

## EXECUTIVE SUMMARY

APRIL 2015

### OPTIMIZING LABELS ON PET PACKAGING 2014 PROGRESS REPORT



The purpose of this PAC NEXT executive summary is to share the progress of the Full-Wrap Label and PET Thermoform Labels & Adhesives working group in 2014 and to highlight priorities for 2015.

#### **Team Membership & Project Objectives:**

The working group chair is Guy McGuffin of Guy McGuffin Consulting. The working group had the participation of 16 PAC NEXT members (see list in Appendix). The group objectives are as follows:

- Define common problems in the PPP collection and recovery system with regards to
  1. Pressure sensitive labels on PET packaging
  2. Shrink sleeve labels on PET bottles
- Share information on voluntary guidelines that can lead to affordable technical solutions that will ensure PET packages can be readily recycled
- Offer a webinar with an expert panel, which was delivered on Wednesday, October 22, 2014. The PAC NEXT *Optimizing Labels on PET Packaging* webinar had 44 attendees and featured the following speakers:
  - Ryan L'Abbé – Ice River Springs
  - John Standish – Association of Postconsumer Plastic Recyclers
  - Rosalyn Bandy – Avery Dennison
  - Holli Alexander – Eastman Chemical

## Project Deliverables:

### PRESSURE SENSITIVE LABELS ON PET PACKAGING

- The working group defined common problems and identified the following issues:
  - Label removal at re-processors.  
Difficulties during label separation as reclaimers generally remove label and cap material by both elutriation and the float/sink method, thus separating materials by variances in density using air and water mediums.
  - Contamination of PET recyclate flakes.
    - (a) Flake discoloration due to label ink bleed during the caustic wash process.
    - (b) Flake clumping due to non-water soluble adhesives leading to coating of the recyclate material.
- The working group released an executive memo to the PAC NEXT membership in October 2013, *Guidance on PET Thermoforms*. This document shares information on voluntary guidelines that can lead to affordable technical solutions (to the above issues) that will ensure PET packages can be readily recycled. This document can be found in the PACit! Knowledge Center [here](#).
- Key headlines from the webinar on pressure sensitive labels are as follows:

There are commercially available pressure sensitive film labels that have a negligible impact on the PET recycling process. Brand owners, designers and package developers are encouraged to use this type of label and have suppliers provide test data to support claims in recycling performance.

  - Plastic pressure sensitive labels should float in water, the ink should not stain rPET and adhesives should wash off cleanly from the PET
  - Paper pressure sensitive labels – a minimum step would be to specify a label adhesive and paper stock where lab testing shows that the label adhesive washes off cleanly from the PET package

### SHRINK SLEEVE LABELS ON PET BOTTLES

- The working group defined common problems and identified the following issues:
  - Blinding of automated optical sorting devices at Material Recovery Facilities (MRFs). This would require expensive manual sorting to recover the sleeved bottles. Otherwise, they are likely to end up with mixed residual plastics.
  - Contamination of PET recyclate flakes.
    - (a) Flake discoloration due to label ink bleed during the caustic wash process.
    - (b) Flake clumping due to melting of the label leading to coating of the recyclate material.
- The working group released an executive memo to the PAC NEXT membership in October 2013, *Guidance on PET Bottles*. This document shares information on voluntary guidelines that can lead to affordable technical solutions (to the above issues) that will ensure PET bottles can be readily recycled. This document can be found in the PACit! Knowledge Center [here](#).

- The **Association of Postconsumer Plastic Recyclers (APR)** created a working group to find solutions to the problems faced with full-wrap labels. Focus areas were (1) Industry Impacts, (2) Label Removal, (3) Floating Labels, (4) Ink Bleed, (5) Auto Sortation, and (6) Test Methods. Results confirmed that there are four main principles that should be incorporated into a full wrap label design to significantly increase their recycling performance:
  - Labels need to float to ease recycling since PET sinks and allows for easier separation.
  - Ensuring no “ink bleed” during the caustic wash process to minimize staining of the PET flake.
  - Using NIR technology to identify the PET bottle under the label during sorting.
  - Labels can be removed before auto-sorting; ideally in whole bottle wash

Visit the APR website for more sleeve label information:

<http://www.plasticsrecycling.org/pet-resins/pet-bottles>

- The **Full-Wrap Label (FWL) Consortium** is organized by Eastman Chemical and has a diverse membership, with companies ranging from resin producers to plastics recyclers, to collaborate efforts within the value chain to solve existing problems. The outcome of the FWL Consortium determined that there needs to be a combination of solutions to achieve significant results and enable true PET recycling. Some of the technical solutions explored included mechanical delabelling, special label coatings and deseaming labels. Click [here](#) to read more about this initiative.
- Key headlines from the webinar on shrink sleeve labels are as follows:
  - If using shrink sleeve labels there are several commercial labels that meet APR critical guidance. Brand owners, designers and package developers are encouraged to evaluate these labels and continue to support innovating additional sleeve label technology.
  - Shrink sleeve label requirements would include labels that float in water, ink does not stain rPET, and where possible use a partial ¾ sleeve instead of a full sleeve to facilitate optical sorting.

### **Plans for 2015:**

The working group will continue to focus information sharing and facilitating discussions across active working groups (APR, NAPCOR, Full Wrap Label Consortium) and industry leaders to promote the use of recycle friendly labels and adhesives.

To receive access to the webinar presentations mentioned in this document and to find more about this working group, please contact Rachel Morier at [rmorier@pac.ca](mailto:rmorier@pac.ca).

## References:

The Association of Postconsumer Plastics Recyclers. (2012, June). *Protocol for Evaluating PET Thermoform Labels and Adhesives for Compatibility with PET Recycling*.

[http://www.plasticsrecycling.org/images/pdf/PET-Resins/PET-Thermoforms/Protocol\\_Evaluating\\_PET\\_Thermoform\\_Labels\\_Adhesives\\_Compatibility\\_PET.pdf](http://www.plasticsrecycling.org/images/pdf/PET-Resins/PET-Thermoforms/Protocol_Evaluating_PET_Thermoform_Labels_Adhesives_Compatibility_PET.pdf)

The Association of Postconsumer Plastics Recyclers. (2012, November). *Principles for Sleeve Labels on PET Bottles*.

[http://www.plasticsrecycling.org/images/pdf/PET-Resins/PET-Bottles/principles\\_for\\_sleeve\\_labels\\_on\\_pet\\_bottles.pdf](http://www.plasticsrecycling.org/images/pdf/PET-Resins/PET-Bottles/principles_for_sleeve_labels_on_pet_bottles.pdf)

The Association of Postconsumer Plastics Recyclers. (2014, September). *APR Shrink Label Working Group Final Report*.

[http://www.plasticsrecycling.org/images/pdf/PET-Resins/PET-Bottles/APR\\_Shrink\\_Label\\_Working\\_Group\\_Report\\_09\\_2014.pdf](http://www.plasticsrecycling.org/images/pdf/PET-Resins/PET-Bottles/APR_Shrink_Label_Working_Group_Report_09_2014.pdf)

Whitt, Holli. (2014, March). *Full-Wrap Label Consortium: Power of Collaboration and Innovation*. [Presentation slides].

[http://static1.squarespace.com/static/52434abee4b0266a27f6b09d/t/532b260ce4b0b8555ae28568/1395336716114/CB\\_Whitt.pdf](http://static1.squarespace.com/static/52434abee4b0266a27f6b09d/t/532b260ce4b0b8555ae28568/1395336716114/CB_Whitt.pdf)

## Appendix - Working Group Members

John Standish	<i>Association of Postconsumer Plastics Recyclers (APR)</i>
Rosalyn Bandy	<i>Avery Dennison</i>
Ryan L'Abbé	<i>Blue Mountain Plastics</i>
Debbie Mowat	<i>Canadian Liquid Processors</i>
John Baldry	<i>City of Toronto</i>
Jennifer Hottinger-Sloan	<i>Coca-Cola</i>
Diane Richard	<i>EcoSynthetix</i>
<b>Guy McGuffin (Chair)</b>	<b><i>GM Consulting</i></b>
Cheryl Babcock	<i>Haremar Plastics Manufacturing</i>
Patty Enneking	<i>Klockner Pentaplast</i>
Ena Popic	<i>Loblaws</i>
Resa Dimino	<i>NAPCOR</i>
Keith Fanta	<i>P&amp;G</i>
Frances Gamache	<i>Sobeys</i>
Sherry Arcaro	<i>Stewardship Ontario</i>
Karen Blumel	<i>Walmart</i>