

Full Wrap Shrink Sleeve Labels: A Recycler's Dilemma



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Today's Speakers

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Association of Postconsumer Plastic Recyclers (APR)

- National trade association - “The Voice of Plastic Recycling”
- Representing those companies with over 90% of the post-consumer plastic processing capacity in North America.

The goal of the APR is to increase the amount of plastic material recycled in North America...



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APR Programs

- Market Development
- Technical Programs
- Rigids Plastic Recycling Program
- Communication/Education
- Regulatory/Advocacy-CA/NC
- Film Reclamation



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Industry Key Issues

- Key issues:
 - Supply
 - Export Market
 - Contamination
 - Labeling- compatible with/shrink sleeves
 - Bleeding labels
 - Degradable additives
 - Resin Identification Code
 - Yield Loss



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Traditional roll-on labels



- Made from polypropylene
- Ink laminated between two layers
- Float in water



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Attached with adhesive



Hot melt adhesive used to fix label in place

- Adhesive melts in hot wash water
- Releases label from bottle
- Adhesive disperses in wash water
- PET sinks and label floats



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Sleeve labels on PET



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Shrink Sleeve Application

- Graphics printed on flat plastic film such as PETG, PS, PLA or PVC
- Film is cut, shaped into a tube and seamed
- Tube is applied over container
- Heated to shrink label to the form of the container



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Discussion Topics

1. Identify why shrink sleeves desirable
2. Illustrate the impact sleeves have on PET container recycling
3. The dilemma: sleeve labels provide benefits, but are not compatible with today's recycle process. Innovation and investment are required.
4. Summarize what is being done to mitigate the impact and innovate
5. What you can do



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Why are sleeves desirable?

- Increased sales
- High impact graphics
- Package as a “billboard”
- Provides more consumer information
- Bottle design freedom
- Expand PET packaging applications
- Protect package contents from UV and visible light degradation
- No adhesives required on bottle



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Market growth

- Just a few years ago..... Sleeve labels did not exist
- 4% of market in 2012
- Today, about 5% to 7% of bale content reported in North America
- Some predict 10 to 15% growth each year



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Impact on PET recycling

1. Recycled PET (rPET) quality
2. Bale yield
3. Recycle cost & efficiency



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Impact on rPET quality

- Today's labels sink with PET
- Ink on labels can be removed in hot caustic water used to wash flake
- Labels and ink impact color and haze of finished rPET



Roll on labels float in water



Today's sleeve labels sink in water



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Bale yield

For a re-claimer handling 50 million lbs of bales each year, 5% of 50 million is:

- 2,500,000 lbs of bottles
- 30,000,000 bottles with sleeve labels
- Some re-claimers are hand sorting out sleeved bottles and selling at low cost to others.



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Bale yield

	roll-on label		sleeve label		
Package component	grams	wt %	grams	wt %	difference
bottle	31	88.1%	31	81.6%	-5.7%
closure	3	8.5%	3	7.9%	-0.6%
label	1.2	3.4%	4	10.5%	6.3%
Total	35.2	100%	38	100%	

Roll-on labels weigh from 0.2 to 1.2 grams depending upon size & design

Sleeve labels weight from 2.4 to 5.6 grams



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Bale yield

- “Elutriation” is a process step used to remove label residues from PET flake. PET flake lost with labels in this step.
- Optical sorters used to remove contamination from flake. Air jets that remove label also remove PET flake.



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Cost and efficiency

- Labels can interfere with near IR (NIR) and color auto sortation of bottles.
- Extra manual sortation and handling required.
- Reduced through put
- May require additional equipment with capital, utility, and maintenance costs.



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Do sleeves impact HDPE bottles?

- Generally today's sleeve labels sink and HDPE containers float so label and container can be readily separated.
- APR monitoring growth of labels on HDPE bottles; might there be an impact on NIR auto sortation?



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What is being done?

- Unprecedented industry awareness and activity
- The APR Sleeve Label Working Group
 - Value chain representation: brand owners, label converters, material suppliers, equipment suppliers, re-claimers
 - Focused activity in six areas



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APR Sleeve Working Group

1. Measure industry impact
2. Bottle sortation
3. Label removal
4. Floatable labels
5. Ink adhesion in wash
6. Test methods



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Additional activity

Competition and innovation:

- Brand owner involvement
- Industry involvement: NAPCOR, TLMI, Label Consortium
- New label materials that float
- Evolution of sorting equipment
- Evaluation & development of inks
- Capability to remove labels



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New designs

Gatorade

- New PET hot fill bottle design
- Shrink sleeve label shows bottle shape
- “Short” design has less materials cost, does not interfere with sortation, floats in water
- No adhesive residue

Fruit Water

- New hot fill bottle design
- Skinny roll on label



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What you can do

- Be aware of how sleeve labels might impact your business or activity
- Contact the APR with any questions or concerns



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