



The Technology Leader in Recycled Polyolefin Resins



The only food grade HDPE PCR recognized by the FDA as safe with dairy and other foods at up to 100% recycled content



Deodorized Resin has been subjected to a process designed to condition the plastic to levels suitable for packaging products that are scent sensitive.



High speed, high output, custom color sorted HDPE PCR. Don't just recycle the plastic, recycle the color



Traceable and collected at risk plastics From entering the Ocean that has a story.



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## About Envision Plastics



Envision Plastics was established in 2001, since this time Envision has produced over 750 million pounds<sup>1</sup> of recycled resin. In June 2014 Envision was acquired by Consolidated Container Company and continues to operate as a distinct business within the CCC family.

Envision has achieved unrivaled product innovation that has led to the commercialization of the flagship products EcoPrime™, PRISMA™ and Deodorized Resin™.

Envision is committed to profitably deliver innovative post consumer resin solutions that meet and exceed the needs of retailers, consumers and packaging customers.

## Differentiated Products



<sup>3</sup> Management Estimate



Consolidated  
Container  
Company



## Our Guiding Principles



### ACT WITH INTEGRITY & IN COMPLIANCE

We conduct everything we do with integrity and fully comply with all laws, regulations and company policies all the time.



### DRIVE VALUE CREATION

Create long-term value for our customers, for the company and for society. Pursue safety and environmental excellence. Deliver superior results through effective, efficient decision making, execution and quality. Drive continuous improvement and innovation, while eliminating waste.



### BE DISCIPLINED ENTREPRENEURS

Always think and act like owners of the company. Use good judgment, critical and economic thinking and initiative to achieve the full potential of our business. Embrace change, take action when you see opportunities to improve the company, and develop measures that lead to profitable action.



### FOCUS ON THE CUSTOMER

We need to understand our customers and what they value better than our competition. We also need to develop knowledge of our customers' business and relationships that enables us to anticipate and profitably serve their needs.



### ACT WITH HUMILITY

Lead through humility and intellectual honesty. Seek and apply the best knowledge. Understand and deal with reality to drive the best outcome for the company and for your personal improvement. Challenge the status quo. Hold yourself and others accountable.



### TREAT OTHERS WITH DIGNITY & RESPECT

Treat others with honesty, dignity and respect. Understand and appreciate the value of diversity and work together as a single team - the CCC team.



## Envision Plastics Vision, Strategy & Initiatives

### *Our* **VISION**

Profitably deliver innovative post consumer and post industrial resin solutions that meet and exceed the needs of retailers, consumers and packaging customers.

#### What are we doing to deliver on this vision?

##### Value Added Selling:

- Targeting end use segments that highly value recycled resins. Encouraging those companies to use converting partners committed to recycled resin
- The value PCR and PIR convey to products and brands
- Where profitable, creating new products that customers want

##### Customer Loyalty:

- Delivering consistent quality that meets our customer's expectations

##### Working from an Advantaged Cost Position:

- Building the culture, processes and tools ensuring employee safety
- Driving operations excellence, increasing our competitiveness
- Securing alternative sources of raw material



The diversity of our products allows us to meet and exceed the needs of retailers, consumers and packaging customers.



*Markets*

Food, Beverage & Nutritional products  
Pharmaceutical products  
Health care products  
Personal care products

Need for Sustainable Packaging

*Our Solutions*



Automotive products  
Products that are scent sensitive  
Personal care products

Need for Sustainable Packaging



Color dependent products

Need for Sustainable Packaging



Consumer Goods, Personal Care  
Automotive, Scent sensitive,  
Driven by Differentiated Value

Need for Sustainable Packaging



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## Markets Served

Broad Market Participation but 2/3 of PCR Produced Goes Back into Primary Packaging

- **Food & Beverage**
  - Overwraps / Films / Bags
  - Bottles
  - Netting
- **Personal Care**
  - Tubes / Bottles
  - Films / Overwraps
- **Household**
  - Tubes / Bottles
  - Films / Overwrap
- **Automotive**
  - Seats, air ducts
- **Construction / Agricultural**
  - Pipes / Conduit
  - Landscape edging
  - Overwraps / Films / Bottles / Pots / Pails
- **Thermoforming**
  - Food service
  - Sheet
- **Toys**
  - Playsets
  - Gardening sets
  - 100% recycle content toys

Thermoforming customers are from the computer industry for shipping parts to take out containers for restaurants

Customers and Companies that Use our Products





PURE. PIONEERING. PURPOSEFUL. EMPOWERING.

Available exclusively from...



## 1996-1998 Union Carbide worked on their LNO

- It was all lab work
- It was all in flake
- Not every batch passed
- Union Carbide's work was the foundation for other LNO's
- Envision bought the LNO IP after Union Carbide received it in 1998
- Envision did not commercialize the process and made many changes, first in 2008 with an R&D line and then full scale in 2011
- Added a second line in 2013

## Challenge Test Chemicals and Surrogates

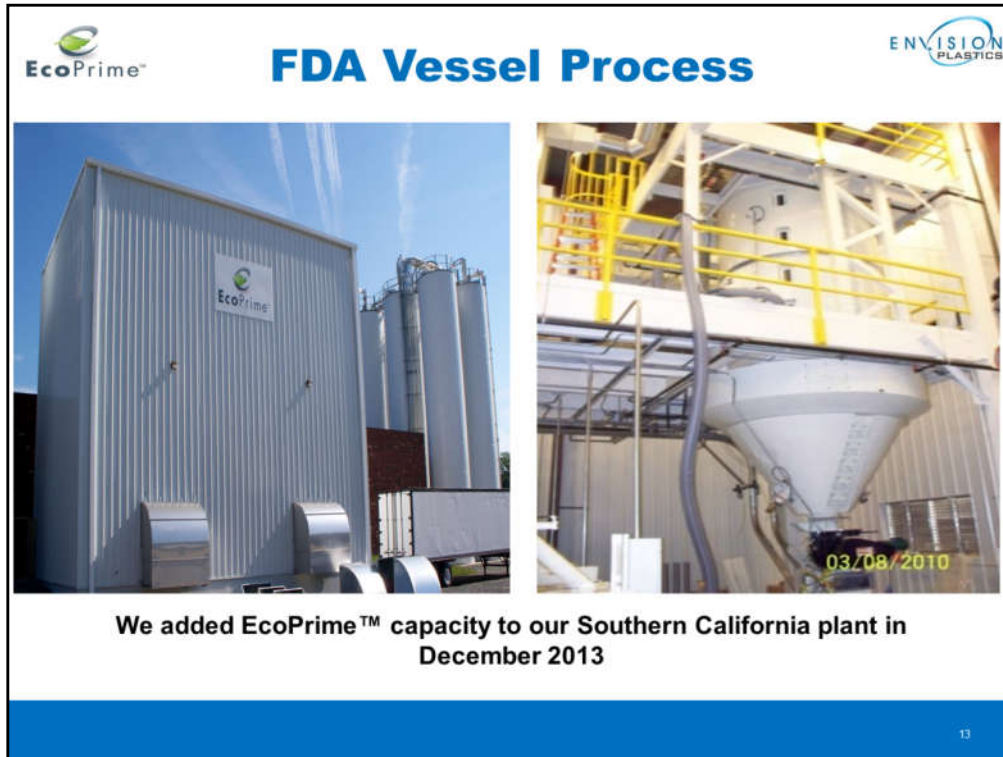
| Chemical          | Surrogate       | Category                 |
|-------------------|-----------------|--------------------------|
| Chloroform        | Trichloroethane | Polar, Volatile          |
| Diazinon          | Benzophenone    | Polar, Non-volatile      |
| Lindane           | Phenyldecane    | Non-polar, Non- Volatile |
| Gasoline          | Toluene         | Non-polar Volatile       |
| Disodium Arsenate | Copper Octoate  | Organo metallic          |

• **Threshold of Regulation- USA** • Plastics for food contact are always evaluated for any migration that might occur when in contact with food material. • migrating substances are considered to be food additives. • “Threshold of Regulation” -a level below which the probable exposure to a potentially toxic substance is a negligible risk (defined as 0.5 ppb in daily diet) • Using a Consumption Factor of 0.13 for HDPE, the maximum migration of any substance is 3.8 ppb • **US FDA Validation of Recycling Processes** • Any recycling process must demonstrate its ability to remove potential contaminants due to consumer misuse. • A series of representative chemicals or their surrogates are used to spike flake in a “Challenge Test”. • 100% of flake is contaminated for 2 weeks at 40 deg C. (Flake absorb up to 10 times more contaminants than bottles)

## LNO Reaffirmed!

On March 24<sup>th</sup>, 2015, Envision Plastics received a PNC(Prenotification Consultation)from the FDA PNC 1579 that states 100% recycled content in contact with Food Type IV-B (oil in water emulsions both high and low fat ) which include milk and milk products, sweet cream, sour cream, cottage cheese, cream cheese, and ice cream and similar oil and water dairy products under the conditions of Use F are suitable for direct contact in use at 100% recycled content.

Since then we have submitted for an expanded LNO for conditions a and b to be added as well as a request for an LNO on PP for 100% direct contact on conditions A-H which we expect expansion in late March and PP in late June.



- De-volatizing vessel room for FDA built up;
- New vessel installed with FACS for auto-control of de-volatilization process;
- Auto-Sampler input to collect samples;
- New *White Gaylord* added for FDA T/L than brown Gaylord;
- A *Silo Farm* added for storing Transition FDA and Finished FDA product, send materials in Transition FDA silo to Finished FDA silo if passed:
  - EcoPrime™ bulk T/L directly fed from FDA silo;
  - EcoPrime™ white Gaylord T/L fed from FDA silo in FDA Packaging Room

## Food Grade Natural Post Consumer Recycled HDPE

EcoPrime™ is produced from curbside collected, natural, HDPE (#2) bottles.

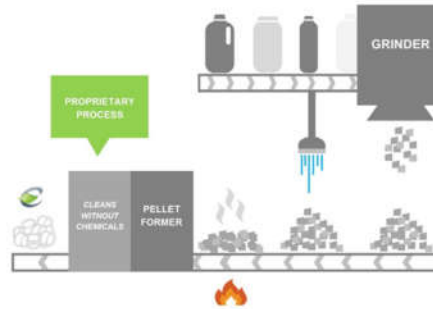
- Envision purchases bales of natural HDPE (#2) bottles from waste haulers and community MRF's
- Envision further sorts the natural bales to remove non-food grade natural bottles from its recycling process
- Envision grinds the bottles into flakes and then washes the flakes to remove labels and other contaminants from the plastic, providing a clean source of natural HDPE plastic flakes
- Flakes are then color sorted to remove any residual colored caps and closures that have made it through the process thus far
- Flakes are then melted in a large, vacuum vented extruder and pelletized



Curbside Collected Natural  
HDPE bottles

## What Makes EcoPrime™ Food Grade?

- Envision then subjects the pellets to its patented process designed to remove volatiles and semi-volatiles from the pellets
- Envision's decontamination process is the safest possible method for cleaning resins
- The process consists of placing the pellets in a large silo like vessel and subjecting the pellets to heat and airflow over a period of time
- There are no added chemicals, nor any added ingredients to achieve a food grade product

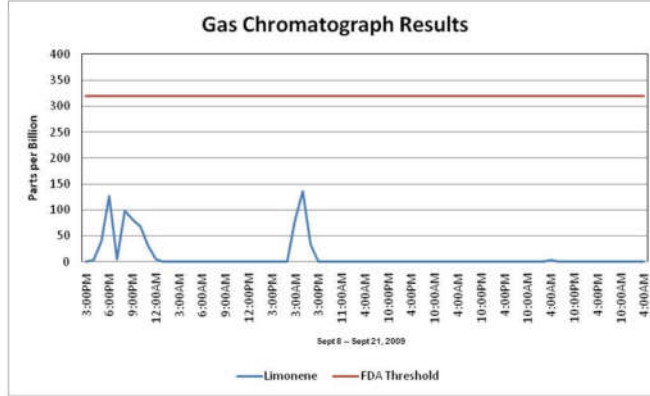


Envision's process produces ultra-clean material that is better than the FDA's requirement for daily dietary contaminant intake of less than 0.5ppb



## Food Grade Natural Post Consumer Recycled HDPE

EcoPrime™ level of residual volatiles is consistently below the FDA's threshold of 320 ppb as published in its Guidance Document *"Use of Recycled Plastics in Food Packaging: Chemistry Considerations"*



**OCEANBOUND PLASTIC** **ENVISION PLASTICS**

### What is the problem?

- A study published in 2010 estimates that 600 billion pounds of plastic waste was generated in coastal countries<sup>1</sup>.
- Approximately 80% of the plastic polluting our oceans comes from land based sources<sup>1</sup>.
- 635 billion pounds of plastic were produced in 2012<sup>1</sup>. 4% of that will ended up polluting our oceans.

**Envision's experience and commitment...**

<sup>1</sup>Science Magazine: Plastic Waste Pivots from Land into the Ocean Volume 347 Issue 6223 pages 769-771

- Envision's 16 year history of product commercialization and technical expertise provides a platform for creating sustainable, reliable resins that meet the performance needs of our customers and meaningfully engage end consumers.
- Envision Plastics, with help from our corporate partners, is committed to removing 10 million pounds of plastic at-risk of polluting our oceans over the next 2 years


**OCEANBOUND PLASTIC** **ENVISION PLASTICS**

## Defining OceanBound Plastic

Envision Plastics' criteria for OceanBound Plastic source material is based on scientific findings listed in an article from Science Magazine. Qualified partners will satisfy a number of criteria, most importantly, the Envision Verification Process. A regular recertification process that includes completing, the proprietary scorecard and on-site inspections.

[What is OceanBound Plastic?](#)

[What makes a Qualified Partner?](#)



18 <sup>1</sup>Science Magazine: Plastic Waste Input from Land into the Ocean Volume 347, Issue 6223 pages 768-771

What is Ocean Bound **Plastic verified by qualified partners as originating in the At-Risk Zone meets Envision's criteria as source material for OceanBound Plastic.**

What makes a Partner Qualified? Has access to mismanaged coastal waste<sup>1</sup> that is at-risk of polluting our oceans.

Satisfies the Envision Verification Process that includes regular recertification through the proprietary scorecard and on-site inspections.

The scorecard includes criteria to ensure our partners are good corporate citizens.

Once in partnership, Envision offers our expertise to improve collection methods, material handling best practices and community outreach.

Envision has combined supply chain experience with technical expertise and patented processes to transform plastic at-risk of polluting our oceans into a reliable resin, OceanBound Plastic.

OceanBound Plastic's versatility allows it to be further processed into the many proprietary products Envision offers including, PRISMA™ and Deodorized Resin™.

## A Definition Backed By Scientific Research

Envision Plastics' criteria for OceanBound Plastic source material is based on the scientific findings listed in an article from Science Magazine.

"Scaling by the population living within 50km of the coast (those likely to generate most of the waste becoming marine debris), we estimate that 99.5 million metric tons (MT) of plastic waste was generated in coastal regions in 2010. Of this, 31.9 million MT were classified as mismanaged and an estimated 4.8 to 12.7 million MT entered the ocean in 2010, equivalent to 1.7 to 4.6% of the total plastic waste generated in those countries."<sup>1</sup>



<sup>1</sup>Science Magazine, Plastic Waste Inputs from Land into the Ocean Volume 347, Issue 6223 pages 756-771

## What is the OceanBound Plastic Supply Chain?

Envision's OceanBound Plastic is a sustainable product, made from plastic sourced in areas at-risk of entering our oceans. Packaging made with OceanBound Plastic can be recycled in the majority of municipal recycling streams where #2 packaging is accepted.





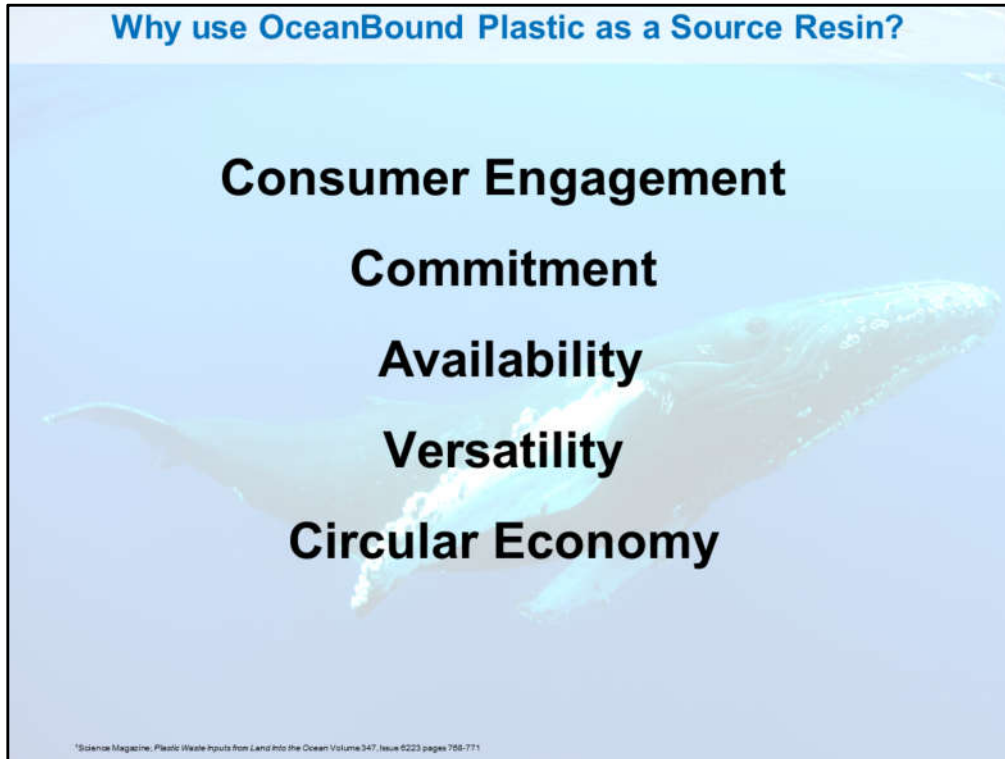
## Key Features: Versatility

OceanBound Plastic is a versatile resin that can be further processed into the many proprietary products Envision offers including, PRISMA™ and Deodorized Resin™

### Potential Outcomes

| PRISMA™   | Deodorized Resin™  |
|---|--|
| <ul style="list-style-type: none"><li>• Utilizes a proprietary high speed sorting technology in which the colored flakes are separated by color.</li><li>• Envision's sorters recognize 40 million different shades of colors at a speed of more than 1 million flakes per minute.</li><li>• Not only is the plastic recycled, but the colors are as well, providing our customers with a custom color matched PCR.</li></ul> | <ul style="list-style-type: none"><li>• Odor Neutral</li><li>• Optimized for scent sensitive applications such as personal care products.</li><li>• Good for rigid and flexible packaging such as bottles, pouches and containers.</li></ul> |





Consumer Engagement -Envision’s process technology allows the end consumer to trace product’s journey all the way back to the source. Consumers are driving the market by demanding more from sustainable packaging. They have easy access to information, are well informed and expect a meaningful level of recycled content that conveys a level of commitment and willingness, by brands, to impact what they see as a growing problem, plastic pollution.

Commitment Envision Plastics, with help from our corporate partners, is committed to removing 10 million pounds of plastic at-risk of polluting our oceans over the next 2 years.

Availability- There is an abundant supply of source material used to make Envision’s OceanBound Plastic. Using OceanBound Plastic prevents some of the 4.8 to 12.7 million metric tons of plastic from entering our oceans<sup>1</sup>.

Quality- ined to quality levels that allow the resin to be used up to 100%.

Versatility- OceanBound Plastic is a versatile resin that can be further processed into the many proprietary products Envision offers including, PRISMA™ and Deodorized Resin™

Circular Economy- Packaging made with OceanBound Plastic can be recycled in the majority of municipal recycling streams where #2 packaging is accepted. The OceanBound Plastic process helps the brand educate consumers by conveying the message that when plastic packaging is properly managed it becomes an important part of a sustainable future.

**Franklin Associates Life Cycle Analysis for Recycled HDPE**

|   | Times Recycled | Allocation of Virgin % | Allocation of Virgin Energy in mm Btu | Incremental Recycle Energy | Total Energy in mm Btu | Total Energy % of Virgin | Energy Savings vs. Virgin |
|---|----------------|------------------------|---------------------------------------|----------------------------|------------------------|--------------------------|---------------------------|
| 1 |                |                        |                                       |                            |                        |                          |                           |
| 2 | Virgin HDPE    |                        |                                       |                            | 35.80                  | 100%                     | 0%                        |
| 3 | HDPE Cut off   | 100%                   |                                       | 3.72                       | 3.72                   | 10%                      | 90%                       |
| 4 | HDPE Open Loop | 50.0%                  | 17.90                                 | 1.86                       | 19.76                  | 55%                      | 45%                       |
| 5 | HDPE Open Loop | 25.0%                  | 8.95                                  | 2.79                       | 11.74                  | 33%                      | 67%                       |
| 6 | HDPE Open Loop | 12.5%                  | 4.48                                  | 3.26                       | 7.73                   | 22%                      | 78%                       |
| 7 | HDPE Open Loop | 6.3%                   | 2.24                                  | 3.49                       | 5.73                   | 16%                      | 84%                       |

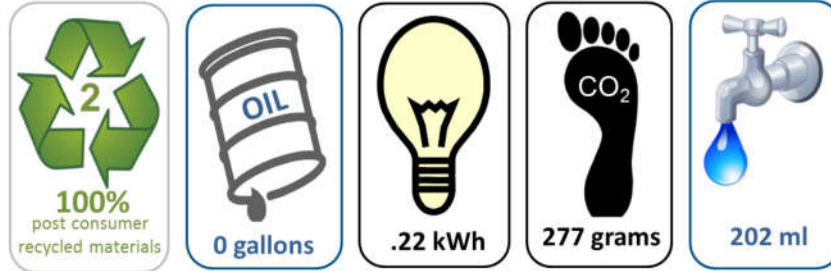
Association of Postconsumer Plastics Recyclers (APR)  
funded an LCI / LCA for plastics recycling

- Results indicated that recycling HDPE used 10% of the energy required to produce an equivalent amount of virgin resin (cutoff method – no burden of original virgin resin production energy)
- Results table above indicates energy savings for recycling HDPE based upon how many times you think the plastic will be recycled (open loop method – burdens recycled resin with a portion of the energy use to produce the virgin HDPE resin)

This is our version of the executive summary our LCA did not have in the report. I am glad to e-mail full report to anyone who is interested.

## Environmental Impact

### Resources Consumed to Produce 1 Pound of Recycled Resin



#### To put this chart in perspective

It takes 1,000 kWh to power a single light bulb for a day.  
 Driving the average car 10 miles to work each week produces 660 pounds of CO<sub>2</sub>  
 A glass of tap water is 240ml

- The production of recycled plastic resin uses far less resources than producing new, virgin plastic resin
- Production of recycled resin uses 90% less energy and emits 78% less greenhouse gases than producing virgin resin
- Recycling plastic saves twice as much energy as burning it in an incinerator
- Moreover, recycling plastics creates 6 times more jobs than landfilling recyclables and 36 times more jobs than incinerating them
- The production of recycled plastic resin uses far less resources than producing new, virgin plastic resin

*Franklin LCI Data*



Franklin LCI Data 609 lbs CO<sub>2</sub> per 1000 lbs. of material (22% of virgin) / 78% less greenhouse gas emissions than virgin production  
 90% less energy used than virgin resin  
 Water 543.3 gal per 1000 lbs. of material

## What can Brand Owners do?

- Promote packaging that is recyclable
- Request recycled content
- Request standardization
- Resin markers
- Reward EPR so that it is not mandated by Government
- Look at other materials in large quantities that can be recycled.

Shelf talkers and weekly ads

Score cards for certain chains are incorporating recycled as a plus

See why all butter tubs dependent on brand are made from different melt flows

The prime manufacturers can put markers in resin to make specific grades optically identifiable.

There are 39 million opalescent colored markers that could be compounded into prime resins as a way to distinguish resin type, melt flow, additives for easier sortation

By machines using same recognition technology as grocery store scanners today.

Large volumes of packaging that become waste in stores dependent on type of store can be Pill Bottles, Buckets, Trays, strapping,



The widest range of recycled products and applications available.

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Save the Plastics



Read our blog @  
<http://savetheplastics.com>



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