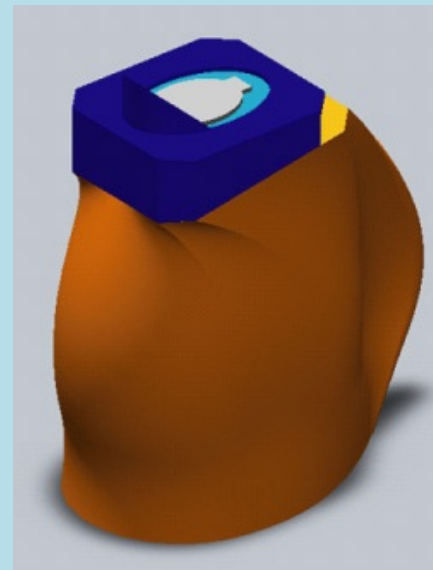
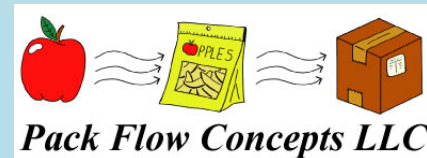


Designing Food Containers from Construction to Compost

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



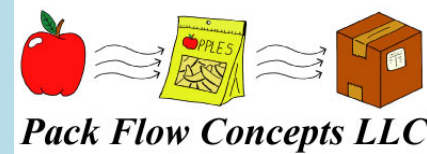
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"



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

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

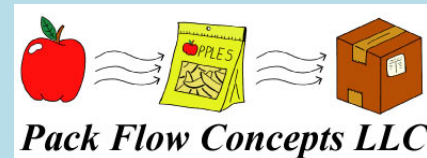


Concept for New Packaging

Designed for

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

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

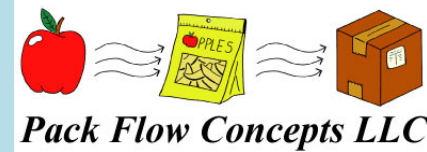


Concept for New Packaging

- 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

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

Flow Bottle Minimizes Shipping/Sorting of Empty Bottles

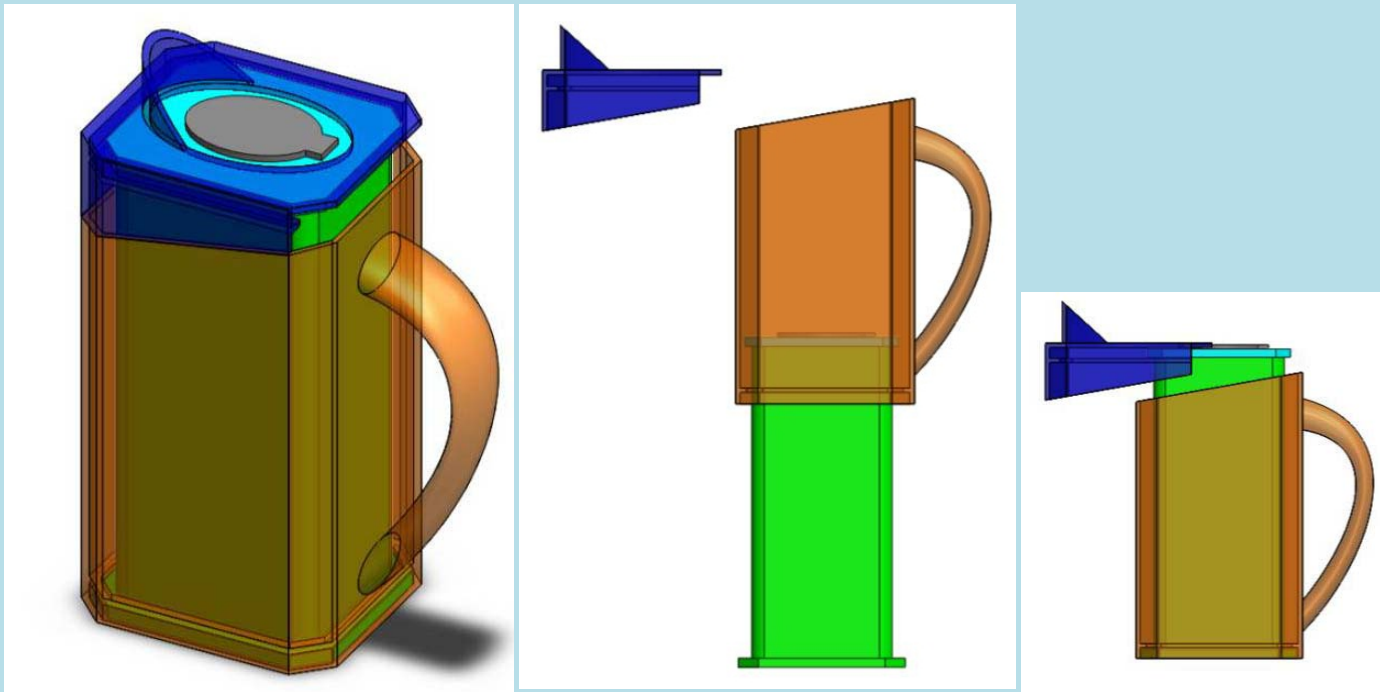


Reduce Bottles in Landfill



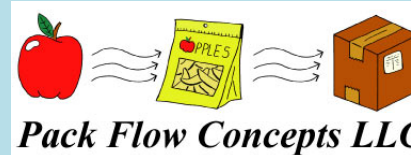
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Refills used in reusable containers



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

Flow Bottle Uses Refills

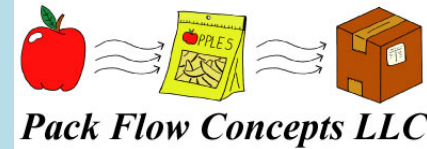


Click on Image for Video

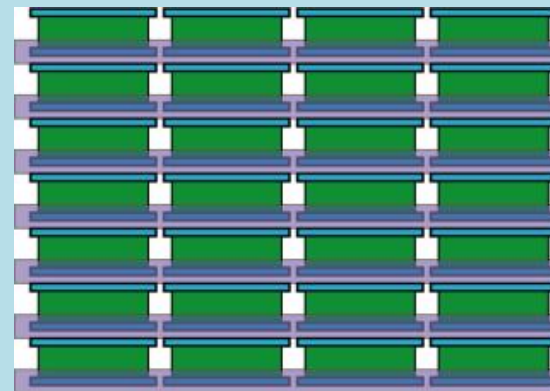
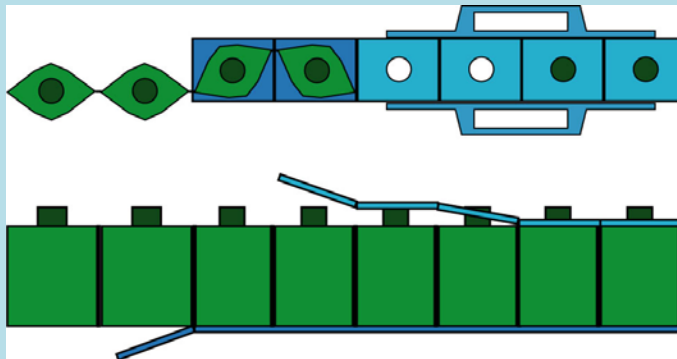


Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Refills Can Be Connected Pouches

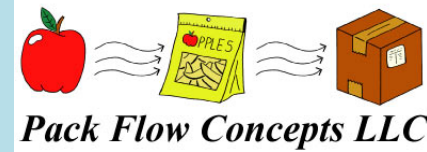


Refills shipped in compact form

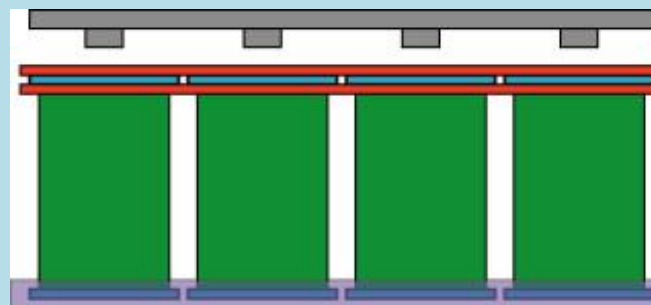
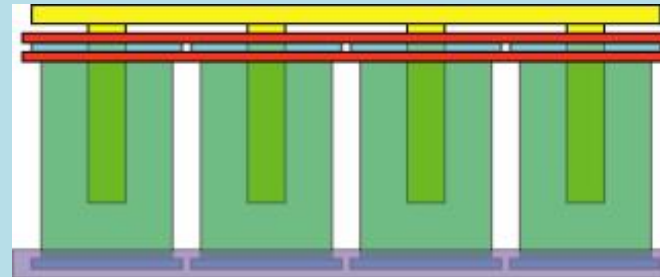
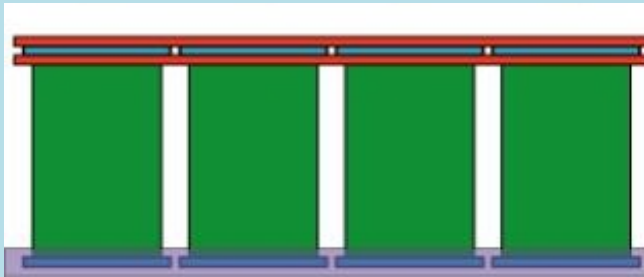


Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Refills Can Be Connected Pouches

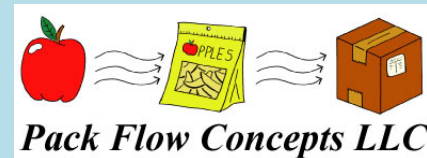


Refills inflated, filled and sealed

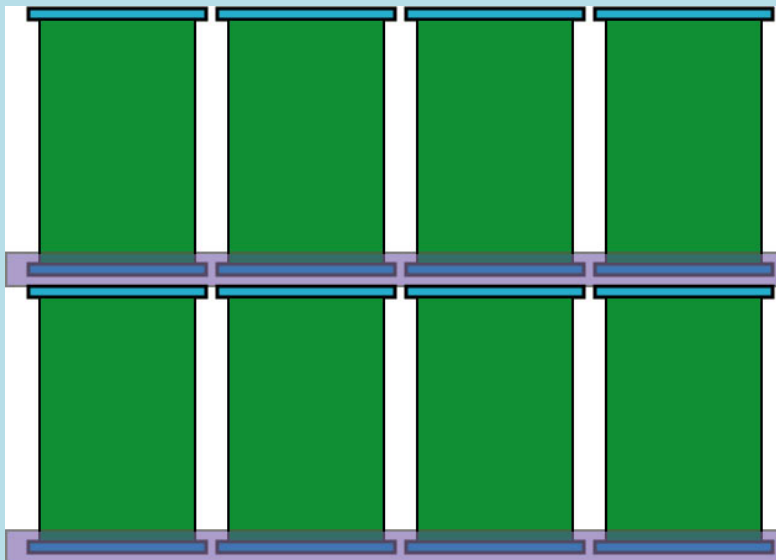


Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Refills Shipped and Displayed in Trays w/Handles



Trays of Refills are Shelf Ready



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

Refills can be modified pouches

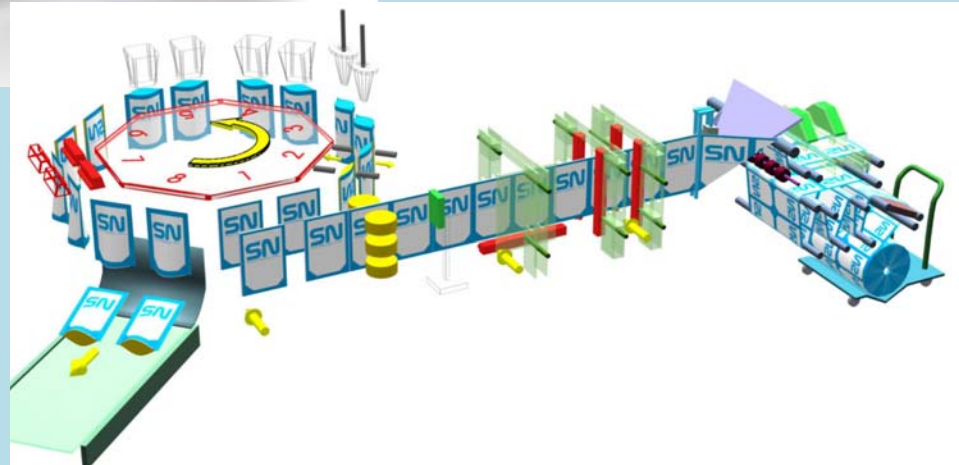
Equipment can

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

Pouch can be
ready to drink or
squirt
concentrate



Modified pouch machines



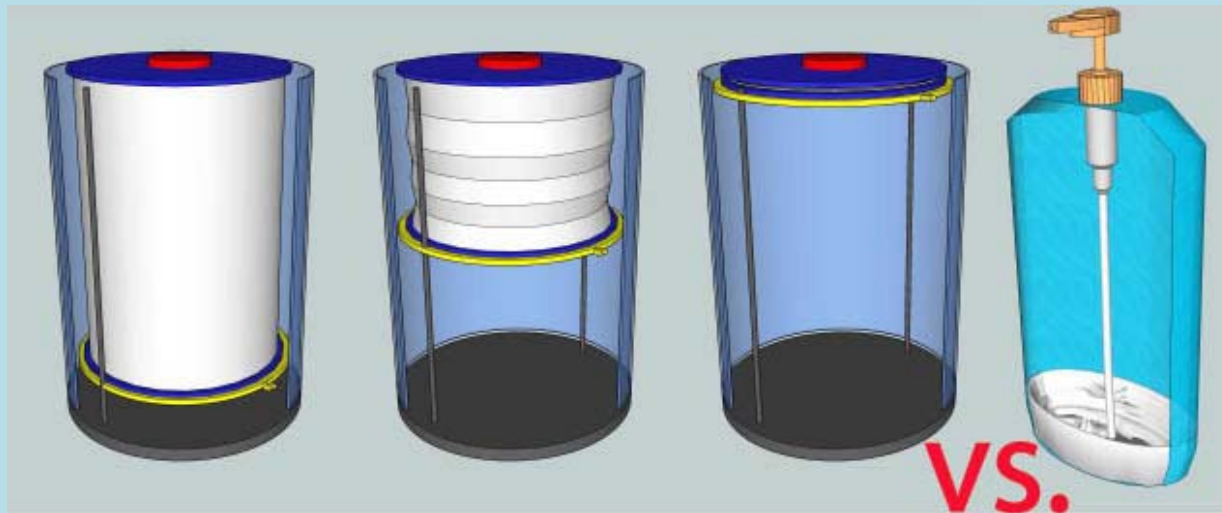
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Traditional Pumps Waste up to 15%



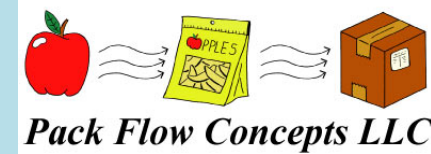
Zero Waste Version

- Maximizes product
- Limits air contact



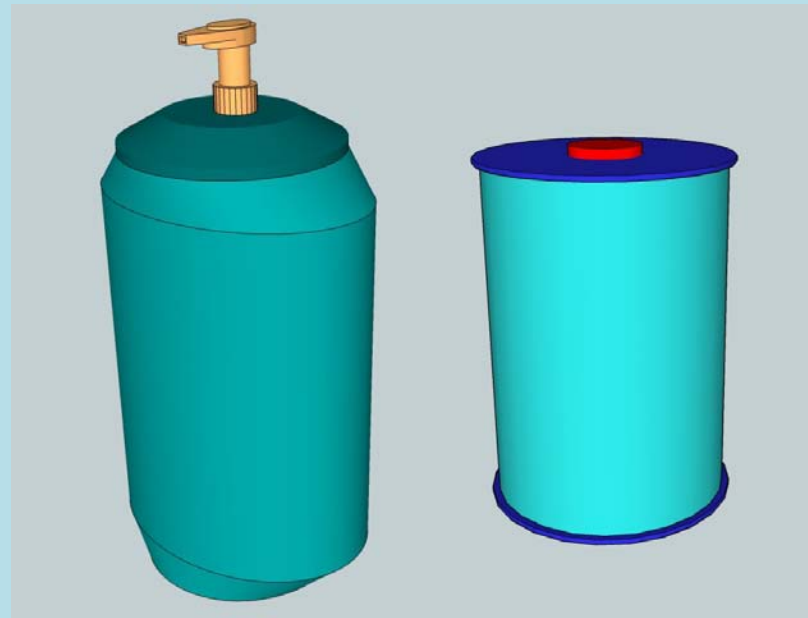
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Traditional Pumps Waste up to 15%



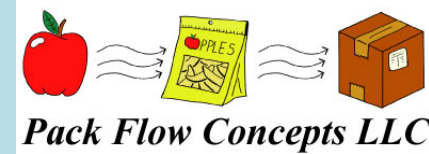
Zero Waste Replaces Hand Pump

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



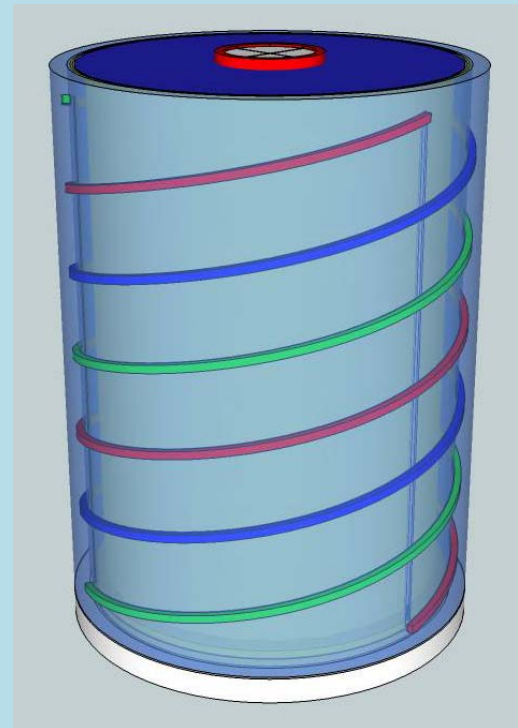
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Traditional Pumps Waste up to 15%



Zero Waste Squeezes Refill

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



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

Push Dispenser Top Rotates Chamber



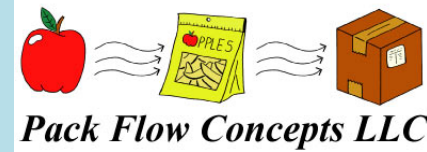
Twisted Shaft Rotates Internal Chamber –

Model shows device in motion but does not dispense product



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

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



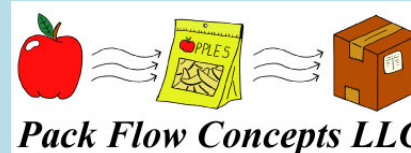
**Pin rides in
tracks to
compress refill
pouch –**

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



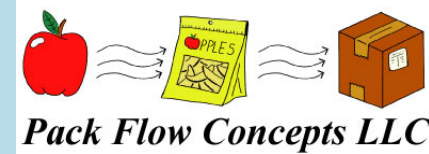
Pin shown in
Bottom View
below moving
to left and
upwards



[Click on Image for Video](#)

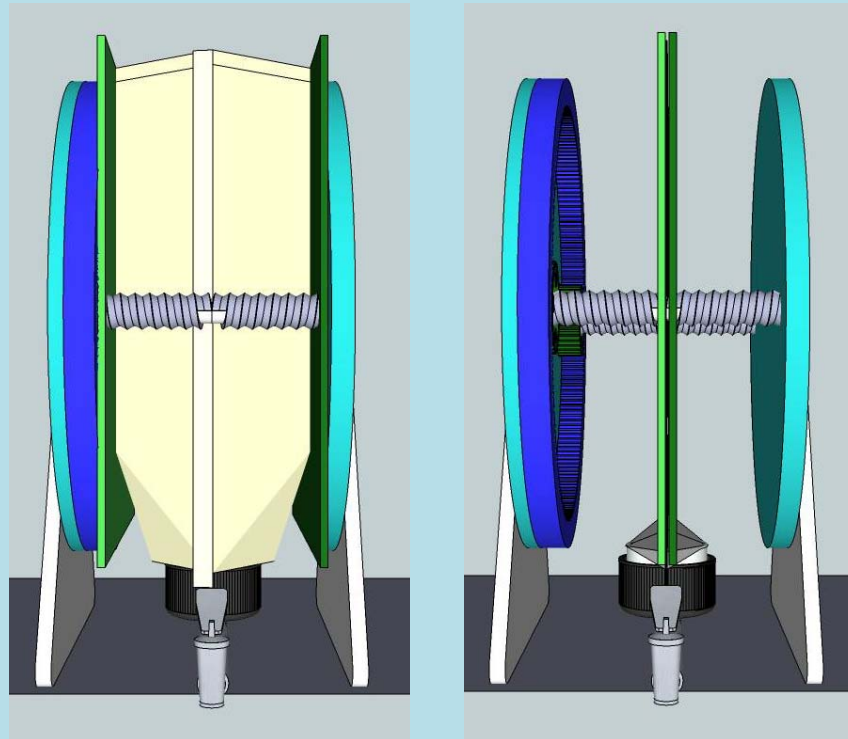
Food Packaging Technologies Summit 2012 Patent Pending "Concepts Outside and Inside the Box"

Pouch Can be Squeezed from the Sides



Refill Can Be Modified Pouch

- Uses gravity
- Limits air contact
- Pressurizes contents



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



Flow Bottle and Zero Waste Dispenser

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