

Green Chemistry in the Plastics & Fibers Markets

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- *World's first and largest bioplastics producer*
- *World-Scale Plastics Facility*
- *2002 Winner - Presidential Green Chemistry Challenge*
- *Peer reviewed, strong eco-profile*
- *Global customer base and product adoption*
- *Ingeo applications breadth across markets, geographies, and retail applications*

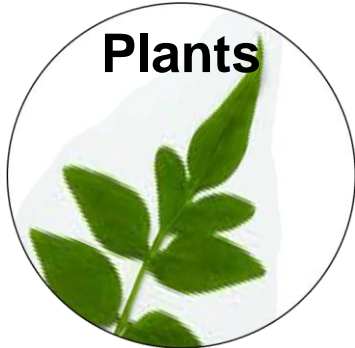
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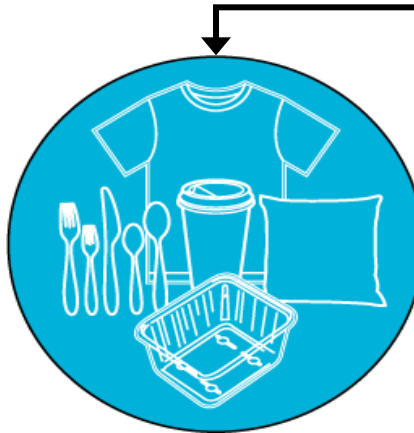
Where it comes from.... Plastics & fibers from plants, not oil



Carbon dioxide
and water



sugar
(dextrose)



 ingeo™



manufacturing



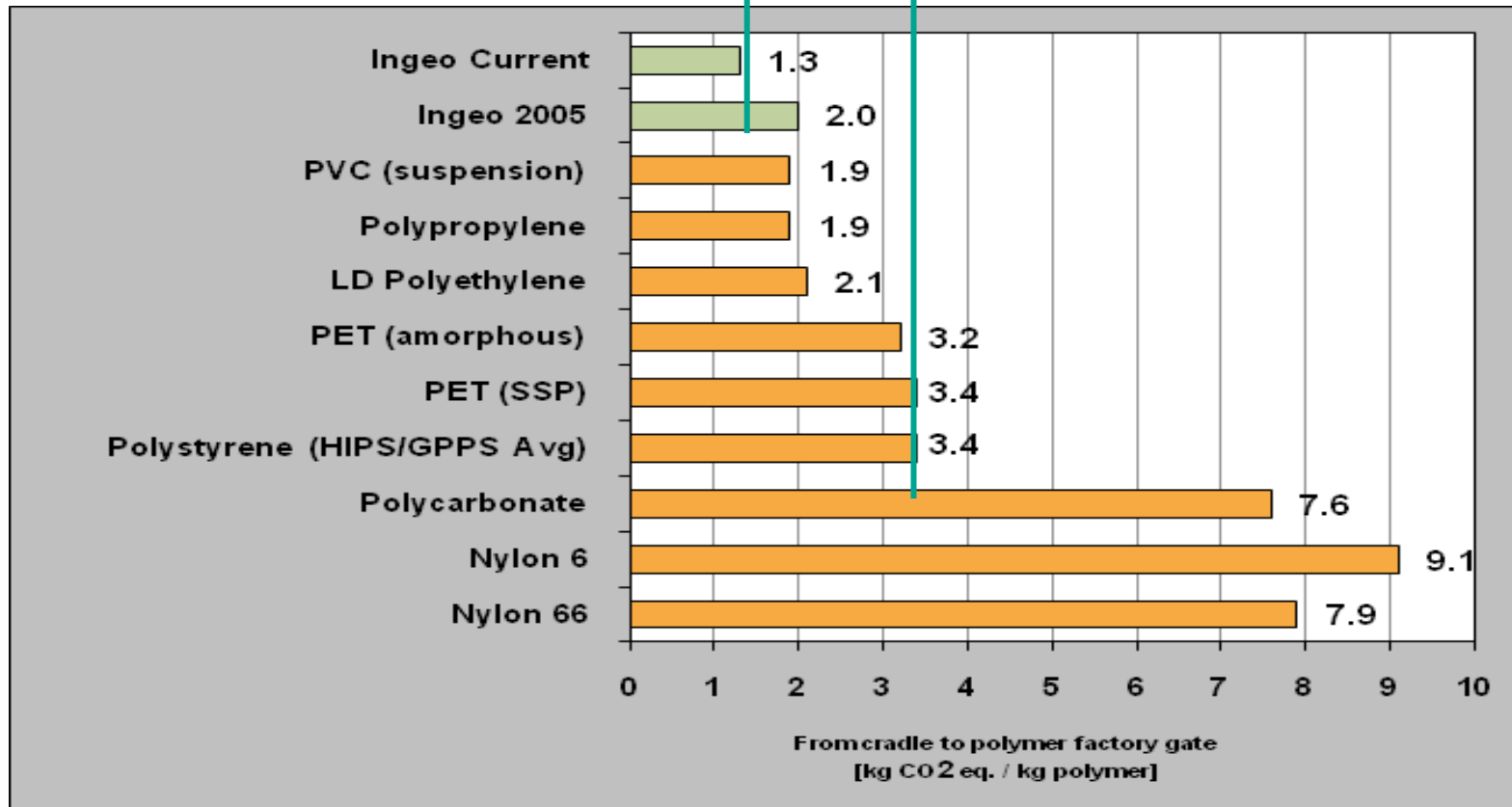
Our
Customers

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Greenhouse Gases

-60%



Continuous improvement process
Ingeo 2005 ➡ **Ingeo Current** ➡ **Future Improvement**

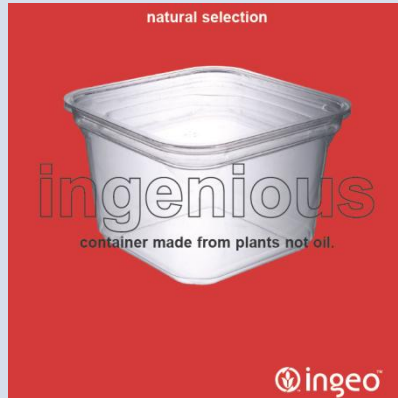
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What's Resulted in the Global Market

Rigids



Food Serviceware



Films



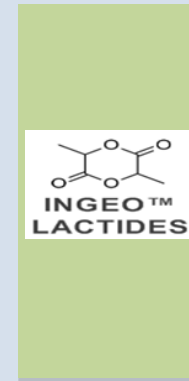
Nonwovens / Fibers



Durables



Lactides



Bus. Dev.

Incubator

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“It’s a win-win-win-win. It’s price-neutral, a big win on carbon, and a much stronger package. It’s not perfection, but it is a giant leap.”

Gary Hirshberg, Chairman, president, & “CE-Yo”

Danone and WWF launch sustainable Ingeo™ Activia Yogurt Cup in Germany



Improves packaging carbon footprint by 25% and use 43% less fossil resources

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Marketside™



Marketside™



“Walmart Stores in 2010 has achieved a savings in fossil fuel usage of 25,971 barrels of oil per year, and a reduction in greenhouse gas emissions equal to eliminating the CO₂ emissions from driving a car 20,885,635 miles”

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Ingeo in Food serviceware

Coca-Cola®



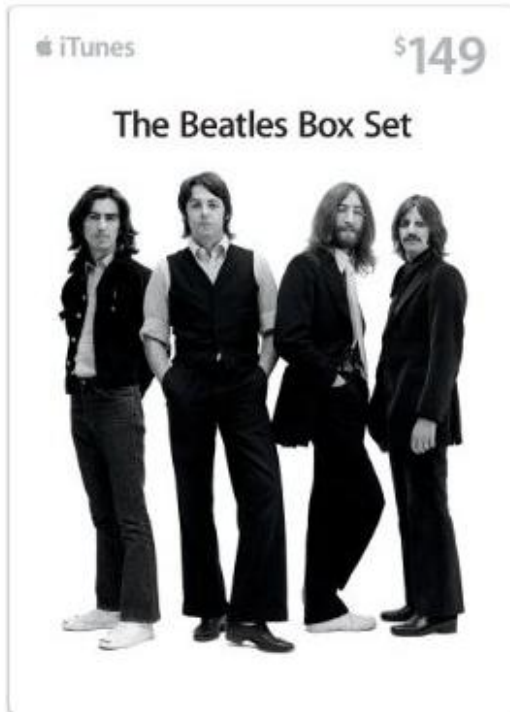
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Apple iTunes card



 ingeo™ plant-based card

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Target 



Simply Balanced™



ConAgra Foods



**ConAgra
& Foods**
Food you love



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Ingeo in Computer & Office



FUJITSU



Canon



NEC

Henkel



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Moms in the U.S. are choosing HUGGIES PURE & NATURAL, a new, hypoallergenic, fragrance-free super-premium diaper, described as "better for baby, with steps toward a better world."

The breathable outer cover includes organic cotton, and the liner includes renewable materials along with natural aloe and vitamin E to provide gentle protection for babies. And like SCOTT NATURALS, the outer packaging is sourced from 20 percent post-consumer recycled materials.

Kimberly-Clark Diapers

FASHION SUMMIT
DECEMBER 9, 2009
THE COPENHAGEN OPERA HOUSE DENMARK

Fama Jersey



Saara Lepokorpi

Gattinoni



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Ingeo From A Cradle-to-Cradle Perspective

“Nature doesn’t have a design problem, people do”

William McDonough and Michael Braungart, 2002



“Technical nutrients”

- basically inorganic or synthetic materials manufactured by humans—such as plastics and metals-- that can be used many times over without any loss in quality, staying in a continuous cycle.



Ingeo recycle

“Biological nutrients”

- Biological nutrients and materials are organic materials that can decompose into the natural environment, soil, water, etc. without affecting it in a negative way, providing food for bacteria and microbiological life

Ingeo composting

Source: **Cradle to Cradle: Remaking the Way We Make Things** by William McDonough & Michael Braungart

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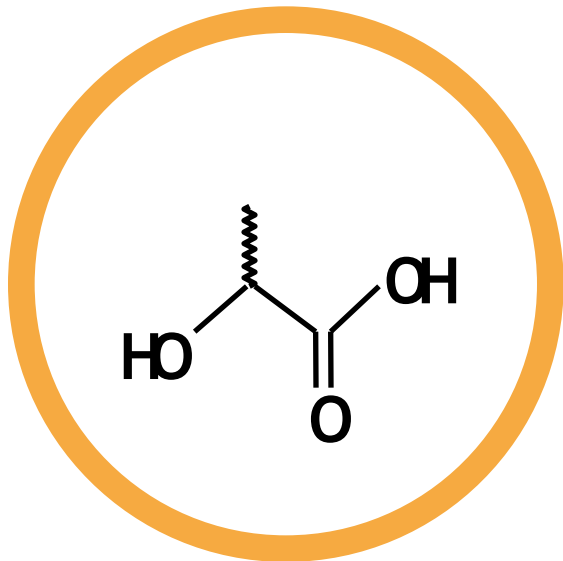


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A new paradigm for Cradle-to-Cradle materials recycle . . . “Feedstock Recovery”

Ingeo is a biopolymer made from lactic acid

Lactic Acid



Polymerization



Hydrolysis



*Ingeo
Polylactide*



A new paradigm for Cradle-to-Cradle materials recycle . . . “Feedstock Recovery”

**Ingeo Carpet
in use at the
COP—15, the
UN’s Climate
Change
Conference**



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A new paradigm for Cradle-to-Cradle materials recycle . . . “Feedstock Recovery”



**Ingeo™ cups in use - and
collected for feedstock
recovery at the June, 2011
Brussels**

Couleur Café music festival



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Thank You

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