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Bioplastics

US Industry Study with Forecasts for **2011 & 2016**

Study #2908 | June 2012 | \$4900 | 240 pages



The Freedonia Group

767 Beta Drive

Cleveland, OH • 44143-2326 • USA

Toll Free US Tel: 800.927.5900 or +1 440.684.9600

Fax: +1 440.646.0484

E-mail: info@freedoniagroup.com

www.freedoniagroup.com

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Technical innovations that improve bioplastics and lower their price -- along with increased production capacity -- will make bioplastics more cost-competitive with conventional polymers.

US demand to rise 20% annually through 2016

US demand for bioplastics is forecast to climb at a 20 percent annual pace through 2016 to 550 million pounds, valued at \$680 million. Although they have achieved a considerable degree of commercial success, bioplastics remain in an early stage of development, representing only a small niche within the overall plastics industry. Going forward, technical innovations that enhance the properties of bioplastics and lower their price will drive growth. Increased production capacity will boost the availability and further reduce the price of bioplastics, thus making these materials more cost-competitive with conventional polymers.

In addition, many bio-based polymers benefit from relative price stability when compared with their petroleum-based counterparts. Moreover, the desire to decrease dependence on foreign oil will further fuel the expansion of bio-based resins, as will efforts by US manufacturers to enhance sustainability and improve the corporate image they project to an increasingly eco-conscious consumer base.

PLA to remain most extensively used bioplastic

Polylactic acid (PLA) is expected to remain the most extensively used resin in the bioplastics market through the

US Bioplastics Demand, 2016 (550 million pounds)



Polylactic Acid (PLA)
45%

Bio-Based PE
26%

Starch-Based
12%

Cellulose 3%

Other Resins
14%

photo: Van Der Winet

forecast period, despite issues regarding the inability of biodegradable products such as PLA to decompose in landfills and their potential to contaminate the recycling stream. Advances will be promoted by a widening composting network and greater processor familiarity, as well as ongoing efforts to diversify PLA feedstocks, as critics cite the food versus fuel debate and the energy- and pesticide-intensive nature of corn production as a key drawback of biopolymers. Furthermore, PLA is being blended with other resins and additives to create new grades that offer improved product performance, allowing for use in an extended range of applications, including durable and semi-durable goods.

Bio-based polyethylene -- which entered the market in 2010 -- is expected to offer the best opportunities for growth through 2016, increasing rapidly from a small base. These exceptionally strong gains are predicated on the expansion of production capacity, which will reduce prices and enable this resin to compete more effectively with its petroleum-based counterpart. Although bio-based polyethylene will continue to command a price premium that will restrict demand in price-sensitive non-consumer markets through 2016, the fact that bio-based polyethylene is chemically identical to, and can serve as a drop-in replacement for, conventional polyethylene will remain a key factor driving its adoption.

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Sample Text, Table & Chart

PRODUCTS & MARKETS

Molded Goods

Demand for bioplastics used in the production of molded goods is projected to reach 1.2 million pounds in 2016 on annual gains of 12%. Although PLA will continue to account for the largest share of demand in molded good applications, its share is expected to decline as other resins -- particularly bio-based polyethylene -- are more widely used.

Goods in this category include those that are thermoformed, injection molded, and blow molded. Thermoformed products represent the largest component of demand, and will continue to do so going forward. However, the development of bio-based forms of polyethylene and polyethylene terephthalate (PET) will generate strong growth in the blow molded product segment, where these materials will find application in the manufacture of bottles.

The outlook for thermoformed goods will track demand for PLA, reflecting expanding use in diverse food and other packaging containers, as well as efforts on the part of manufacturers to develop more durable applications. The use of PLA in containers is based on the material's ability to compete with conventional materials such as PET and polystyrene on the basis of both cost and performance. Additional gains will be contingent on the development of PLA with improved resistance to heat and impact. Efforts to improve certain properties have generated interest in blending the material with additives and other polymers to create new grades suitable for various end uses. Potentially large applications include coated paperboard and personal hygiene products.

Bioplastics are also used to a lesser degree in blow molded and other molded products. Demand for bioplastic bottles will increase due to expanded use in the bottling of water, milk, and juices. Although use of PLA bottles will remain limited due to performance issues,

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TABLE IV-2

BIOPLASTIC FILM DEMAND BY PRODUCT & RESIN
(million pounds)

Item	2001	2006	2011	2016	2021
Plastic Film Demand	12	15	18	22	28
% bioplastics					
Bioplastic Film Demand					
By Product:					
Packaging Film					
Bags & Other Film					
By Resin:					
Polylactic Acid					
Starch-Based					
Cellulose					
Bio-Based Polyethylene					
Degradable Polyesters					
Other					
% film					
Bioplastics Demand					

SAMPLE
TABLE

CHART V-1

BIOPLASTICS MARKET SHARE, 2011
(\$305 million)



SAMPLE
CHART

Sample Profile, Table & Forecast

TABLE III-4
POLYLACTIC ACID DEMAND BY MARKET
 (million pounds)

Item	2001	2006	2011	2016	2021
SAMPLE TABLE					
Polylactic Acid Demand					
Packaging:					
Molded Containers					
Film					
Other					
Nonpackaging:					
Nonwovens					
Foodservice Disposables					
Textiles					
Other					

COMPANY PROFILES

Cereplast Incorporated
 300 Continental Boulevard, Suite 100
 El Segundo, CA 90245
 310-615-1900
 http://www.cereplast.com

Revenues: \$...
 North America...
 Employment...

Key Products...
 plastic resins...
 technology...
 biodegradable/compostable...
 manufacturing...

SAMPLE PROFILE

Cereplast is engaged primarily in the development, manufacture, and sale of biologically based resins for use in blown film, injection molding, thermoforming, blow molding, extrusion, and other conventional converting processes. In addition, the Company markets finished products made from its resins.

The Company is active in the US bioplastics market via the manufacture of certain biologically based resins. As of December 2011, 12 customers had launched or were about to introduce new products based on Cereplast's resins. Among Cereplast's biologically based resins are biodegradable/compostable plastic resins, which are sold under the CEREPLAST COMPOSTABLES and CEREPLAST SUSTAINABLES brand names. CEREPLAST COMPOSTABLES resins are used as alternatives to petroleum based resins in single use disposables and packaging applications. These resins are designed to break down in less than 180 days in an industrial compost facility. CEREPLAST COMPOSTABLES resins are gluten free and composed of starches from such plant materials as corn, tapioca, wheat, potatoes, and soy

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"Over the past decade, the packaging market has generally dominated demand for PLA resins. By 2011, however, the PLA market was nearly evenly split between packaging and nonpackaging end uses. Going forward, nonpackaging applications are projected to advance at a more rapid pace, doubling to 128 million pounds in 2016. The greatest gains in this market are expected in the nonwovens segment, where PLA-based nonwovens may serve as ..."
 --Section III, pg. 58

OTHER STUDIES

World Emulsion Polymers

Global demand for emulsion polymers is forecast to rise 5.1 percent per year to 13.3 million metric tons (dry basis) in 2016. In developing nations such as China and India, demand will benefit from strong economic growth and increased penetration of waterborne technology in the coatings and adhesives industry. This study analyzes the \$26.1 billion world emulsion polymer industry, with forecasts for 2016 and 2021 by market, polymer, world region and for 15 major countries. The study also evaluates company market share and profiles industry participants.

#2929 August 2012 \$5900

High Performance Composites

US demand for polymer materials containing advanced fiber reinforcements is forecast to rise almost 15 percent per year to \$10.2 billion in 2016. Aerospace will remain the dominant and fastest growing market, followed by the energy market. Carbon will continue as the dominant and most rapidly growing fiber, followed by S-glass. This study analyzes the \$5.1 billion US high performance composite industry, with forecasts for 2016 and 2021 by fiber, market and resin. The study evaluates company market share and profiles industry players.

#2905 June 2012 \$4900

Silicones

US demand for silicones is forecast to climb 5.6 percent annually to \$4.1 billion in 2016. Silicone resins and elastomers will be the fastest growing products, with elastomers overtaking silicone fluids as the largest segment by 2016. The industrial market will remain dominant while the construction segment grows the fastest as it rebounds from previous declines. This study analyzes the \$3.1 billion US silicone industry, with forecasts for 2016 and 2021 by product, market and application. It also evaluates company market share and profiles industry players.

#2879 April 2012 \$4900

World Rubber

Global rubber consumption is forecast to rise 4.3 percent annually through 2015 to 30.5 million metric tons, driven by increasing tire output as global motor vehicle production accelerates from a weak base. The Asia/Pacific market will remain dominant and grow the fastest. Non-tire rubber sales will outpace growth in tire rubber sales. This study analyzes the 24.8 million metric ton world rubber industry, with forecasts for 2015 and 2020 by market, world region and for 30 countries. The study also evaluates company market shares and profiles industry players.

#2843 March 2012 \$5800

World Bioplastics

Global demand for biodegradable and bio-based plastics will more than triple through 2015. While excellent growth is forecast for biodegradable plastics such as starch-based resins and PLA, bio-based polyethylene will be the primary driver of demand. Western Europe will remain the largest outlet for bioplastics. This study analyzes the 300,000 metric ton world bioplastic industry, with forecasts for 2015 and 2020 by product, market, world region and 16 countries. The study also evaluates company market share and profiles industry players.

#2823 November 2011 \$6100

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- Chemicals • Plastics • Life Sciences • Packaging • Building Materials • Security & Electronics • Industrial Components & Equipment • Automotive & Transportation Equipment • Household Goods • Energy/Power Equipment

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