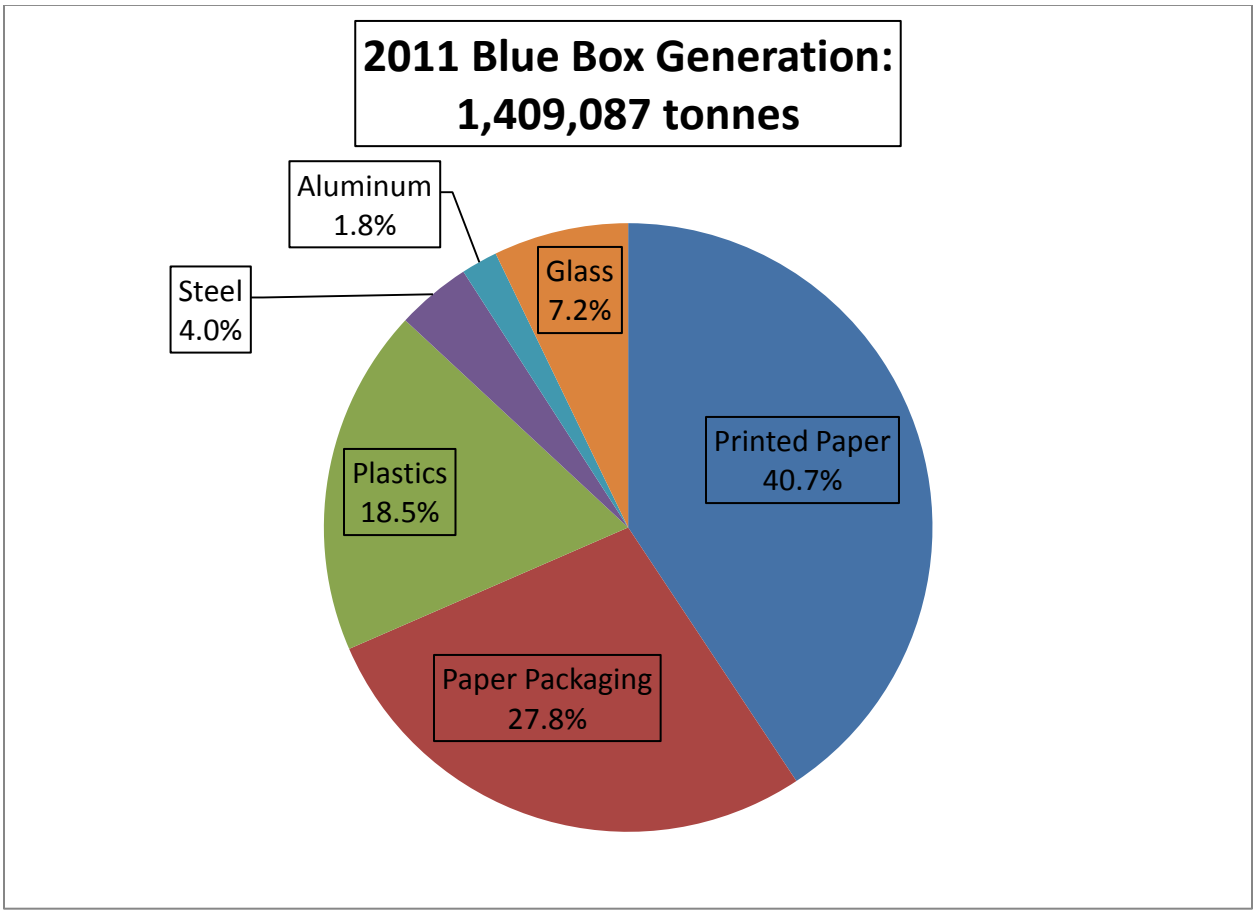
Background

Since the beginning of the Blue Box Program, Stewardship Ontario has undertaken studies of Blue Box materials generated from Ontario households. The studies measure the amount of Blue Box waste Ontario residents across the province, in all types of households, e.g. single-family households and apartments, put out for recycling and in the garbage.

The purpose of these studies is to determine how much of each Blue Box Program material is managed in the municipal waste stream, including the Blue Box, garbage and organics (green) bins and the amount of each material recovered for recycling - the recovery rate. Over the years, Stewardship Ontario has built up one of the largest repositories of such data, which provides a sound basis for program planning and fee setting. These data are one of the critical elements of the fee setting methodology.

Why carry out curbside material composition studies?

The curbside material composition study informs the waste generation rates by material and is ultimately used to estimate Blue Box waste generation in the province, enabling material recovery rates to be calculated. Once the data is compiled and analyzed, the generation rates can be compared to prior years to better understand waste generation trends. Generation volume is a key component to setting Blue Box fee rates.



Methodology

Curbside material composition studies span four seasons examining the composition of materials in the garbage, recycling and organics bins in the same single-family households over a two week period. Results from these studies are aggregated and scaled up to cover the entire province to provide annual tonnes of each Blue Box Program material generated in the municipal waste steam. The parties engaged to conduct the studies, including the collecting, sorting and weighing of the materials, do so according to specifications set out by Stewardship Ontario.

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Studies undertaken in 2012:

Starting in the summer of 2012 and continuing into 2013, Stewardship Ontario undertook a major field study of the curbside waste and recycling collected from residential homes in Ontario. The purpose of the study was to examine the make-up of materials found in the waste streams.

The curbside material composition study looked at:

- How much recyclable waste ends up in garbage and organics bins rather than the Blue Box
- How much garbage, organics and non-recyclable materials are contaminating the Blue Box

The curbside material composition study was conducted in the summer and fall of 2012 and will continue into winter and spring of 2013. Having four seasons of data will provide comprehensive information on the composition of waste generated over a year period, and help identify areas where residents are misplacing waste into the wrong streams.

Stewardship Ontario engaged a waste study crew, AET Consultants, to collect, sort and weigh the waste from a sample of 100 single family residences across the province.

The municipalities where curbside material composition studies were conducted included:

- Muskoka
- Orillia
- Simcoe
- London
- Peterborough City
- Peterborough County
- Toronto

For a list of what waste was analyzed and how it was categorized, see appendix 1.

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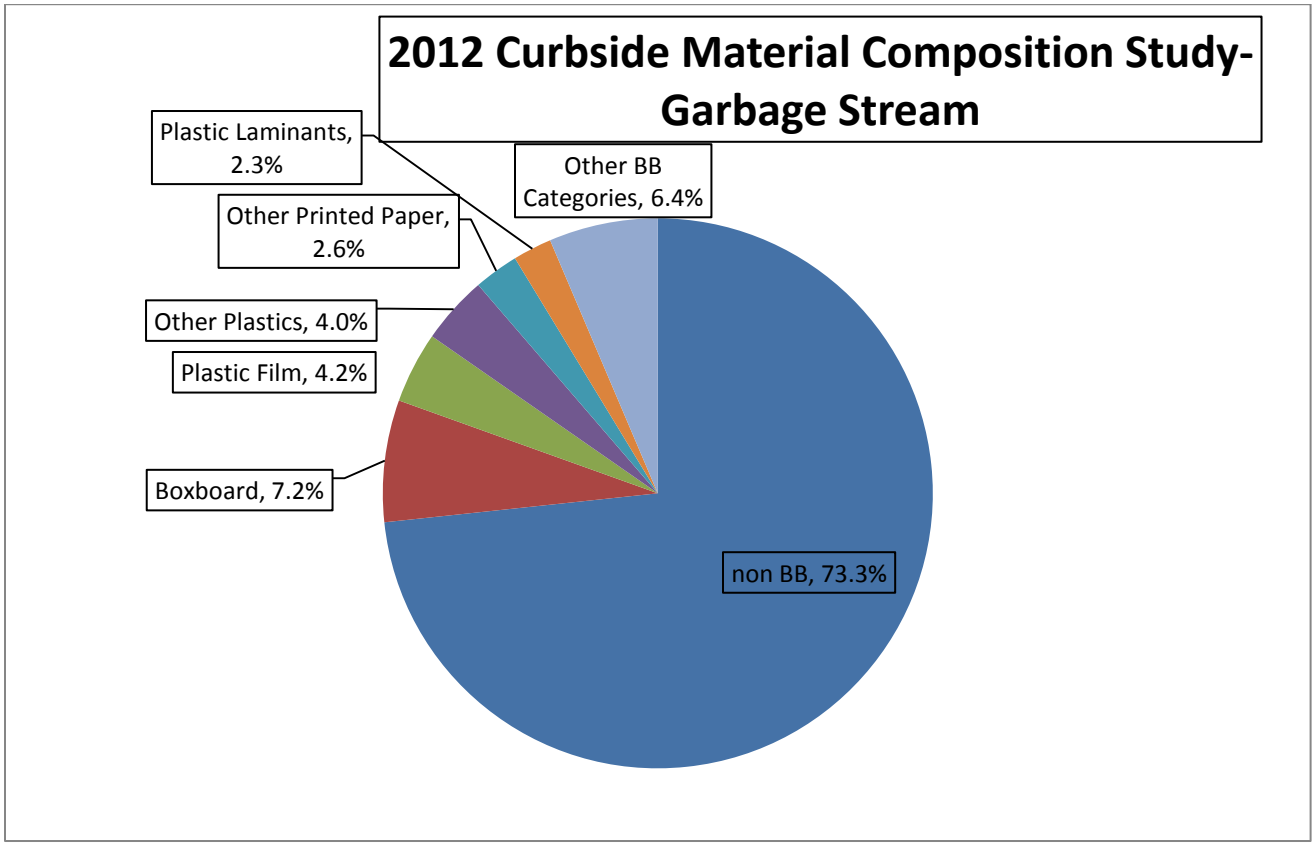
Key findings

Garbage contents

When examining the composition of garbage cans from across the province, boxboard, plastic film, other plastics and other printed paper made up the majority of recyclable items that should be disposed of in the Blue Box.

Overall, the typical make-up of the garbage stream was 73 per cent non-Blue Box materials (correctly placed in the garbage) and 27 per cent Blue Box materials (incorrectly put in the garbage when they should be placed in the Blue Box for recycling).

What these figures tell us is that Ontarians are still disposing of items that can be recycled in the Blue Box in their garbage receptacles. The main item here being plastics, representing over 40 per cent of the Blue Box materials found in garbage. Although still high in 2012, this is down compared to the curbside material composition study carried out in 2005-2007. Partly in response to the 2005-07 findings, the *Plastics Is In* campaign was launched with municipalities to educate residents about all the different types of plastics that can be recycled in the Blue Box. The longer-term success of the campaign on influencing resident disposal behaviour will become evident in the years to come.

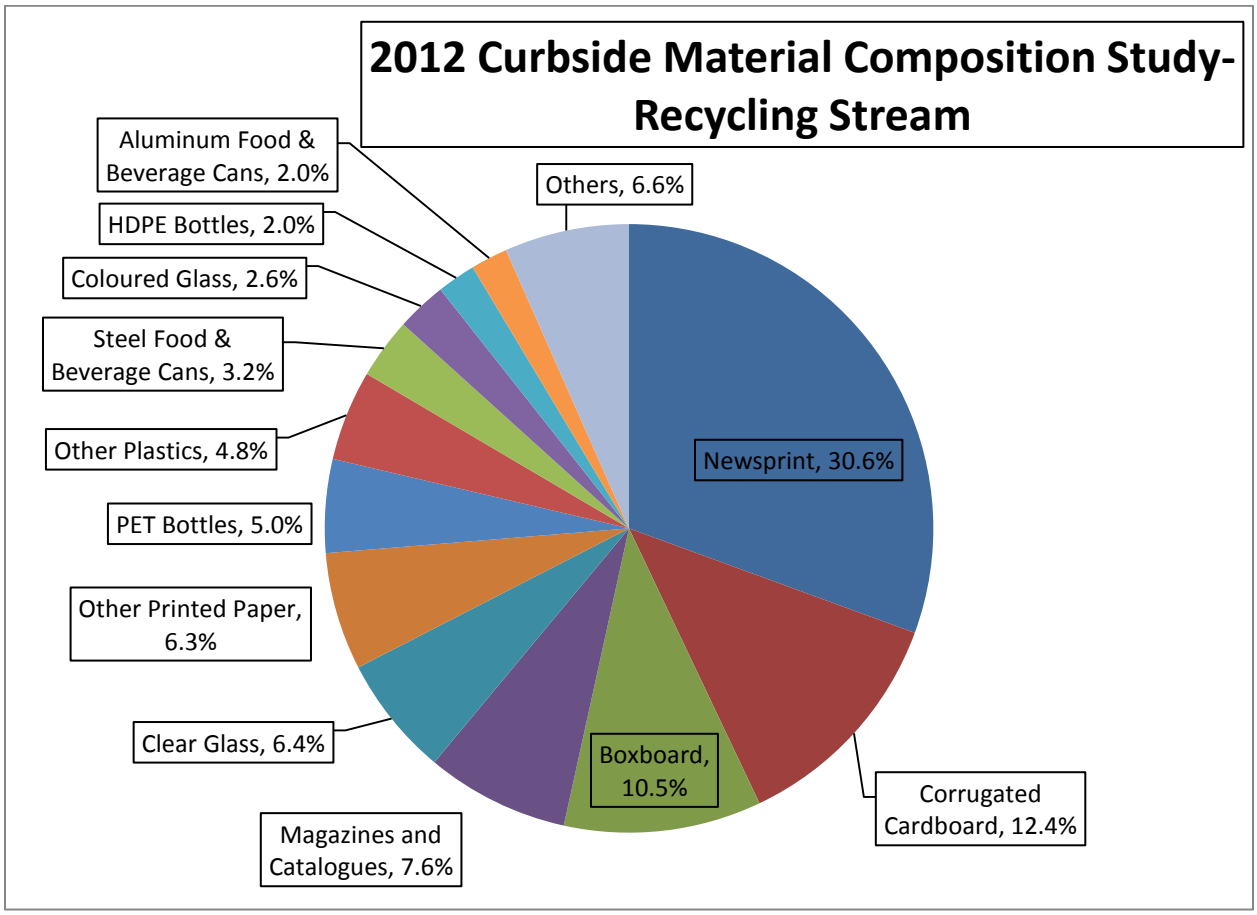


Blue Box contents

The good news is that the curbside material composition studies do indicate that residents are careful about what they put in the Blue Box for recycling. The figure combined across the seven municipalities studied so far, showed that 96 per cent of materials placed in the Blue Box were correct, with only four per cent of contents being non-Blue Box materials.

As in previous curbside material composition studies, the most popular materials put in the Blue Box for recycling include:

- Newsprint – 31 per cent
- Corrugated cardboard – 12 per cent
- Boxboard – 10 per cent
- Magazines and catalogues, and clear/coloured glass – all at 8 per cent.



Organics content

Studies were also carried out for organics in those municipalities that provide this service. The results indicate that around eight per cent of materials in this stream are Blue Box materials, with boxboard being the most significant. Other materials included plastic film and laminates.

Conclusion

The curbside material composition study demonstrates that residents in Ontario are diligent when it comes to putting the right materials in their Blue Boxes for recycling. However, with some more guidance and education, more Blue Box material, which is currently ending up in the garbage, can be diverted to recycling. Overall, the study findings are positive and demonstrate widespread concern for doing the right thing when it comes to recycling, and a healthy appetite for recycling in general.

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Appendix 1: Material Categories

Material Category	Description / Examples
PAPER	
Newsprint – Dailies and weeklies	Daily and weekly newspapers published by the Canadian Newspaper Association (CNA)* and the Ontario Community Newspapers Association (OCNA)*; Globe and Mail, Toronto Star, Hamilton Spectator, community newspapers. No inserts, flyers and magazines from newspapers were included in this category
Other Newsprint - Other	Non-OCNA/CNA publications (e.g. TV guides, Auto Trader, Real Estate News) plus inserts and flyers from OCNA/CNA newspapers. Includes glossy flyers and advertising distributed with newspapers
Magazines and Catalogues	Glossy magazines, catalogues, calendars, annual reports (must be bound, i.e. stapled or glued)
Directories / Telephone books	Telephone books and other directories
Mixed Fine Paper	Fine household papers, writing paper, office paper, copy paper, bills and statements, ad mail, etc. Includes glossy flyers and advertising that are not distributed with newspapers
Other Printed Materials	Gift wrap, construction paper, photographs, etc. This is a default paper category and as such should not contain a large amount of material
PAPER PACKAGING	
Gable Top Containers - milk and milk substitute	Polycoat containers with a gable shaped top; milk and milk substitutes like soy, almond and rice milk
Gable Top Containers - other beverages	Polycoat containers with a gable shaped top; predominantly juices
Gable Top Containers - non beverage	Polycoat containers with a gable shaped top - some foods, sugar, molasses etc.
Aseptic Containers - milk and milk substitute	Polycoat fibre and foil containers (e.g. Tetra Pak) for soy, almond and rice milk
Aseptic Containers - other beverages (non-alcoholic)	Polycoat fibre and foil containers (e.g. Tetra Pak) for juice boxes, water

Aseptic Containers - alcoholic beverage containers	Polycoat fibre and foil containers (e.g. Tetra Pak) for wine and other spirits
Aseptic Containers -non beverage	Polycoat fibre and foil containers (e.g. Tetra Pak) for soup, sauces etc.
Hot drink polycoat cups	Hot beverage containers, typically with polycoat on inside only, including coffee cups, soup cups/bowls, chili cups etc. (excludes fountain drink cups)
Cold drink polycoat cups	Cold beverage cups, typically with polycoat on both sides including fountain drinks, take-out ice cream cups
Spiral wound containers	Polycoat or paper containers with steel bottoms including chip containers, frozen concentrate juices, pre-packaged cookie dough etc. May also have foil and or plastic on ends
Ice cream containers	Polycoated paper ice cream containers, typically with a lid, excluding boxboard folded ice cream boxes
Other bleached long polycoat fibre	Food containers with white fibre and a rolled or folded rim, includes frozen food packaging and tubs
Other paper laminate categories	1. Paper with aluminum foil; 2. Paper with plastic; 3. Multi-layered paper - Includes microwave popcorn bags, some cookie bags, gift wrap, dog food bags, paper granola bar wrappers etc.
Corrugated Cardboard	Electronic product boxes such as television and computer boxes, pizza boxes, kraft wrapping paper for mailing packages, kraft bags such as brown grocery bags, prescription bags, paper take-out bags used for mushrooms or food delivery, kraft bags for food such as flour, sugar, potatoes or oatmeal, kraft produce and bulk bag, store bags used for mushrooms, boxes used to direct mail for residential consumers
Boxboard / cores (tubes)	Paperboard such as cereal boxes and shoe boxes, moulded pulp paper packaging such as egg cartons and formed coffee take-out trays, Stiff paperboard used to mount plastic blister packs (e.g., for products such as toys and batteries), the roll inside of toilet paper, paper towel, tin foil and plastic wrap
PLASTICS	
#1 PET Bottles - excluding alcoholic beverage containers	Soft drink/water bottles, salad dressing bottles, peanut butter jars
#1 PET Bottles > 5 Litres	Water Bottles

#1 PET Bottles - alcoholic beverage containers	Bottles used to contain alcoholic spirits and beverages
#1 PET - clear thermoform packaging	Bakery trays, egg cartons, veggie trays, molded protective packaging
#1 PET - other thermoform (coloured)	Coloured PET microwave trays etc.
#2 HDPE Bottles and Jugs	Laundry detergent, bleach, vinegar, milk jugs, personal care products such as shampoos, conditioners and body wash, antifreeze containers, cleaning supplies
#2 HDPE Bottles and Jugs > 5 litres	Laundry detergent, bleach, cleaning supplies
#2 HDPE Other	Single use trays from items such as lunchables and plant pots
#3 PVC	Tubs, condiment containers
LDPE/HDPE Film - Carry-Out Bags	Plastic shopping bags with or without images or text
LDPE/HDPE Film - Other from food	Fresh and frozen vegetable bags, milk bags and pouches, bread bags etc.
LDPE/HDPE Film - Other - Non-food	Over-wrap from toilet paper and paper towel, dry cleaning bags, over-wrap from pop cases and water cases
LDPE/HDPE Film - Products (not packaging)	Garbage bags, kitchen catchers, zip lock bags, leaf bags
Plastic Laminates	Chip bags, granola bar wrapper, stand-up pouches
#4 LDPE - Rigid	Some condiment bottles, plant pots etc.
#5 PP - bottles, tubs and jugs	Includes plant pots and trays
#6 PS - Expanded polystyrene - white foam packaging	White packaging foam from televisions etc.
#6 PS - Expanded polystyrene - other (food service etc.)	Expanded foam trays, clamshells, coffee cups etc.
#6 PS - Non-expanded - other	Includes plant pots and trays, coffee cup lids
Other Rigid Plastic Packaging	Plastic packaging not captured elsewhere (regardless if it has a recycling # or not). Examples might include blister packaging, unmarked trays, unmarked single-serve yogurt tubs, deodorant sticks, toothpaste tubes, mesh bags, 6-packs rings, strapping etc.
Large HDPE & PP Pails & Lids	Greater than 5 litres and less than 25 litres
Other Plastics - non-packaging/durable	Rubbermaid tubs, toys etc.

METALS	
Aluminum- food and beverage containers (excluding alcohol containers)	Single-serve juice/soft drink cans, pet food cans, food cans (e.g., sardine cans)
Aluminum - alcoholic beverage containers	Wine bottles, spirit bottles, single-serve cooler bottles, beer bottles
Aluminum - foil and trays	Foil wrap, pie plates, yogurt/sour cream seals, frozen food trays (e.g., lasagne food trays)
Aluminum - aerosol containers	Mousse spray cans, air freshener spray cans, deodorant spray cans, hairspray cans, food spray cans for cheese or whipped cream
Other Aluminum - non-Blue Box	Aluminum siding, baking trays etc.
Steel - food and beverage cans	Food cans (e.g., soup), large juice cans for apple juice, lids and closures on packaging
Steel - aerosol containers	All non- MHSW. Air freshener spray cans, deodorant spray cans, hairspray cans, wax and polish spray cans, lubricating oil spray cans, spray can foam, cleaners in a spray can
Other steel - Non-Blue Box	Propane tanks, baking trays, frying pans etc.
GLASS	
Clear Glass - food and beverage (excluding alcohol containers)	Food containers such as pickle jars, salsa jars and dairy tubs, cosmetic containers for creams, beverage bottles
Clear Glass - alcoholic beverage containers	Wine bottles, spirit bottles, single-serve cooler bottles, beer bottles
Coloured Glass - food and beverage (excluding alcoholic beverage containers)	Olive oil bottles, balsamic vinegar
Coloured Glass - alcoholic beverage containers	Wine bottles, spirit bottles, single-serve cooler bottles, beer bottles
Other Glass - non-Blue Box	Dishes, ceramics, window glass

* Link to the OCNA and CNA membership lists:

http://www.ocna.org/member_search

http://www.newspaperscanada.ca/about-newspapers/find-canadian-newspaper

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2012 MRF Material Composition Study

Background

To assist Stewardship Ontario in setting Blue Box fees for stewards each year, MRF Material Composition Studies are undertaken at a sample of material recycling facilities (MRFs) on an annual basis. These studies provide comprehensive data on the composition of Blue Box materials within material bales when they are being marketed to downstream processors. In addition, they also help to inform how materials flow through the sorting system and if they are managed with other like materials, enabling Stewardship Ontario to set fees for specific materials and to set recycling rates.

The recovery rates for each Blue Box material are calculated as follows: material recovered for recycling in Ontario municipal recycling programs divided by material generated in Ontario households.

Estimates of each Blue Box material generated are determined from the curbside waste composition studies. The quantity of each material recovered for recycling is based on the data reported by municipalities. This is by far the most comprehensive data on the material recovered because all municipalities must report and the data covers all material recovered throughout the year.

However, while some materials sorted and sold to markets correspond to material categories reported by stewards, e.g. steel, PET, many other recyclables are sorted and marketed as mixtures of recyclables, rather than the specific materials supplied into the market by stewards. For example, paper materials are marketed as various grades of newsprint and other mixtures of cardboard and printed paper.

At any time, the composition will depend on the specific materials targeted by the recycling program, the strength of markets for each materials and the sorting approach of each MRF. In order to determine the amount of each Blue Box material recovered for recycling, compatible with the categories of materials reported by stewards, it is necessary to measure the composition of the products sorted, sold and shipped to re-processors by MRFs.

Like the curbside composition studies, this is accomplished through studying a sample of products from a representative selection of MRFs.

What is a bale?

A bale is the end product of the MRF sorting process – it is typically composed of a specific material or mixture of materials and compacted together into a bale, ready for shipment to buyers.

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Methodology

MRF Material Composition Studies are undertaken annually. Material is extracted before it is baled for sale to re-processors and examined to identify the typical mix of materials in any given bale. Stewardship Ontario engages third parties to carry out the studies according to specifications and supervises the studies to assure quality control and accuracy.

The results of the composition studies are used to allocate the quantities of recovered Blue Box materials reported by municipalities to the various fee material categories.

2012 MRF Material Composition Study:

The MRF Material Composition Studies carried out in spring 2012, were conducted in both single-stream MRFS (those that accept all types of recyclables together in one container) and multi-stream MRFs (those collecting recyclables in multi-streams: paper, cardboard, glass, plastics and metals) across Ontario. Samples from a wide variety of material bales were extracted and analysed for the composition of materials within. The study results were recorded into datasheets with a predefined set of material categories.

The MRFs where MRF Material Composition Studies were carried out included:

- Cornwall
- Kingston
- London
- Norfolk
- Northumberland
- Quinte
- Waterloo
- Halton Region
- York

The data collected was also compared to prior year studies to identify trends and handling practices for individual materials.

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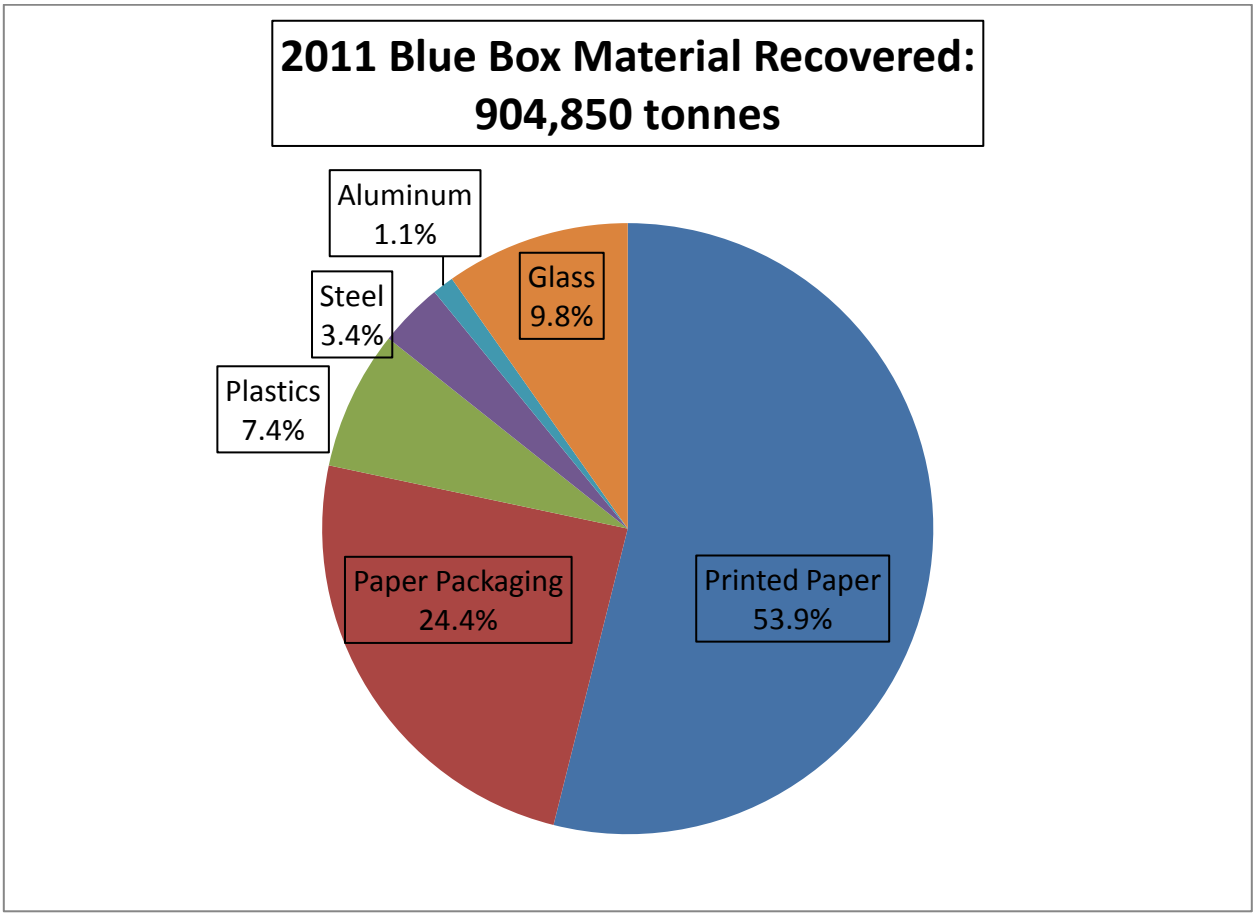
Key Findings

Printed paper and paper packaging are typically the main recyclable materials recovered in the Blue Box; 2011 was no different.

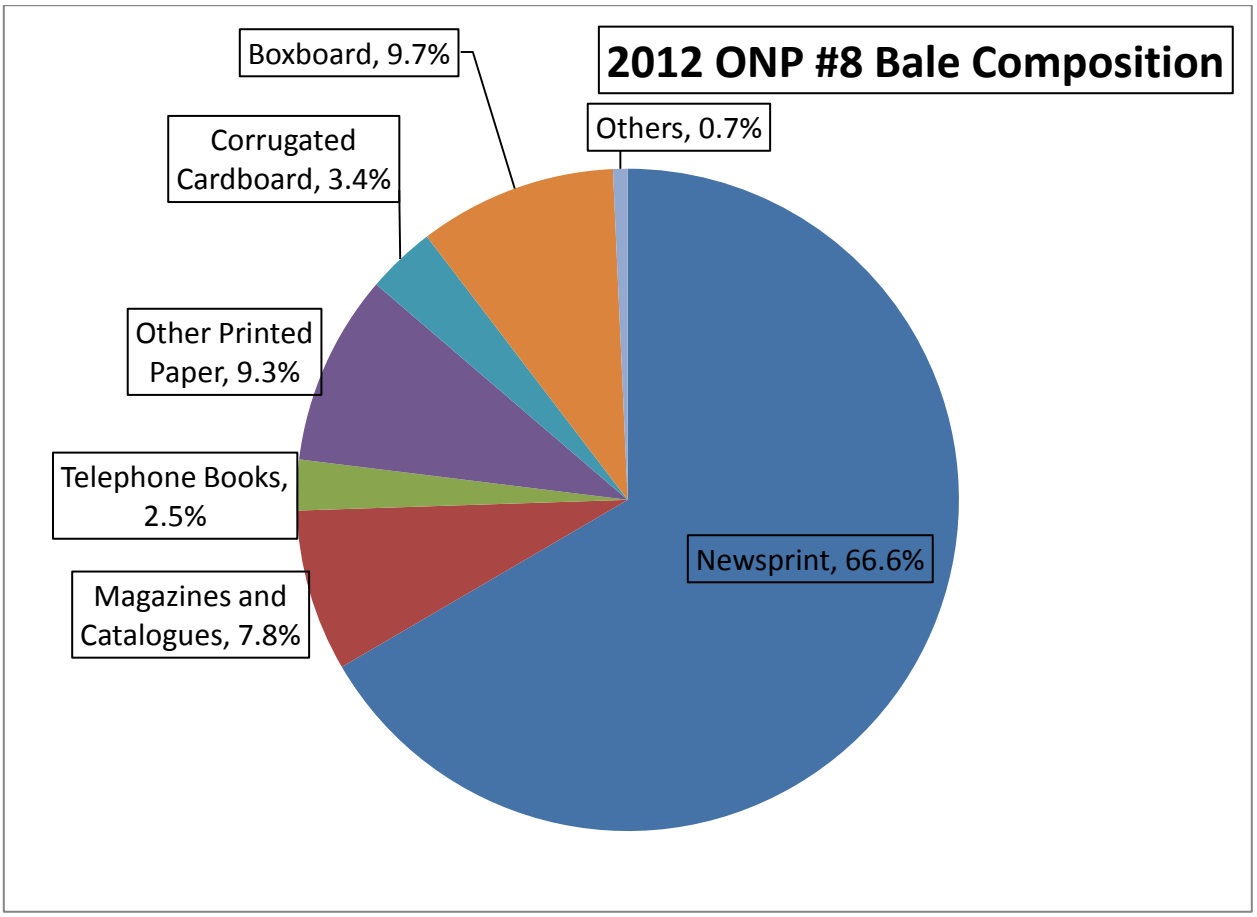
In 2011, 904,850 tonnes of materials were recycled in the Blue Box system. In the subsections below, the composition of each type of bale is provided proportionately, as measured in the recent MRF composition studies.



Bale Compositions

Old Newspaper (ONP) #8 – Paper

An ONP #8 bale typically has the highest newsprint content. However, in Ontario MRFs it also includes significant quantities of other paper materials. The actual composition from this year's study showed that newsprint along with magazines, boxboard and other printed paper made up over 94 per cent of the bale.



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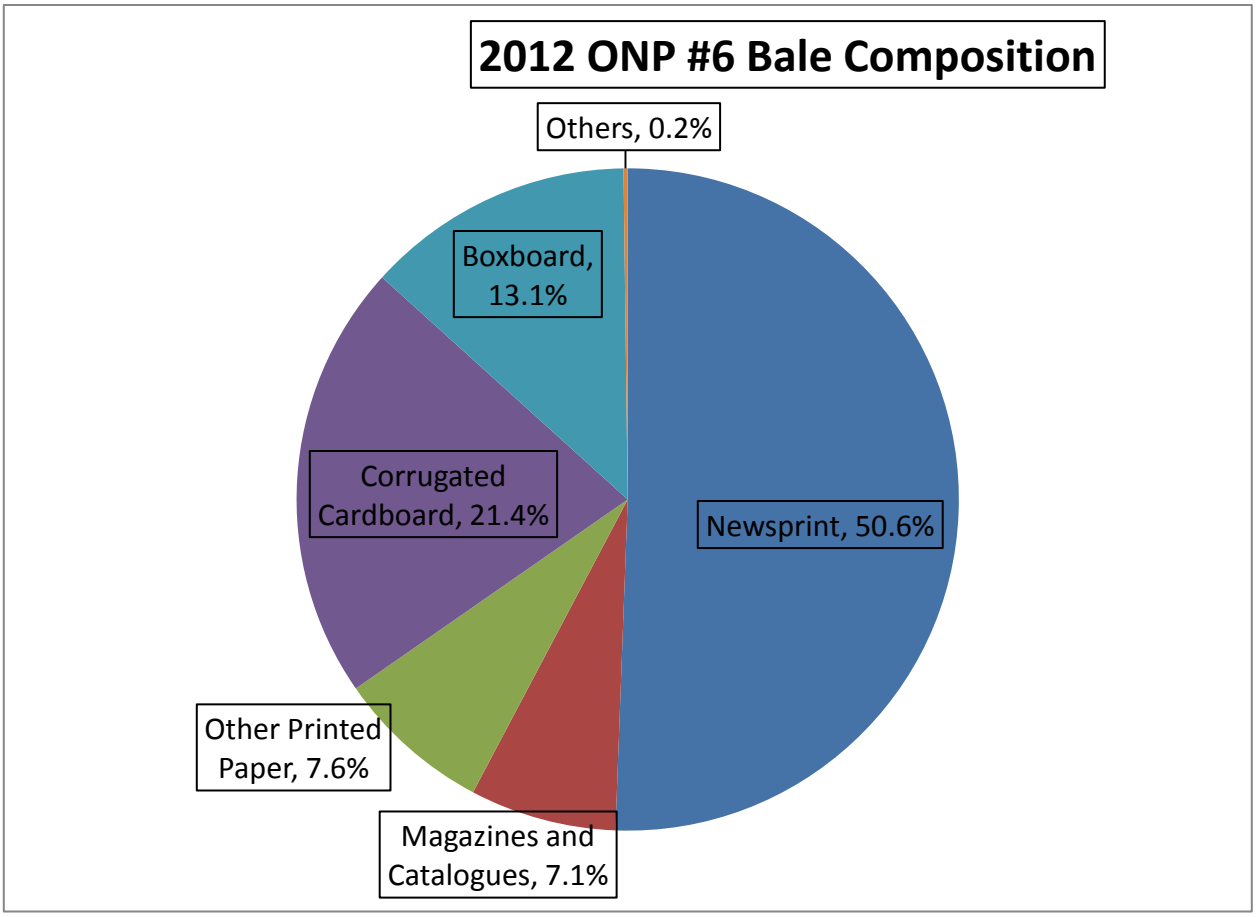
ONP #6 – Paper

ONP #6 bales are typically comprised of a mix of newsprint, corrugated cardboard and boxboard, but are less rich in newsprint than ONP#8. The bales from this year's study showed that newsprint made up half of the bale, with corrugated cardboard next making up 21 per cent, followed by boxboard at 13 per cent.



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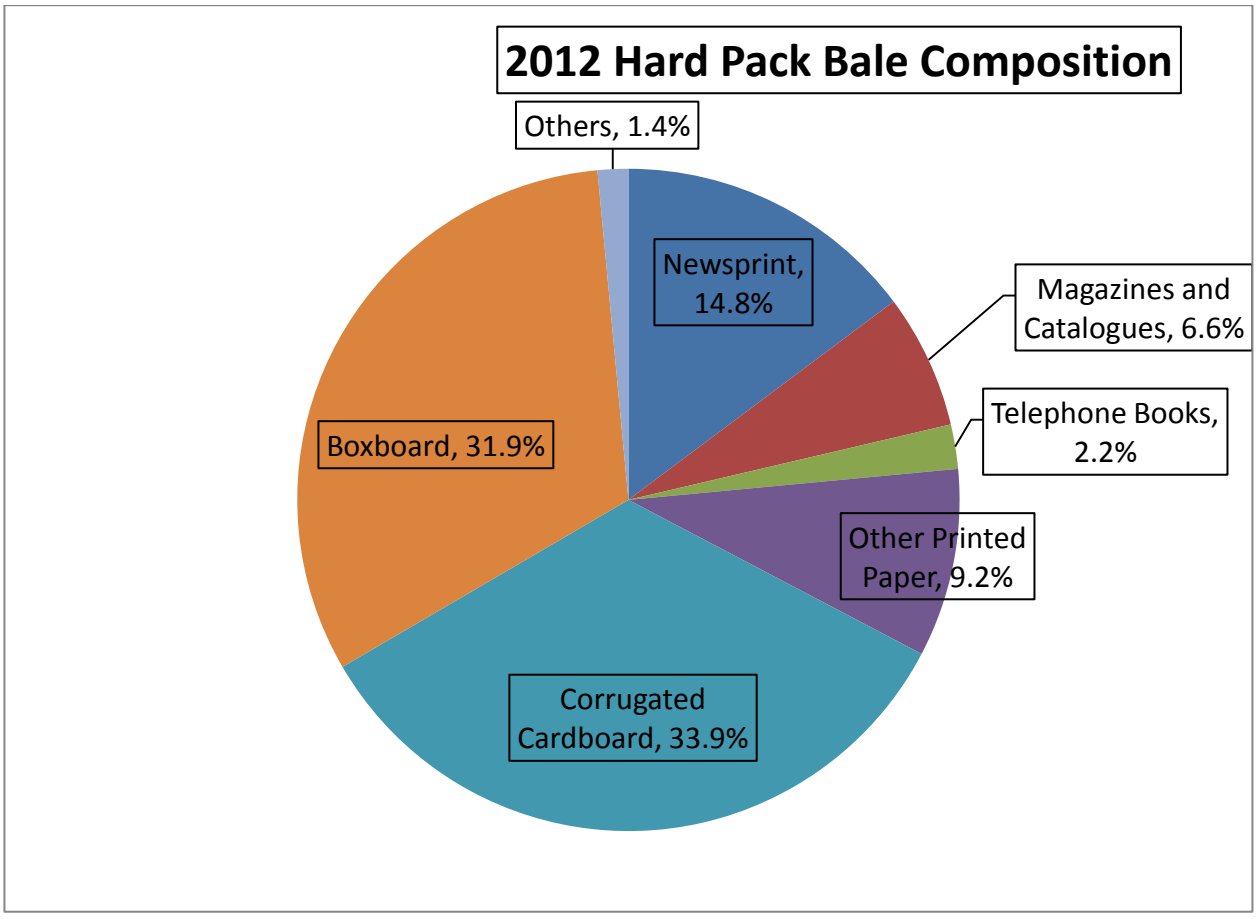
Hard Pack

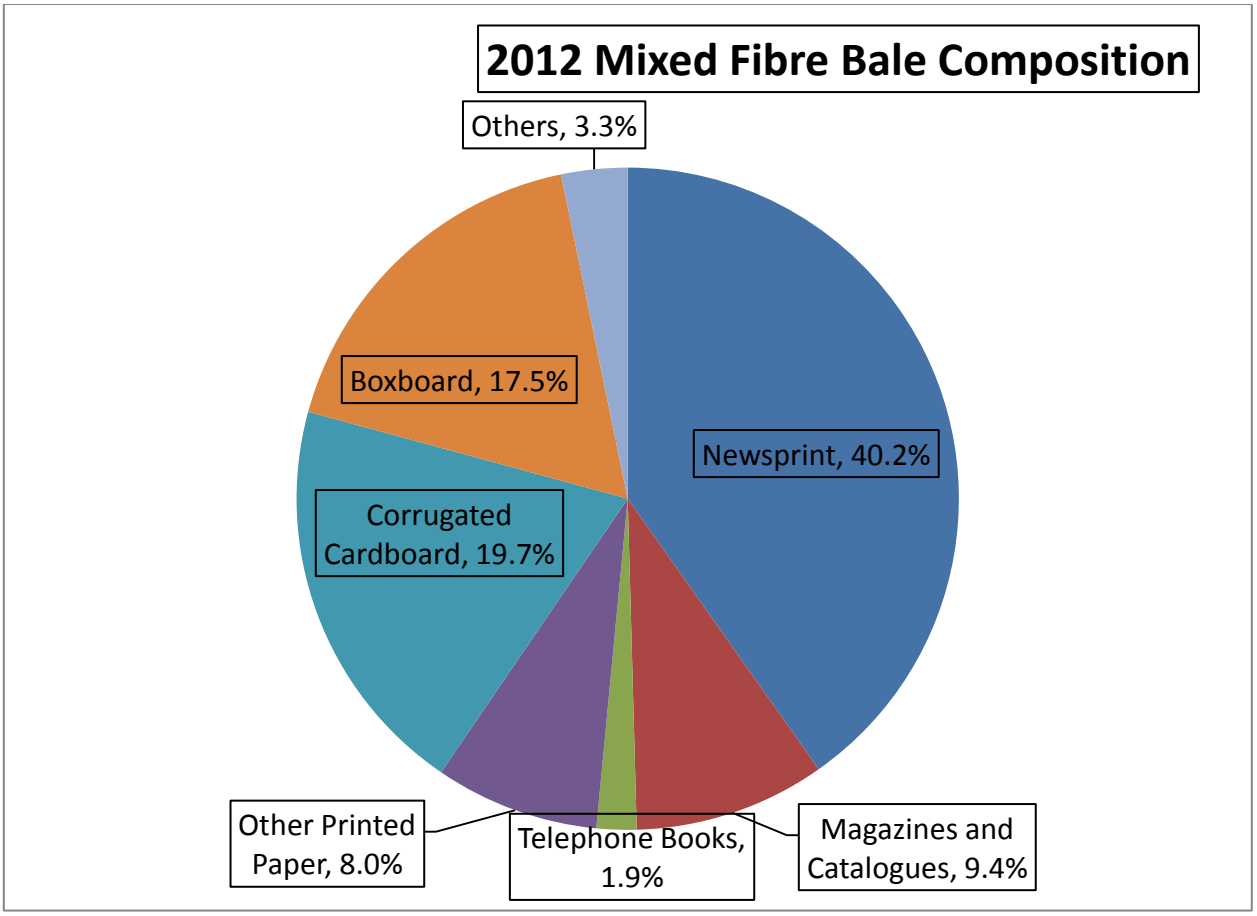
Hard pack bales are typically composed largely of a mix of corrugated cardboard and boxboard. The study results this year reflected a similar mix as in past studies. At single-stream MRFs, hard pack bales were composed of 64.7 per cent of corrugated cardboard and 31.3 per cent of boxboard. At multi-stream MRFs, hard pack bales contained 26.8 per cent corrugated cardboard and 32.1 per cent boxboard, while considerable amounts of newsprint, 15 per cent, and other printed paper, nine per cent, were also found.



Mixed Fibres

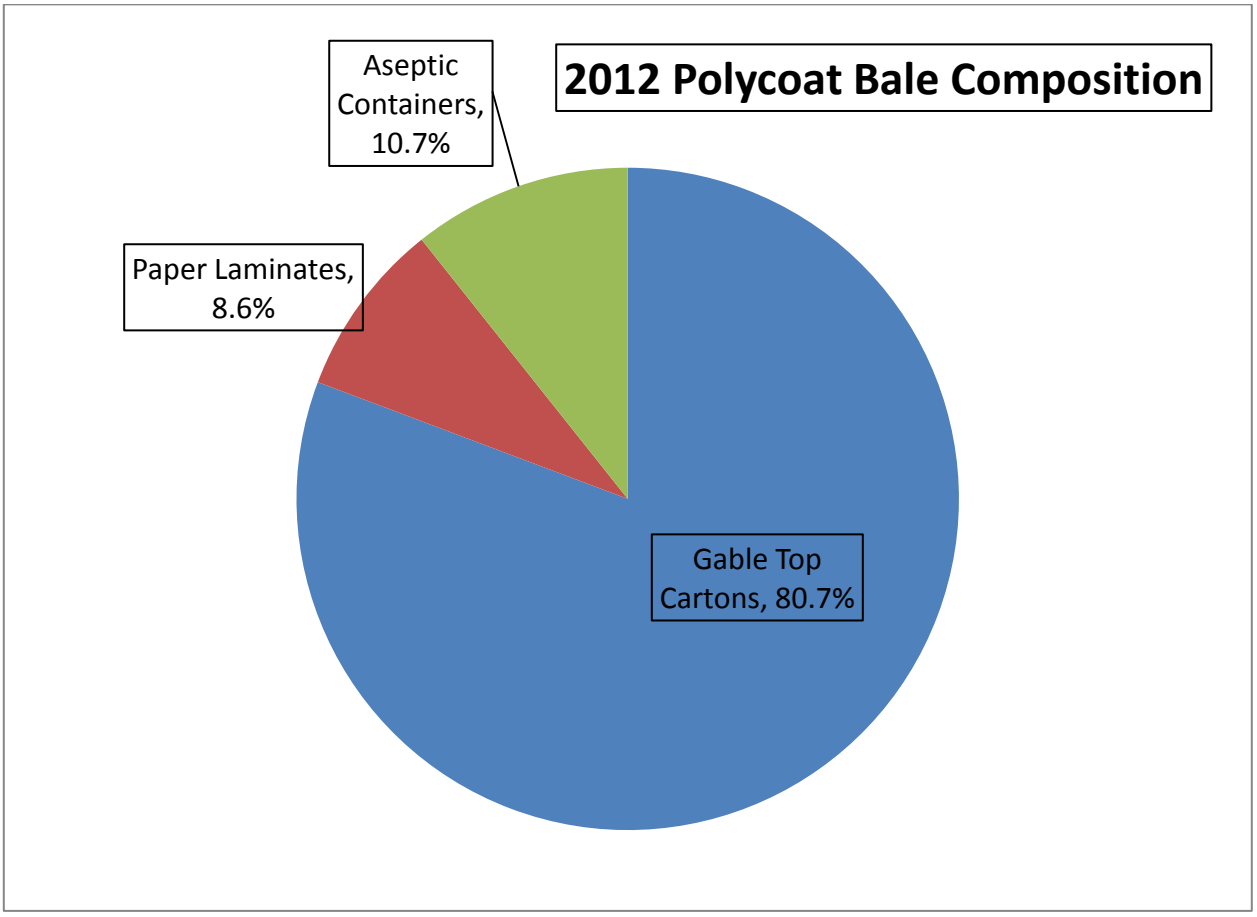
This category can include all possible fibre materials and depends on the sorting done at each MRF. In this year's study, mixed fibre bales contained newsprint, magazines and catalogues, telephone books, other printed paper, corrugated cardboard, boxboard, gable top cartons, paper laminates, and aseptic containers.

In general, single-stream MRFs had a higher proportion of newsprint in mixed fibre bales at 66.5 per cent, whereas multi-stream MRFs were more spread out among different fibre types: newsprint at 34.5 per cent, corrugated cardboard at 22.8 per cent, and boxboard at 19.3 per cent.



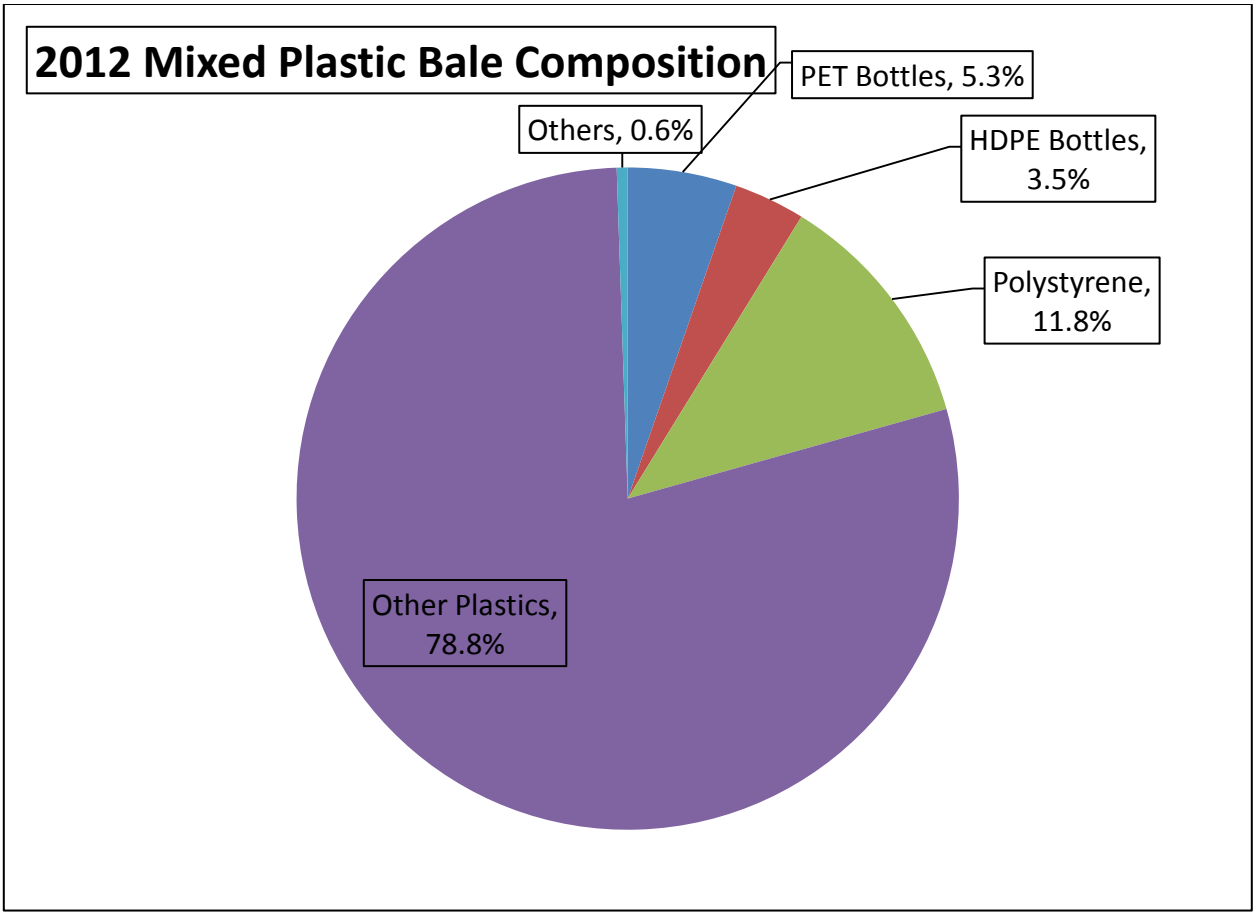
Polycoat

Polycoat bales mainly consist of gable top containers (for milk and milk substitutes and other beverage containers for products such as fruit juice). They also include other polycoat materials depending on the materials targeted for collection and relative quantities generated. The bales studied this year again reflected this, with gable top containers making up over 80 per cent of the bale's contents. Other materials found in the bale included hot drink polycoat cups and aseptic containers. Both single-stream and multi-stream MRFs were similar in their composition.



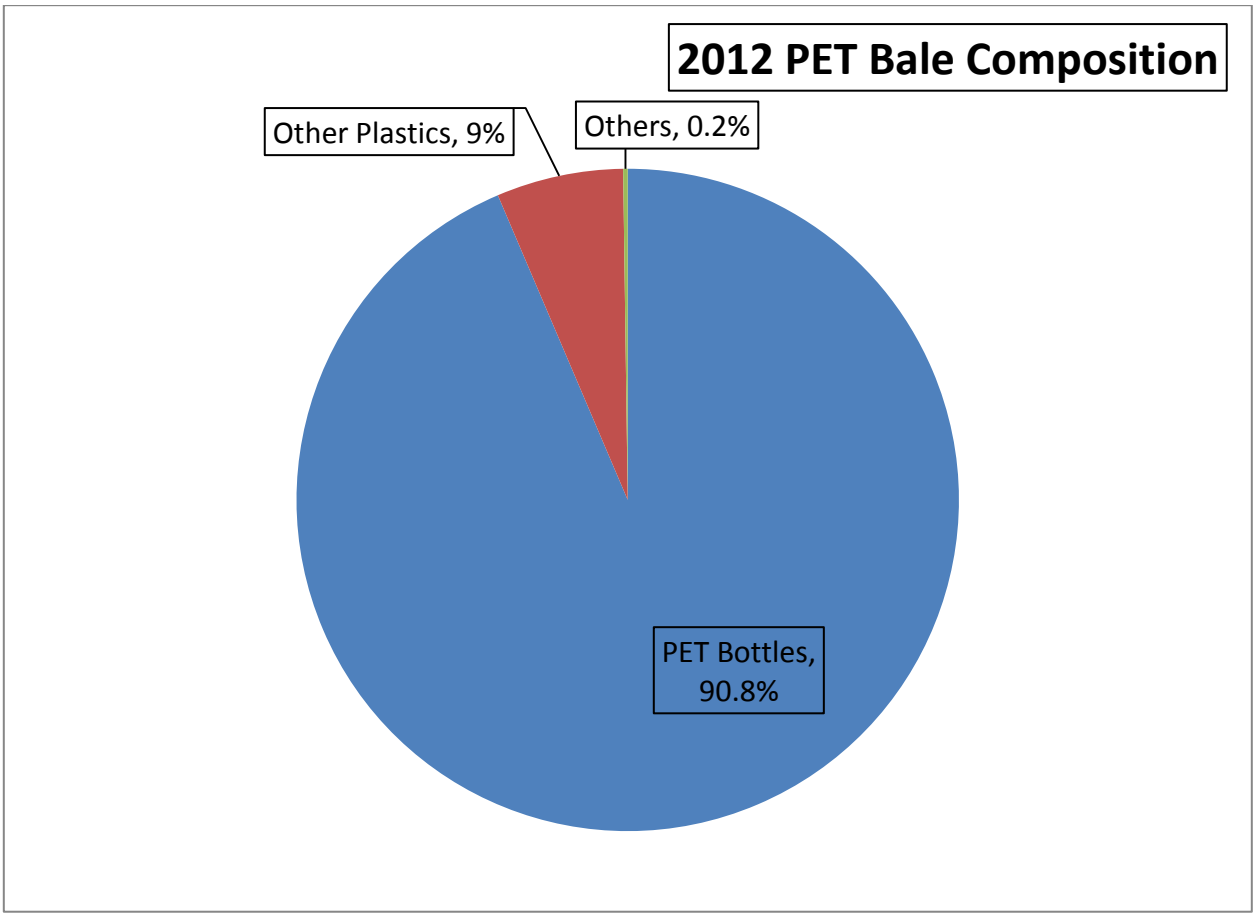
Mixed Plastics

Mixed plastics bales generally include all types of plastics, including those that are also sorted into single material bales e.g. PET bottles, HDPE and film. The relative quantities depend on the materials targeted for collection by each municipality and the relative quantities generated. In this year's study, most of the mixed plastics bales contained a variety of tubs and lids, rigid plastics, PET thermoform and PET bottles.



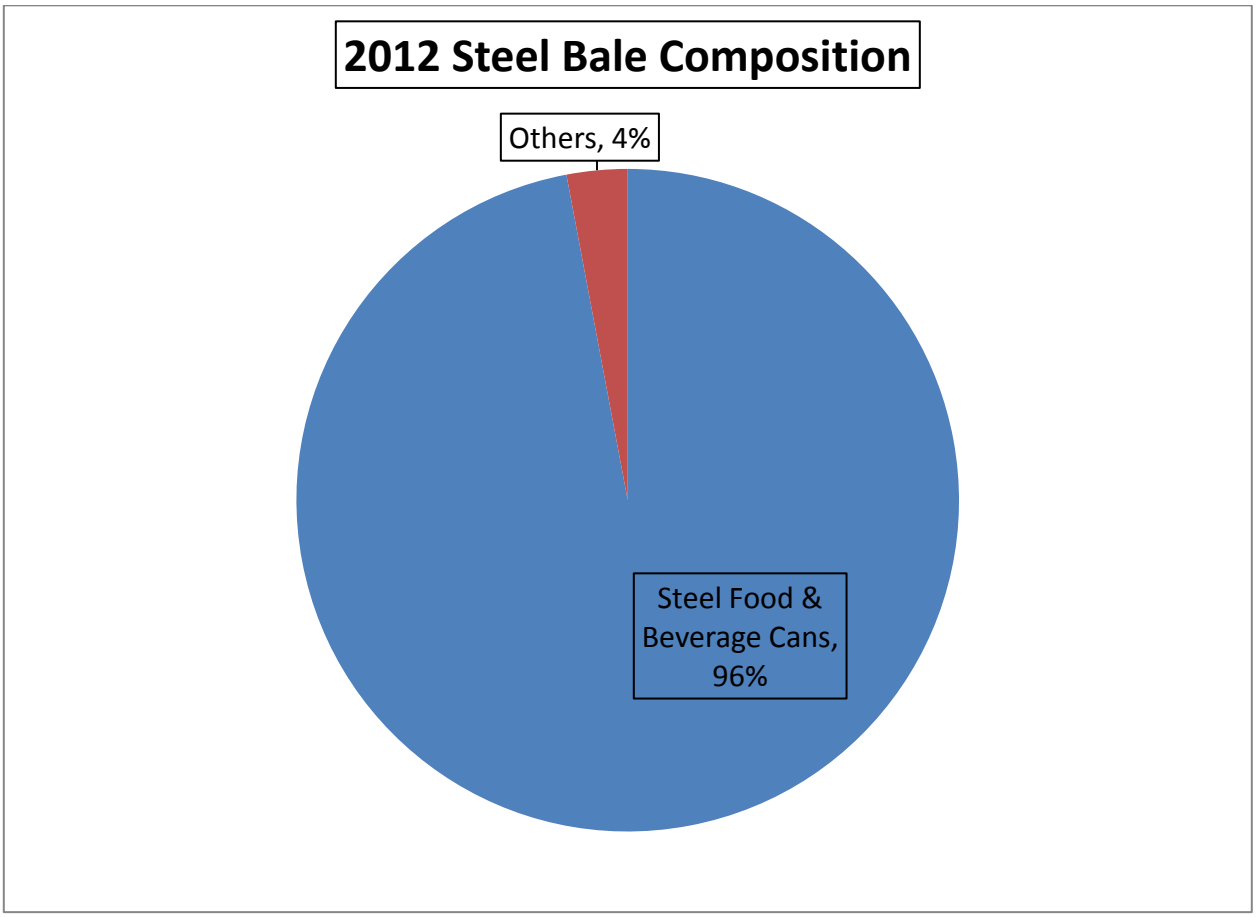
PET bottles

PET bales typically contain mostly PET bottles. However, depending on the materials targeted for collection by each municipality and the sorting at the MRF according to the end markets, other PET products may also be included intentionally. PET bottles and jars made up 86.3 per cent of the contents of single-stream bales, which also contained 13.5 per cent of other accepted plastic recyclables. Multi-stream MRF bales contained 93.6 per cent of PET.



Steel

Steel bales typically contain steel food and beverage cans with some spiral wound containers, aerosol cans and in some cases empty paint cans. The MRF Material Composition Study this year showed steel food and beverage cans were the largest component, followed by other materials that didn't fall into a specific category. The major difference between single-stream and multi-stream MRFs was the higher content of steel food and beverage cans in multi-stream MRFs at 97 per cent compared to 94.2 per cent in single-stream MRFs.



Thinking beyond the box
Stewardship Ontario

Comparison to previous MRF Material Composition Studies

There were some differences in this year's study results compared to past studies carried out in 2009 through 2011.

- Newsprint volumes in single stream MRFs increased by 17 per cent while other printed paper volumes decreased by 28.8 per cent in 2012.
- Newsprint volumes in multi-stream MRFs decreased by 15 per cent while boxboard volumes increased by about 39 per cent.
- Corrugated cardboard volumes showed an overall increase of 62 per cent against past studies, especially in single-stream MRFs where it was 113 per cent.
- Magazine and catalogue volumes notably decreased overall since the past study by 21 per cent.
- For mixed fibre bales, more newsprint was found at single-stream MRFs while less of it was found in mixed fibre bales at multi-stream MRFs. At multi-stream MRFs, boxboard volumes increased 53.2 per cent in this bale.
- For mixed plastic bales, other plastics, i.e., tubs, lids, pouches etc, make up over 78 per cent of the composition. At multi-stream MRFs, there was noticeably more polystyrene found in these bales as well at 11.8 per cent.
- For PET bottle bales found in single-stream MRFs, there was generally more PET bottles found than in the past, at 86.3 per cent vs 69.7 per cent in 2011.