Packaging Design for Seven Generations
A Little Background

![Map of Vermont with Burlington highlighted]
Who We Are & What We Believe

“In our every deliberation we must consider the impact of our decisions on the next seven generations.”

-- from the Great Law of the Iroquois Confederacy
Product and Packaging Design
Seventh Generation’s Holistic Approach to Product Development.
Plastic Packaging at Seventh Generation

- Bottles
- Closures
- Poly Bags
- Labels
- Diaper components
- Wipes
Plastics Life Cycle System Diagram
Creating A Plastics Hierarchy

Plastics Production = Petro plastic + Bio-plastic + Recycled plastic

Total Impacts = Impacts(Petro plastic) + Impacts(Bio-plastic) + Impacts(Recycled plastic)
Environmental Impacts of HDPE Manufacturing: Virgin versus Recycled

Comparison of INGEO to PP and PET

RESULTS

Climate Change

<table>
<thead>
<tr>
<th></th>
<th>Ingeo</th>
<th>PP</th>
<th>PET</th>
</tr>
</thead>
<tbody>
<tr>
<td>gCO₂ eq./1 cup &amp; lid</td>
<td>41</td>
<td>54</td>
<td>93</td>
</tr>
</tbody>
</table>

Non-Renewable Energy

<table>
<thead>
<tr>
<th></th>
<th>Ingeo</th>
<th>PP</th>
<th>PET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megajoules/1 cup &amp; lid</td>
<td>1.01</td>
<td>1.45</td>
<td>1.99</td>
</tr>
</tbody>
</table>

The results of the averaged scenarios detailed above show that the manufacture and transportation of Ingeo cold cups and lids consume 30 - 50% less energy from cradle to grave than PP and PET respectively, and emit 24 - 55% less greenhouse gases.

Creating A Plastics Hierarchy

\[
\text{Impacts(Recycled plastic)} \sim 0.2 \times \text{Impacts(Petro plastic)}
\]

\[
\text{Impacts(Bio-plastic)} \sim 0.8 \times \text{Impacts(Petroplastic)}
\]

\[
\text{Total Impacts} = \text{Impacts(Petro plastic)} + \text{Impacts(Bio-plastic)} + \text{Impacts(Recycled plastic)}
\]

The more recycling, the lower the Total Impacts
Creating A Plastics Hierarchy

Recycled plastic >>>>> Bio-plastic > Petro plastic
Bottles

• HDPE instead of PETE – resin energy savings 42%, blow molding 66% less energy.

• What level? - 25% minimum (California Waste Management Board)

• Where does this resin originate?
High Post Consumer Content

- 80%  
- 80%  
- 80%  
- 80%  
- 76%  
- 76%
And Even Higher…

96%                        90%                           96%

96%                           96%

96%                             96%
Caps, Sprayers and Tubs

- Program supporter
- Extended Producer Responsibility
- Sprayers all plastic, no metal
- Recyclable, does not mean it is recycled
Diaper bags are 25% preconsumer
Paper towels, bath tissue are 50% preconsumer
Tell the consumer: “Please recycle this packaging in plastic bag recycling bins at local retailers where available.”
Poly Bags – Bioplastic / LDPE Blend

- Braskem sugar cane based poly
  - 1KG of petrochemical PE production releases 2.5 KG of CO2
  - 1KG of bio PE production captures 2-2.5 KG of CO2
  - Light weighting covers increased cost
Labels

- BOPP
- Association of Postconsumer Plastic Recyclers:
  “PP, OPP, PE, or other label materials that float in water are preferred to all other label materials. Paper labels are undesirable and should be avoided as they increase contamination in the HDPE due to fiber and adhesive carry-over through the reclamation process.”
- Improved application, quality, durability, appearance
Thank you!