



# Light-Weighting Bottles & Other Sustainable Considerations

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# Bottle Weight Options

*Real benefit for lightweighting is savings on Transportation costs-*

|                 | <b>Grams</b> | <b>Cases/Pallet</b> | <b>Pallet Lb</b> | <b>Btls/Truck</b> |           |
|-----------------|--------------|---------------------|------------------|-------------------|-----------|
| Standard Wt     | 500          | 105 cs              | 1450             | 30240             | baseline  |
| Fancier Bottles | 600          | 98 cs               | 1625             | 28224             | 7% fewer  |
| Elegant Light   | 700          | 84 cs               | 1600             | 24192 (24 Plts)   | 20% fewer |
| Heavy Bottles   | 900          | 77 cs               | 1880             | 18480 (20 Plts)   | 39% fewer |
| Very Heavy      | 1200         | 60 cs               | 1950             | 14400 (20 Plts)   | 52% fewer |

Should we also be discussing the larger issue at hand...

# SUSTAINABILITY?



# Sustainability Question

*Is light-weighting the only solution or can we do better?*

- Transportation method
- Manufacturing
- Recycling



# Transportation



## Decreasing greenhouse gas emissions

- 10 x more efficient by water than by truck
- 17 x more efficient by water than by Airfreight
- Europeans and Chinese have tightened environmental controls passing laws in 2018 to reduce sulfur in fuel
- LCA- Life Cycle Assessment, there is a small energy impact from transport of glass packaging

# Manufacturing

To produce 1 ton of glass it takes 1.18 tons of raw materials

## Glass Composition

- Sand
- Soda Ash
- Limestone
- Totaling 95% of raw materials in batch without cullet
- Cullet is recycled glass, added at varying amounts



# Recycled Cullet

- For every 10% added to the furnace there is 2-3% reduction in energy use and 5% reduction in CO<sub>2</sub> emission
- For every 6 tons of recycled glass 1 ton of CO<sub>2</sub> is offset
- Cullet lowers energy use because no endothermal decomposition

## Decreases

- a. Raw material use
- b. Transport costs
- c. Pollutants



# Cullet - Amounts

|                 |             |
|-----------------|-------------|
| Green & Antique | 90%         |
| Amber           | 80%         |
| Flint           | 65%         |
| Wild Glass      | Almost 100% |



# Solution!

*Using More Recycled Glass in Glass Furnaces*

**Wild Glass Since 2020**



estal concept design

# Wild Glass by Estal

- 1. **ORGANIC AND AUTHENTIC.** The WILD campaign not only offers sustainability as a strong point, but creates a new design trend. Colors vary more than a common glass color run, imperfections accepted; bubbles, orange peel, coloring lines, imperfect accumulation of glass, providing an organic design similar to hand blown glass but with all the characteristics of automatic glass production.

# Wild Glass by Estal

- 2. EFFICIENCY The efficiency is one of the main pillars for ecological sustainability. WLD GLASS production discards fewer bottles that have cosmetic (aesthetic) defects reducing the rejects.
- The factory has gone from a 25% to 15% discard.

# Wild Glass by Estal

- 3. SUSTAINABILITY 100% of the WILD glass is Post Consumer Recycling (PCR). This glass comes from recycling centers.
- Less energy consumption is used in the fusion of recycled glass.
- Less extraction of virgin materials are used (virgin raw materials): 1 kg of recovered glass is equivalent to 1.2 of virgin raw materials

# Tarpon Cellars





# Thank You

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