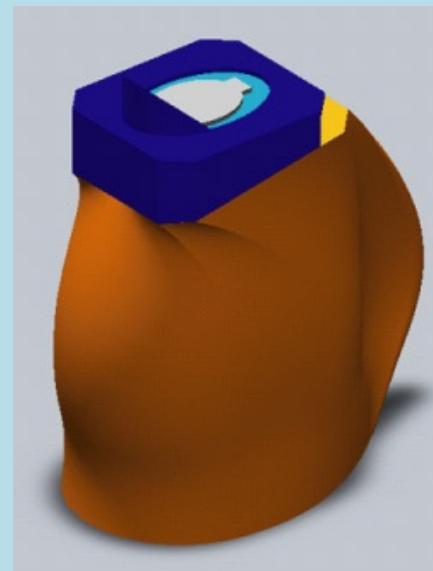
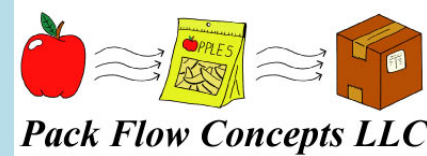


# Designing Food Containers from Construction to Compost

Steve Derby  
Director of Automation  
Pack Flow Concepts  
172 Lockrow Rd  
Troy, NY 12180  
518-441-6101



Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"



## Why New Packaging?

- Pack Flow Concepts asked to solve Flexible Size Bottle Singulator
- Designed the **FlowBot** High Throughput Multi-head Robot solution
- But this did not answer the question about using rigid bottles – shipping, filling and disposing issues

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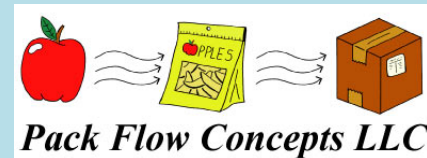


# Concept for New Packaging

Designed for

- Manufacturing
- Empty shipping
- Filling
- Shipping to DC and Store
- Shelf Ready Display
- Composting when possible

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## Concept for New Packaging

- Embraces a broad set of goals
- Zero Waste version maximizes product dispensing and limits internal air contact
- Product life cycle is both economical and environmentally friendly

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Flow Bottle Minimizes Shipping/Sorting of Empty Bottles

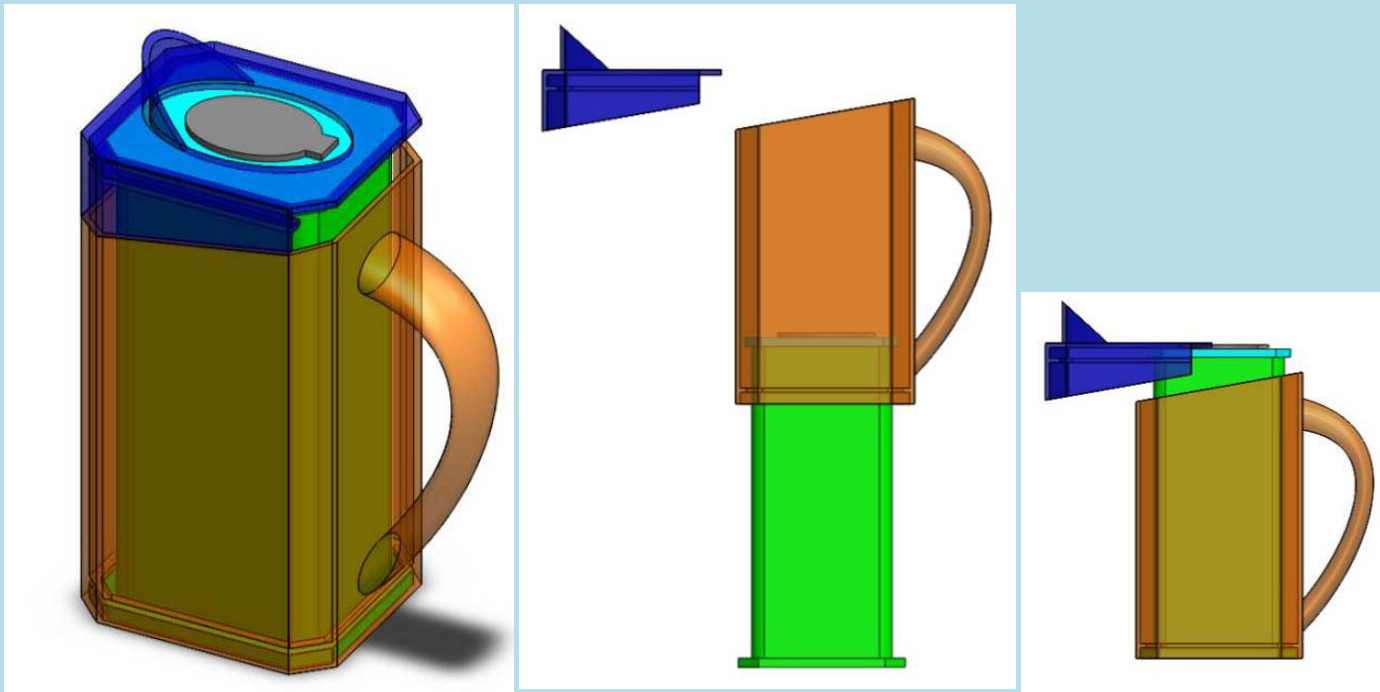


## Reduce Bottles in Landfill



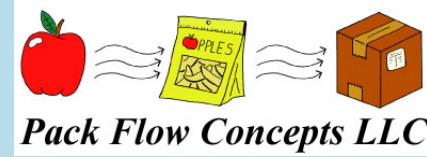
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# Refills used in reusable containers



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## Flow Bottle Uses Refills

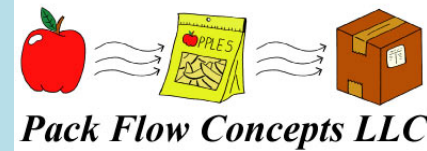


Click on Image for Video

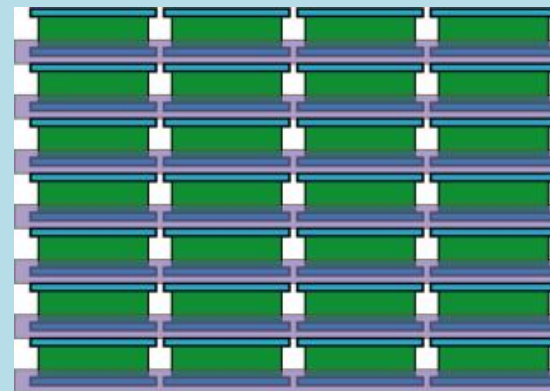
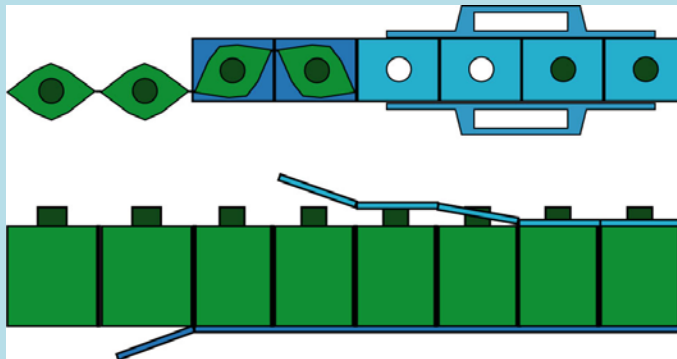


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Refills Can Be Connected Pouches



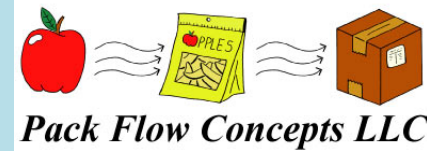
# Refills shipped in compact form



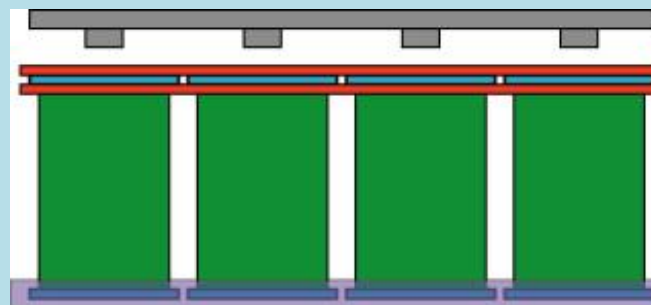
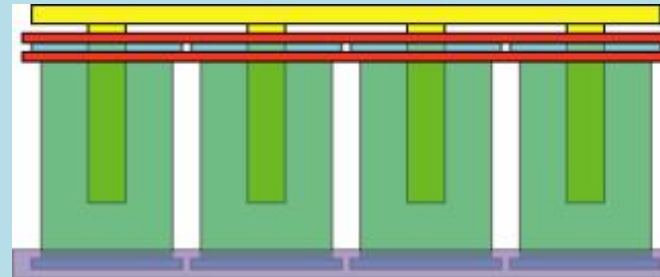
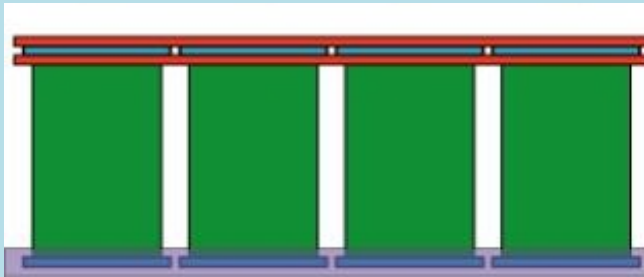
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Refills Can Be Connected Pouches



## Refills inflated, filled and sealed

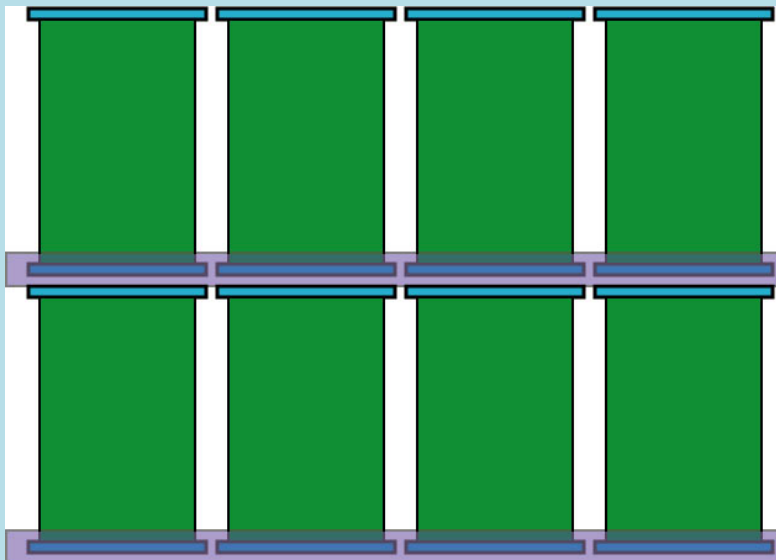


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Refills Shipped and Displayed in Trays w/Handles



## Trays of Refills are Shelf Ready



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## Refills can be modified pouches

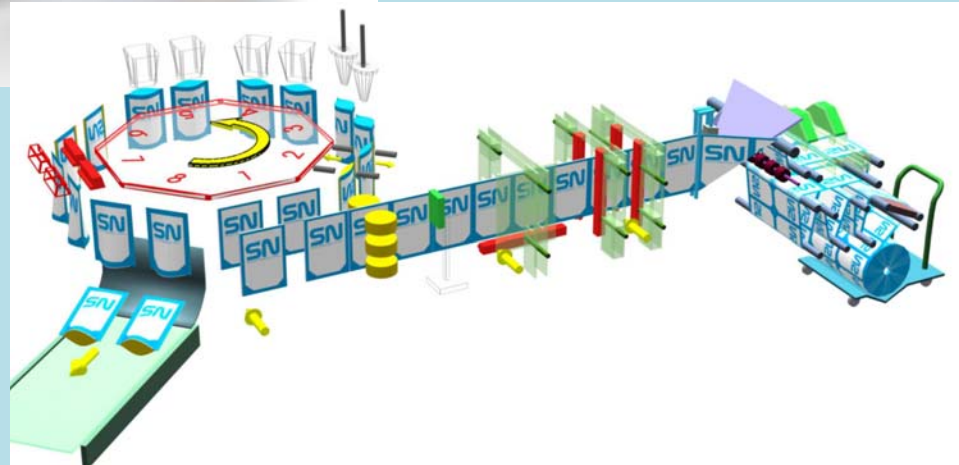
Equipment can

- Make Pouches
- Insert Spouts
- Fill Pouches
- Seal Pouches

Pouch can be  
ready to drink or  
squirt  
concentrate

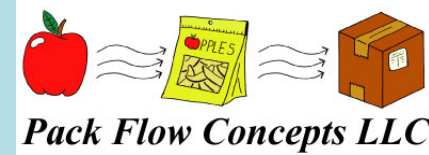


# Modified pouch machines



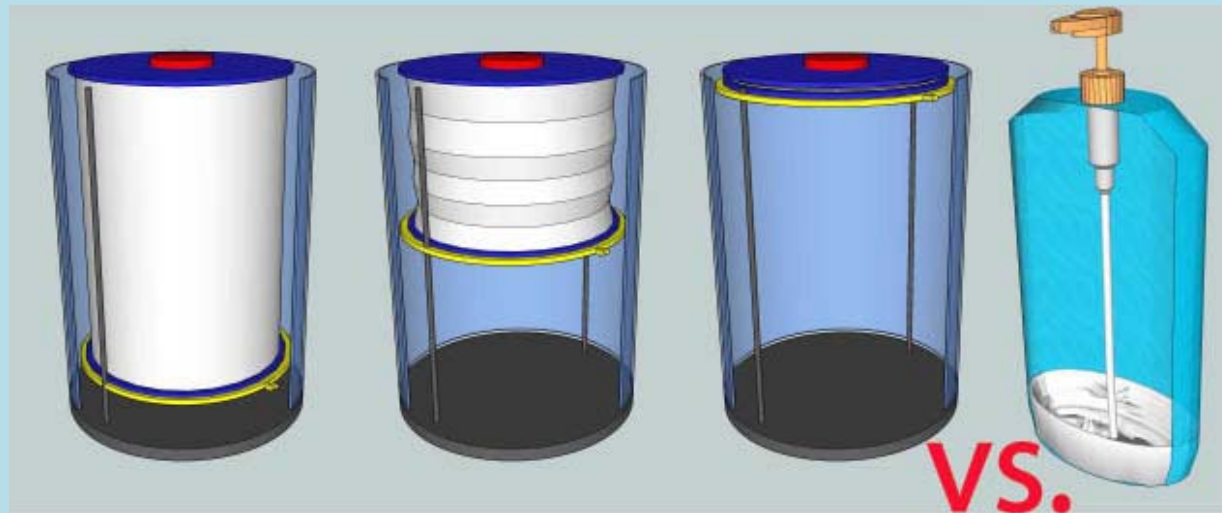
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Traditional Pumps Waste up to 15%



## Zero Waste Version

- Maximizes product
- Limits air contact



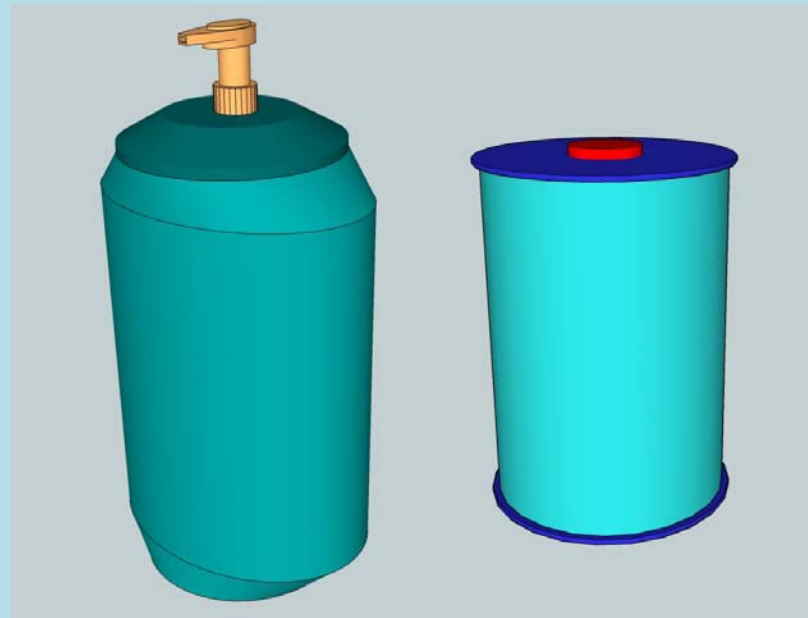
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Traditional Pumps Waste up to 15%



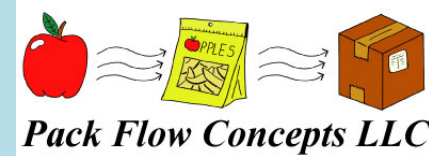
## Zero Waste Replaces Hand Pump

- Pumps with same motion as traditional units
- Product does not return to bottom
- Unit dose



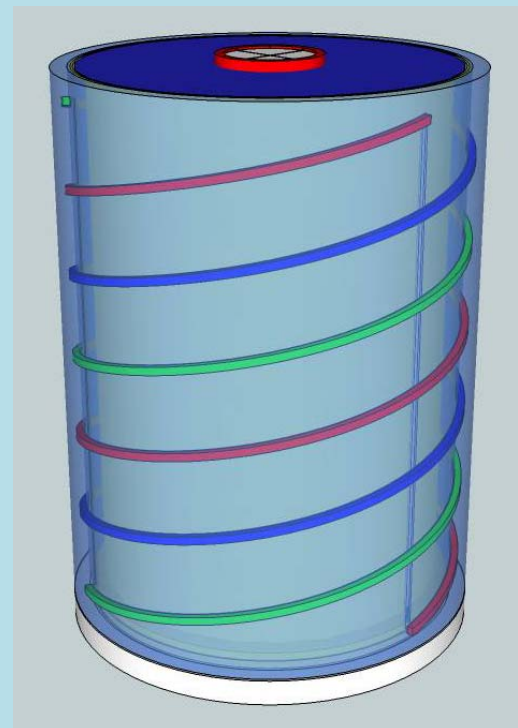
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Traditional Pumps Waste up to 15%



## Zero Waste Squeezes Refill

- Maximizes product
- Container has tracks to raise refill bottom
- Compresses contents to dispense



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## Push Dispenser Top Rotates Chamber



### Twisted Shaft Rotates Internal Chamber –

Model shows device in motion but does not dispense product



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## Push Dispenser Top Rotates Chamber



### Twisted Shaft Rotates Internal Chamber –

Internal ratchet  
has not been  
implemented in  
this model



Click on Image for Video

Food Packaging Technologies Summit 2012 Patent Pending “Concepts Outside and Inside the Box”

## Track Raises Refill Bottom



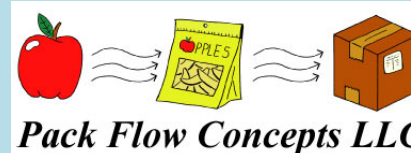
**Pin rides in tracks to compress refill pouch –**

Pin shown in Bottom View below moving to left and upwards



Food Packaging Technologies Summit 2012 Patent Pending “Concepts Outside and Inside the Box”

## Track Raises Refill Bottom



Pin shown in  
Bottom View  
below moving  
to left and  
upwards



[Click on Image for Video](#)

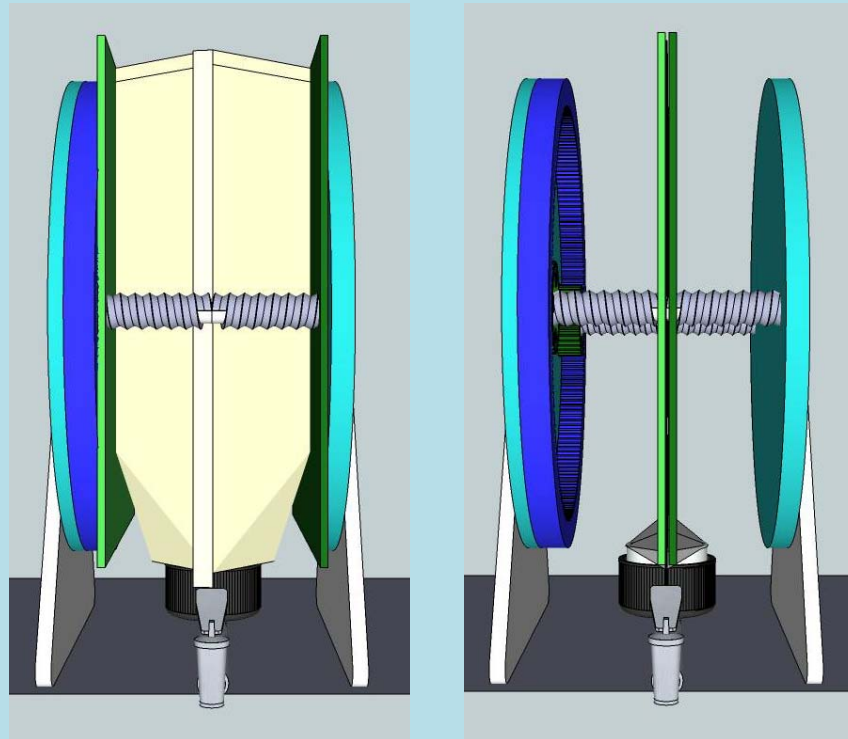
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Pouch Can be Squeezed from the Sides

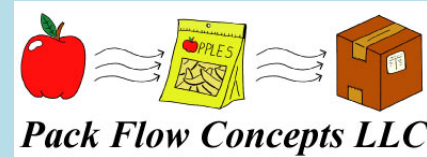


## Refill Can Be Modified Pouch

- Uses gravity
- Limits air contact
- Pressurizes contents



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## Flow Bottle and Zero Waste Dispenser

- Addresses the needs of Consumer
- Addresses the needs of Logistics
- Addresses the needs of Landfill
- Shelf Ready Display