PLASTICS DESIGN FOR RECYCLABILITY WEBINAR SERIES

Part 4: HDPE and PP Packaging

Hosted by:

Walmart

The Association of Plastic Recyclers
Registration links, presentation slides and recordings will be available on the APR Website and the Walmart Sustainability Hub.
TODAY’S PRESENTERS

Steve Alexander
President, APR

Ashley C. Hall
Senior Manager - Sustainability, Walmart

Curt Cozart
President, Common Sense Solutions, Inc

Kara Pochiro
VP of Communications & Public Affairs, APR
AGENDA

1. Reminders:
   a. What Is This Series?
   b. Walmarts goals
   c. Who is APR and what makes something recyclable.
2. Overview of HDPE and PP – what packaging uses it and why?
3. When HDPE/PP are not recyclable
4. Designing for Recyclability
5. Resources
6. Questions
WHAT IS THIS SERIES?

A series of webinars hosted by Walmart, and presented by The Association of Plastic Recyclers, discussing design for plastics recyclability and communicating the common messages within the Walmart Recyclability Playbook and the APR Design® Guide for Plastics Recyclability.

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All webinars begin at 2:30 PM EST.
OUR SUSTAINABILITY PRIORITIES

Key Focus Areas for Walmart Sustainability in FY20

PROJECT GIGATON

Working with suppliers to reduce 1 billion metric tons of GHGs by 2030

PACKAGING & PLASTICS

Use less plastic. Make it recyclable. Label it for the customer.

SUSTAINABLE PRODUCTS

Identify sustainability priorities based on your product category

JOIN US!
WALMARTSUSTAINABILITYHUB.COM

USE SUSTAINABLE MATERIAL SPECS AND LABEL PACKAGING

ADVANCING EDLTC ACROSS ALL PRODUCT CATEGORIES
OUR SUSTAINABLE PACKAGING COMMITMENTS
For Private Brands, Encouraged for National Brands

USE LESS PLASTIC
- Reduce the use of plastic when possible
- Remove unnecessary packaging

MAKE IT RECYCLABLE
- 20% Recycled content in plastic packaging
- Increased recycled content
- 100% Recyclable, reusable, or industrially compostable
- Make packaging recyclable

LABEL IT
- 100% Packaging labeled for recyclability
- Apply the How2Recycle label

INNOVATE TOGETHER
Project Gigaton is designed so that every supplier can participate in at least one pillar.
The Sustainability Hub, a one-stop shop

- Learn how to design for recyclability
- Download the recycling playbook
- Find webinar recordings
- Link to other resources

walmartsustainabilityhub.com
WHO IS APR?

International trade association

The Voice of Plastics Recycling®

Companies committed to the success of plastics recycling
WHO IS APR? ENSURING PACKAGE DESIGN FITS WITH RECYCLING INFRASTRUCTURE

• APR Design® Guide for Plastics Recyclability
• Test Methods
• Training
• Communication
• Advocacy
APR’s DEFINITION OF RECYCLABLE

60% consumer access

Processed by existing infrastructure
• sort
• clean

Can be manufactured into identifiable product
TYPES OF PLASTIC PACKAGING: HDPE/PP

*Widely plastics if designed correctly!*

- Strong
- Light
- Versatile
- Good moisture barrier

PP is also:
- Stiff, impact and heat resistant.
- Can be used in hot filling and retort
- Good for hinged closure

The HDPE/PP recycling processes are nearly identical
Types of Plastic Packaging: HDPE

Can be Used For:
- Room temperature filled food products packaging
- Cleaning and laundry products packaging
- Personal care packaging
- Frozen food packaging
- Non-stretch grocery bags
- Many household goods not needing high temperature capability
- Drums, pails, pipe

Can’t be Used For:
- Soft drinks
- Clear handleware bottles
- Products that hot fill over 150°F (65°C)
- Oxygen-sensitive products
- Ovenable packaging
- Some automotive chemicals
**TYPES OF PLASTIC PACKAGING: PP**

**Can be Used For:**
- Food bottles with or without handles and need to be hot filled up to 212°F (100°C)
- Personal care packaging – clear bottle
- Dishwasher-safe food bowls
- Whenever a ‘living hinge’ is needed
- Fibers and non-woven fabrics
- Rope, prescription bottles, car batteries, paint cans, medical equipment

**Can’t be Used For:**
- Soft drinks
- Oxygen-sensitive products without special barriers
- Full sunlight applications without special additives, such as outdoor carpet
- Some automotive chemicals
HDPE and PP PACKAGING MEETS 2 CRITERIA

- Can be manufactured into identifiable product
- 60% consumer access
  - HDPE
  - PP
- Processed by existing infrastructure
  - sort
  - clean
2015-16 Centralized Study on Availability of Plastic Recycling
INFRASTRUCTURE COMPATIBILITY IS CRITICAL

60% consumer access

Processed by existing infrastructure

- sort
- clean

Can be manufactured into identifiable product
NOT RECYCLABLE IN THE SORTING SYSTEM - small

Less than 2” x 2” must be tested

Definitions and test methods at www.plasticsrecycling.org
Most blacks and near blacks cannot be detected

Definitions and test methods at www.plasticsrecycling.org
NOT RECYCLABLE IN THE SORTING SYSTEM – wrong full body labels

Thick labels covering more than 85% of the object might cause incorrect sorting

Definitions and test methods at www.plasticsrecycling.org
NOT RECYCLABLE IN THE SORTING SYSTEM – metal

Large metal components are rejected

Design seals to be completely removed before use

Definitions and test methods at www.plasticsrecycling.org
Flat items sort like paper in the sorting system – Make lids securely attach to container

Definitions and test methods at www.plasticsrecycling.org
In Addition to Sorting...Design Features that make HDPE/PP NOT RECYCLABLE

- **Too many fillers** – minerals, colorants, additives if they make the HDPE/PP sink
  - Calcium Carbonate
- **Degradable additives** – render non-recyclable
- **PVC Components** – even slight contamination ruins final product quality

Definitions and test methods at [www.plasticsrecycling.org](http://www.plasticsrecycling.org)
Too many fillers:

**ISSUES**

- HDPE & PP float while most contaminates sink (dirt, glass, metal etc)
- Most fillers are very heavy

**ACTION**

- Verify the material floats
Most common issues affecting HDPE and PP quality/yield

1. PP caps and spouts on HDPE containers
2. Paper Labels
3. Barrier Layers
PP Caps and Spouts on HDPE Containers

ISSUES

• PP is brittle and limits the HDPE markets, particularly for pipe (the largest market!)

ACTION

• Innovate: - use PP on PP containers and HDPE on HDPE containers
Paper Labels

ISSUES

• Paper is difficult to remove completely
• Creates burnt smell in final product
• Causes frequent filter changes in the extruder

ACTION

• Use commercially-available APR-recognized adhesives, labels and printing processes that wash off during recycling
Barrier Layers:
Extend Shelf life

ISSUES

• Stay adhered to material and can change properties

ACTION

• Use barrier technologies listed in the APR Design Guide for Plastics Recyclability
APR Approved Solutions – Refer your Design Team to:
The APR Design Guide for Plastics Recyclability - HDPE/PP – “barrier layers, coatings and additives”

- EVOH

“Workhorse Additives”
- Thermal Stabilizers
- UV Stabilizers
- Nucleating Agents
- Antistatic Agents
- Clarifying Agents
- Lubricants
- Fillers
- Pigments:
- Impact modifiers
- Chemical blowing agents
DESIGNING FOR RECYCLABILITY – HDPE/PP

**DO NOT use**
- PVC components
- Degradable additives
- Large amounts of heavy fillers

**TEST**
- Small items
- Dark colors
- Flat items
- Large labels
- Metal attachments

**USE APR approved**
- Pressure sensitive labels
- Barrier layers
- Shrink sleeve labels
DESIGNING FOR RECYCLABILITY – HDPE/PP

- Leverage the Walmart Recycling Playbook and APR Design Guide for Plastics Recyclability
- Use the How2Recycle label for consumer messaging
Click this banner on the APR homepage to register now!
Limited to 50 participants.
QUESTIONS

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*APR Design® Guide Training Program
Check out the following webinars for more information:

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