

EarthBottles™

An All-Natural, Renewable Packaging Solution

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Earth Renewable
TECHNOLOGIES

*Gaia Herbs has always stood for
eco-friendly **products**...*



*... now we're improving our **packaging**.*

*With EarthBottles™, Gaia Herbs will help the natural products industry convert its **packaging waste** into **soil food**. Why?*

EPA (2006) finds only 10.6% overall plastics recycling in US.



*This means **89.4%** ends up in landfills or as trash on the Earth.*

In **2005**, **Gaia Herbs** started a research sponsorship with **Clemson University** to develop a *natural & renewable composite* that overcomes the high supply chain costs of pharmaceutical glass.

NatureWorks® biopolymer is our base. They claims acceptance at 96 industrial composters in the US.



We are currently in process on BPI certification.

It's a start.



Biodegradable Products Institute

<http://www.bpiworld.org>

http://www.natureworksllc.com/news-and-events/ingeo%20news/~/_media

http://www.gogreenscene.com/composting_tech.asp

Gaia's Design Challenge:

Meet all technical specifications AND meet these constraints...

- **Renewable resource based = no petroleum used**
- **Recyclable and/or compostable: “waste = food”**
- **Energy-efficient in manufacturing = climate friendly**
- **Cost-effective = easy transition from glass or PET/HDPE**
- **Employ functional botanical ingredients to enhance performance – overcome limits of pure PLA**
- **Capable of organic certification over time, with scale**



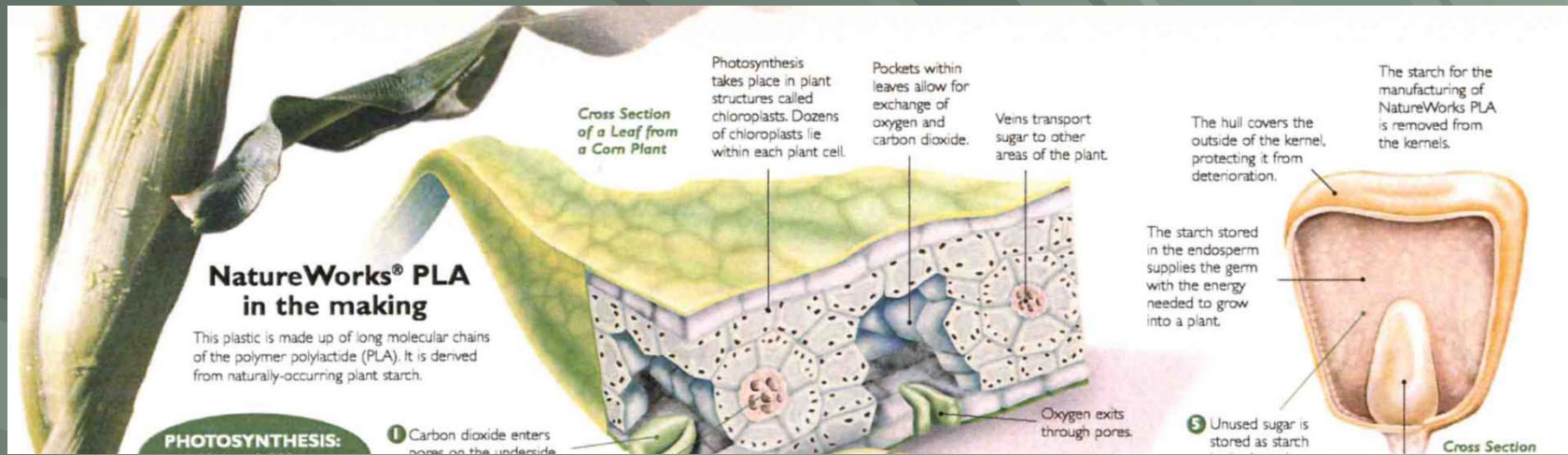
Gaia Herbs' Result:

The first *functional & all-natural composite* bottle



- ✓ **Uses Natureworks® biopolymer platform... for now.**
- ✓ **Combines PLA, natural fibers, minerals, botanical extracts and more into a strong *composite* resin**
- ✓ **Patent pending since 2005**
- ✓ **Suitable for injection blow molding, stretch molding, etc.**
- ✓ **Suitable for a wide range of container molds**

With scale, we can bypass **corn** PLA!



- ✓ **Lactic acid feedstock can come from sugar beets, potatoes, cassava, dairy whey acids.**
- ✓ **Before the EtOH boom, corn was most economical.**
- ✓ **Economical “alt” lactic acid supply is only a question of scale – **we need to aggregate our demand.****

ERT supports a sustainable bio-cycle

The logo for Green Harvest Technologies features the words "green harvest" in a green, lowercase, sans-serif font, with "TECHNOLOGIES" in a smaller, grey, uppercase, sans-serif font below it. A vertical green bar is positioned to the right of the text.

green harvest
TECHNOLOGIES



Institute for Agriculture and Trade Policy

- ✓ ***ERT will support IATP's Working Landscape Certificate program thru GHT***
- ✓ ***ERT will advocate broadly for expanded industrial composting facilities.***
- ✓ ***ERT will negotiate "alt source" lactic acid supply so long as NatureWorks PLA is the only choice in America.***

EarthBottle Benefits vs. HDPE/PET



- ✓ *Responsive to demand for sustainable alternatives*
- ✓ *Natural anti-oxidant/anti-microbial components*
- ✓ *Comparable technical specifications*
- ✓ *Cost competitive today, more so with scale*
- ✓ *Safer = No trace petroleum chemistry*
- ✓ *Looks and feels natural = ideal for brand positioning*

EarthBottle Benefits vs. Glass



- ✓ *Non-breakable = safer & less liability*
- ✓ *>5X lighter = less freight costs*
- ✓ *Far less embedded energy*
- ✓ *Cost competitive as energy costs go up*

EarthBottles & Sustainability

Yes	No	
X		Beneficial, safe & healthy for individuals and communities throughout its life cycle;
X		Meets market criteria for performance and cost;
	?	Sourced, manufactured, transported, and recycled using renewable energy;
X		Maximizes the use of renewable or recycled source materials;
X		Manufactured using clean production technologies and best practices;
X		Made from materials healthy in all probable end of life scenarios;
X		Physically designed to optimize materials and energy;
X		Effectively recovered and utilized in biological and/or industrial cradle to cradle cycles.

www.sustainablepackaging.org



Thank you.

*I hope we can all imagine a day
when our packaging waste equals
soil food!*



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