

## A Natural Choice For Gift Cards

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### Background

During early 2005, two companies pursued an idea that today is providing a “natural choice” alternative to traditional plastic-based card manufacturers, marketers and consumers – NatureWorks® PLA based cards.

Spartech Corporation and NatureWorks LLC are working together to develop NatureWorks PLA (Poly Lactic Acid) resin based solutions. The resulting Spartech NatureWorks PLA sheet - Rejuven8™ and Rejuven8Plus™ - was introduced to the marketplace during 4Q05 with several million NatureWorks PLA gift cards produced by major card manufactures. Although NatureWorks PLA based cards are not a replacement for all existing cards and/or applications, NatureWorks PLA derived sheets/cards provide card manufacturers, brand owners and consumers an “environmental footprint” to a future renewable and sustainable offering versus today’s crude-oil derived plastic cards. Why? It’s made from a 100% natural resource - corn!

### NatureWorks LLC

NatureWorks LLC is a stand-alone company wholly owned by Cargill. Dedicated to meeting the world’s needs today without compromising the earth’s ability to meet the needs of tomorrow, NatureWorks LLC is the first company to offer a family of commercially available polymers derived from 100 percent annually renewable resources with cost and performance that compete with petroleum-based packaging materials and fibers.

The company applies its unique technology to the processing of natural plant sugars to create a proprietary polylactide polymer, which is marketed under the NatureWorks® PLA and Ingeo® fibers brand. Based in Minnetonka, MN., NatureWorks LLC began development of NatureWorks PLA in 1996 and by 2002 was producing polylactide (PLA) resins - a versatile new industrially compostable polymer. NatureWorks PLA is made from 100% renewable resources such as corn, sugar beets and/or rice.

Today, NatureWorks PLA utilizes No. 2 field corn (or what we call animal feed in the US/Canada). After harvesting, corn is transported to a corn wet mill where starch is separated from other components of the corn kernel and converted into dextrose. Dextrose is fermented and purified into lactic acid. Through a patented process lactic acid is polymerized into polylactic acid pellets.

Based on its many uses today, NatureWork’s PLA polymers will process on conventional extruders using general purpose screws. In-line drying is required for successful PLA resin extrusion.

Inherent NatureWorks PLA properties such as high clarity, stiffness and the ability to accept conventional inks provides a natural fit for a number of applications such as extruded sheet and film. NatureWorks PLA’s high natural surface energy combined with excellent ink receptivity allows it to be used on conventional equipment using standard inks. The increased stiffness offered by NatureWorks PLA often allows for down-gauging in many applications which translates into improved system cost and reduced waste.

PLA also provides a number of end of life options. In its current card format – e.g. 95% NatureWorks PLA and 5% Other - today's cards are being sourced based on its renewable/sustainable content (e.g. corn). Development efforts continue to focus on introducing a +99% based NatureWorks PLA card which will offer traditional end of life options such as industrial landfill and incineration.

In summary, NatureWorks PLA has been shown to be an excellent resin for card manufacturing. NatureWorks PLA's ability to be process on conventional existing equipment combined with a number of desirable material properties has allowed companies to utilize a more environmentally responsible material for card manufacturing.

### Spartech Corporation and NatureWorks PLA based Sheet

NatureWorks PLA resin technology was optimized by Spartech - a custom sheet extruder providing commercially approved NatureWorks PLA based sheet products.

For background purposes, Spartech is producer of polymeric compounds, and custom engineered plastic products. With over 43 manufacturing facilities located throughout the United States, Canada, Mexico, and Europe, Spartech utilizes a dedicated group of 3700 employees to manufacture the highest quality plastic based products. .

One key element of Spartech's vision is its Green Initiative which provides environmentally friendly solutions to meet - and - exceed the needs of our customer, shareholders, employees, and the environment. We will aggressively and proactively pursue material solutions and production practices that minimize the effect on our environment.

The combined teamwork of Spartech Plastics, Nature Works LLC and PLA card producers have expanded the range of application capabilities of NatureWorks PLA (Polylactic Acid) for use in applications beyond traditional food and bottle packaging. The development of this new alloy material has gained new entry in the card market.

A unique material formula and post extrusion process has been developed for these applications and production extrusion capabilities have been proven. The net result is a resin that is 95% derived from an annually renewable resource (corn), and yet still has the strength characteristics (tear resistance, impact, etc.) of PET as well as a much increased heat deflection temperature through secondary processing. These product improvements expanded NatureWorks PLA acceptability in the card market.

The primary material that this new alloy will replace is PVC.

The first application was a promotional card that looked like a credit card and was used to promote this new product. The second application was a gift card for a well known branding company.

The environmental benefits of this new alloy as compared to PVC are summed up below:

1. The NatureWorks PLA alloy is comprised of 95% annually renewable materials where other cards are 100% petroleum based
2. Chlorine gas emission (e.g. a by-product when producing PVC) and Dehp plasticizer off-gassing are eliminated through a NatureWorks PLA based alloy sheet.
3. Utilizing NatureWorks Benefits Calculator, changing today's estimated use of 50,000 tons of PVC in various cards results in the following:

The <b>Fossil Energy Savings</b> is Equivalent to:		
burning the following Quantity of Gasoline		
	19,150,000	Gallons
	72,387,000	Liters
equivalent to the electricity consumed per month by		
	607,400	Residents of the U.S.
	1,411,900	Residents of W Europe
	1,294,800	Residents of Japan
	14,709,100	Residents of China
	3,297,600	Residents of S. Korea
The <b>Greenhouse Gas Savings</b> is Equivalent to:		
driving a new vehicle the following distance		
	466,629,000	miles in the U.S.
	750,966,000	km in the U.S.
	1,159,168,000	km in the EU
	1,442,727,000	km in Japan
	913,000,000	km in China
the following Pine or Fir Forest Storing Carbon for 1 Year		
	38,640	Acres
	15,640	Hectare

### Showcasing Customer Success

The following NatureWorks LLC PLA card co-branding partners have taken NatureWorks PLA based sheet technology to new heights through card applications applicable to global markets.

Alphabetically speaking – Arthur Blank (Mr. E Blank) and UV Color (Mr. D. Frederickson)

Based on 2005 success, additional card manufacturers have embraced NatureWorks PLA demonstrated success – e.g. Meyers, Jet and others to be announced.

What is driving this success parallels current trends in the Gift Card market which are driven by retailers who note gift cards lead to greater monetary benefits than many other marketing tools. Gift cards are also recognized as leading to greater monetary benefits than many other marketing tools. Its noted consumers are purposefully buying gift cards to ensure that the recipient receives something they enjoy.

Our PLA card co-branding partners note the following advances:

- NatureWorks® PLA enjoys an 8% density advantage over PET, so less material is needed to produce the same product.
- Due to NatureWorks PLA's inherent stiffness, some products can be down-gauged.
- NatureWorks PLA is 100% derived from an abundant annually renewable resource – field corn!
- Replacing petroleum with an annually renewable resource for the production of plastic resin reduces fossil fuel dependency and is a positive step towards carbon-neutral manufacturing and sustainability. NOTE: NatureWorks PLA is the world's first greenhouse-gas neutral polymer. The production of NatureWorks PLA actually uses 65 percent less fossil fuel than traditional plastics
- NatureWorks PLA is a neutral contributor based on current volumes to existing recycling streams. It can be sorted using available detection technology and can be recycled back to its monomer (e.g. latter being 100% neat PLA)
- Over time, corn pricing is also significantly more stable than petroleum-based plastics.

- Successfully replace other card substrates - e.g. PVC, PET, OPS and Paper
- Can be easily printed and electronically (magnetic strip) encoded
- May utilize PLA film as laminate and as a magnetic strip film carrier
- NatureWorks PLA biaxially oriented sheet can be used to provide clear PLA cards

What are “consumers” of PLA cards saying:

- As use of plastic cards and packaging continues to increase, retailers and brand owners continue to seek alternatives to traditional plastics and are being more responsible with these choices. PLA based cards provide the convenience and performance of “plastic” while offering customers added appeal of cards made from nature.
- Consumer marketers have a new, more responsible alternative to traditional plastic packaging, specialty and transaction cards made from petroleum-based plastics such as PVC.
- Specialty and transaction cards are being produced using a sheet of renewable/sustainable plastic made from NatureWorks PLA. The sheets can be put through additional processes, cut to size, packaged and shipped. The end result is a product that looks and feels like a traditional plastic card with a better, more responsible environmental profile.
- PLA is a nature-based substitute for plastic cards, derived from an annually renewable resource and provides convenience and performance of “traditional plastics” while offering customers the added appeal of cards made from nature.
- This has translated into increased card sales because of its environmentally friendly backdrop and ability to improve your image (and commitment) to reducing negative environmental impacts.
- A more environmental card offers unique positioning and product differentiation.
- Several companies want to insure its activities have a minimum impact on the environment, and NatureWorks PLA packaging is one of a range of on-going initiatives being introduced to assist
- To the naked eye, there is no difference between the NatureWorks PLA cards and those used previously while offering the same high quality
- Demonstrate the commitment to the development of environmental-conscious products and re-emphasize its eco friendly position without compromising high-end image

The real measure of success is to view brand owners unite around your product offering. During 2005, Spartech, NatureWorks and its PLA card based co-branding partners experienced success among four major brand owners. Since 2006, two other major brand owners have signed-on to future use of PLA.

As one never forgets its first success (or testimonial), we personally thank our co-branding partners and brand owners who contributed to this and continue to promote the benefits and value of NatureWorks PLA – a natural choice for gift cards!

# Wal-Mart to buy natural plastic from Cargill unit

NatureWorks makes produce containers

BY TOM WEBB

Pioneer Press

A Cargill unit that makes natural plastics from corn has landed the mother lode of corporate accounts — food packaging for Wal-Mart, the largest grocery chain in America.

Starting Nov. 1, Cargill-owned NatureWorks will supply its environmentally friendly containers for fresh strawberries, brussels sprouts, cut fruit and herbs, a Wal-Mart official announced Wednesday. That alone is 114 million packages a year.

*Next will come plastic gift cards, salad boxes, deli trays, tomato packages, even the plastic film on donut boxes, with more to come.*

"That's just a start, that's just getting started for us," said Tara Stewart, a spokeswoman for Wal-Mart....."