



- Clorox 2020 Eco Goals
- Examples of Source Reduction Success
- Challenges with Recyclability of Common CPG Packaging
- Potential Solutions and Opportunities to Partner

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2020 ECO GOALS



PRODUCTS & PACKAGING

Sustainability improvements to 50% of product portfolio

90% of primary packaging recyclable

Clear on-pack recycling instruction on all US retail packaging

Eliminate PVC in packaging



OPERATIONS & WORKPLACE

Operational footprint reduced by 20% vs. 2011 (GHG emissions, energy use, water use, waste-to-landfill)

10 Zero-Waste-to-Landfill sites

PACKAGING GOALS



UPSTREAM SUPPLY CHAIN

Top 100 suppliers (~70% spend) reduce their environmental impact

Only recycled or certified virgin fiber in packaging

All palm oil traceable and meets responsible sourcing commitments

Common Recyclability Challenges (and why these materials are commonly used)

Common Examples of Non-recyclable Plastic Packaging	Why Use this Material/Format?
Opaque PET	<p>Excellent O2 Barrier</p> <p>Precision Finish (helps Child Resistant functionality)</p> <p>Opacity filters out harmful UV rays</p>
Black Colored Rigid Containers	<p>Opacity filters out harmful UV rays</p>
Shrink Sleeves (dissimilar material to bottle)	<p>OPS on squeeze bottles is flexible, moves with bottle & recovers to original shape</p> <p>PETG has excellent shrink properties (shrinks from wide bottle to narrow neck)</p>
Laminates (films/thermoforms/tubes)	<p>Excellent O2 & Moisture Barrier</p> <p>Uses fraction of materials</p> <p>Fast, efficient production</p>
Multi-resin components (cannot be unassembled by consumer)	<p>In many cases, No single-material options exist (trigger sprayers)</p>

Common Examples of Non-recyclable Plastic Packaging	Paths to "Recyclability" (red = current tech challenge)
<p>Opaque PET</p>	<ul style="list-style-type: none"> - Convert to clear PET - MRF sorting technology advances?
<p>Black Colored Rigid Containers</p>	<ul style="list-style-type: none"> - Convert to clear PET or white HDPE or PP - MRF sorting technology advances?
<p>Shrink Sleeves (dissimilar material to bottle)</p>	<ul style="list-style-type: none"> - Convert to in-line perforated sleeves - Convert to "dissolvable seams" sleeves - Convert to PET sleeves on PET bottles, or HDPE sleeves on HDPE bottles - MRF sorting technology advances?
<p>Laminates (films/thermoforms/tubes)</p>	<ul style="list-style-type: none"> - Move to lower performing monolayer PE films (trade-off shelf life, shelf impact (gloss), barrier) - Convert to compostable bio-resin- probably with tradeoffs similar to monolayer PE films (shelf-life, barrier, shelf impact) - "Compatibilizer" film technology advancements (makes unlike resins compatible in MRFs) - New value stream created for laminates as-is (Terracycle or down-cycling into ?) P-S Labels → APR "Champions for Change" substrate/adhesives/inks
<p>Multi-resin components (cannot be unassembled by consumer)</p>	<ul style="list-style-type: none"> Create re-use (refillable) option for each SKU - Convert to compostable bio-resin- probably with tradeoffs similar to monolayer PE films (shelf-life, barrier) - "Compatibilizer" resin technology advancements (makes unlike resins compatible in MRFs) - New value stream created for laminates as-is (Terracycle or down-cycling into ?)

**Path
Forward-
to be
Recycled
(or composted
or re-used)**

**Bottom
Line:
Most
solutions
are 2-6
years away
Costs? TBD**

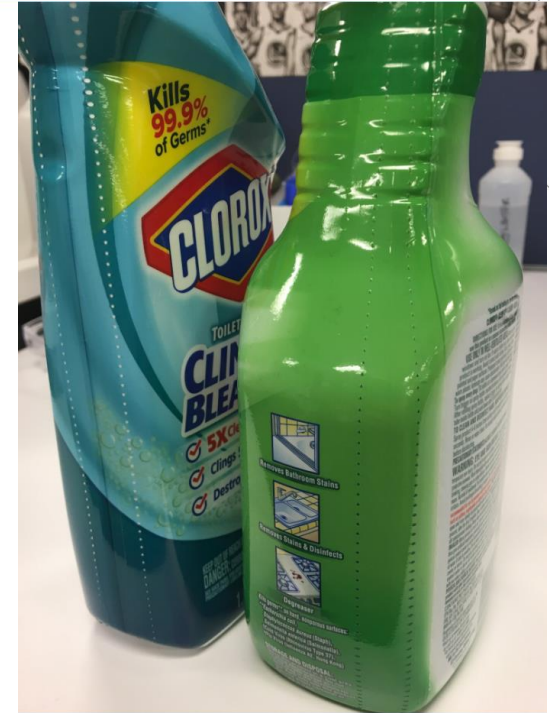
Non Plastic Packaging

Non Plastic	Recycle Options
metPET cartons	Remove metPET
Paper-poly-foil Pouch Spiral Wound Can Single Serve Cups/Lids	Unknown (barrier needed for shelf life)
Poly lined MW bags	Unknown (barrier needed for solvent retention)

Potential Solutions- shrink sleeve example

- Currently, no perforations on Toilet Bowl Cleaner and Sprays shrink sleeves → difficult for consumers to remove label for proper recycling

- Require tool to remove
- If not removed, bottles and label are landfilled
 - Sprays- PETG
 - MTBC- OPS
 - Causes MRF automatic sorter to incorrectly identify HDPE bottle

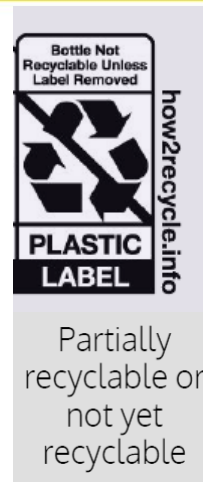


Perforated Shrink Sleeve (with instructions)- for easier consumer removal

Beyond Perforations- Other Potential Shrink Sleeve

Opportunities- *-not currently feasible-*

- Longer term- use shrink film compatible with bottle recycling
 - Enable recycling without label removal. Options include:
 - HDPE label on HDPE bottle
 - Compatibilizers in non-HDPE label
- Heat-soluble glue on shrink sleeve seam
 - Initial tests at supplier revealed challenges
- PET film vs current PETG (Sprays only)
 - No (G)lycol
 - Promotes recyclability of PET bottles and of film
 - Currently lacks shrink properties needed for Sprays
 - Currently lacks flexibility needed for MTBC (vs OPS)
- Shorter shrink sleeve (leave 25% of bottle exposed)
 - Allows MRF to identify bottle under label



Opportunities to Further Partner?

USA Orgs/Resources	International
SPC (Clorox is Active Member)	Argentina:CEMPRE http://www.cemprearg.org
APR (Opportunity to Partner?)	DR: Instituto de Derechos Ambientales de la República Dominicana (IDARD) http://idard.org.do/quienes-somos
Customers (Various Retailers)	LATAM: CASIC http://www.casic-la.org/
Other?	Chile: ASIPLA, Asociación de Industriales del Plástico http://www.asipla.cl/ REP law (Chile): www.triciclos.net



Sustainable brands <http://www.sustainablebrands.com/>



In closing...

- Question: How can we partner more closely, especially CPGs, MRFs, SPC in order to:
 - Better understand levers to drive recyclability, compostability (and re-usability?)
 - Find solutions that work for consumers, for MRFs, for enviro, and for Clorox?