

Polyhydroxyalkanoate (PHA) Market, By Application (Packaging, Food Services, Bio-medical, Agriculture) & Raw Material — Global Trends & Forecasts to 2018

<https://marketpublishers.com/r/PC60E49B851EN.html>

Date: April 2013

Pages: 195

Price: US\$ 4,650.00 (Single User License)

ID: PC60E49B851EN

Abstracts

Rising demand of biodegradable materials, positive attitude of governments towards green procurement policies, and rising oil prices are attracting companies to invest in PHA (Polyhydroxyalkanoate) market. Many large companies such as Meredian (U.S.), Ecomann (China), and Bio-on (Italy) are focusing on increasing production capacities.

Large number of companies, particularly small and middle-sized ones, initiated the experimental and industrialized manufacturing of all types of PHAs. PHA can be produced using various renewable raw materials. Currently, majority of PHA is produced using plant sugar, which can be easily obtained from sugarcane, corn sugar, and sugar beet, making it an ideal raw material for PHA. Considerable amount of PHA is also produced using plant or vegetable oils such as soybean oil, palm oil, and corn oil. Waste lipids and milk whey are the other raw materials at experimental stage and can be commercialized soon.

Although the existing PHA plant capacities are underutilized at present, the companies are still planning for further capacity expansions. Analyzing the wide range of possible applications and upcoming trends of biodegradable plastics, companies are expecting significant growth in PHA demand in the near future. Currently, high prices and performance issues are the two major restraints for PHA market. Generally, the cost of production of biodegradable plastics such as PHA is 20% to 80% higher than the conventional plastics. This is primarily due to the high polymerization cost of biodegradable plastics as most of the processes are still in the developmental stage. PHA is at its initial stage of technology cycle and not yet achieved economies of scale. The market is at a stage where there is high capacity but low consumption. Most of the players are into research and development for increasing the performance of their

produced PHA.

In future, with increase in production, the prices will come down. Companies trying to produce PHA in near future are opting for increasing the performance of their products through investments in R&D. This is to ensure that the new products developed are more distinguished and revolutionary in terms of features than the ones already available. Lower prices and improved performance of PHA will boost its demand in future.

The report studies PHA market in all major regions namely North America, Europe, Asia-Pacific, and Rest of the World (Latin America and Middle East & Africa). PHA applications such as packaging, food services, bio-medical, agriculture, and others have been identified and analyzed. The report segments the global as well as all regional markets by applications. The report also details and estimates the shares of various sources of production of PHA.

This report analyzes various marketing trends and establishes the most effective growth strategy in the market. It identifies market dynamics such as drivers, restraints, opportunities, burning issues, and winning imperatives. Major companies such as Metabolix Inc. (U.S.), Meredian Inc. (U.S.), Biomer (Germany), Tianjin GreenBio Materials Co. Ltd (China), Shenzhen Ecomann Technology Co. Ltd (China), etc. have also been profiled in this report.

For this report, various secondary sources such as bioplastics and chemical magazines, encyclopedia, directories, technical handbooks, company annual reports, industry association publications, articles, trade websites, and databases have been referred to identify and collect information useful for this extensive commercial study. The primary sources - experts from related industries and suppliers -; have been interviewed to obtain and verify critical information as well as to assess the future prospects and market estimations.

Scope of the report

On the basis of geography:

North America

Asia-Pacific

Europe

ROW

On basis of applications:

Packaging

Food services

Bio-medical

Agriculture

Other applications

Contents

1 INTRODUCTION

- 1.1 KEY TAKE AWAYS
- 1.2 REPORT DESCRIPTION
- 1.3 MARKETS COVERED
- 1.4 STAKE HOLDERS
- 1.5 RESEARCH METHODOLOGY
 - 1.5.1 MARKET SIZE
 - 1.5.2 KEY DATA POINTS TAKEN FROM SECONDARY RESOURCES
 - 1.5.3 LIST OF SECONDARY DATA SOURCES
 - 1.5.4 KEY DATA POINTS TAKEN FROM PRIMARY SOURCES
 - 1.5.5 ASSUMPTIONS MADE FOR THIS REPORT

2 EXECUTIVE SUMMARY

3 PREMIUM INSIGHTS

- 3.1 MARKET SEGMENTATION
- 3.2 EUROPE & NORTH AMERICA – BEST MARKETS TO INVEST
- 3.3 MARKET REVENUE TRENDS, BY GEOGRAPHY
- 3.4 EUROPE CONTINUES TO DOMINATE THE MARKET
- 3.5 PACKAGING – THE MAJOR PHA APPLICATION
- 3.6 CONSUMPTION TRENDS, BY APPLICATIONS
- 3.7 MAXIMUM NUMBER OF DEVELOPMENTS IN 2012
- 3.8 MAXIMUM R&D IN EUROPE
- 3.9 PHA PRODUCT SPECIFICATIONS

4 MARKET OVERVIEW

- 4.1 INTRODUCTION
- 4.2 VALUE CHAIN
- 4.3 MARKET DYNAMICS
 - 4.3.1 BURNING ISSUES
 - 4.3.1.1 Under-utilization of PHA producing plants
 - 4.3.1.2 Technology still in its initial phase
 - 4.3.2 DRIVERS
 - 4.3.2.1 Positive attitude of governments toward green procurement policies

4.3.2.2 Vast availability of renewable and cost effective raw materials

4.3.2.3 Biodegradability driving the consumption

4.3.2.4 Increasing concerns for human health and safety

4.3.2.5 Rising oil prices driving bio-based materials

4.3.3 RESTRAINTS

4.3.3.1 High price compared to conventional polymers

4.3.3.2 Performance issues

4.3.4 OPPORTUNITIES

4.3.4.1 Increasing scope in end-user segments

4.3.4.2 New raw materials

4.3.4.3 Potential for cost reduction through economy of scale

4.3.4.4 Under penetration in Asia-Pacific countries

4.3.5 WINNING IMPERATIVES

4.3.5.1 Focus on products development and innovation

4.4 PORTER'S FIVE FORCES ANALYSIS

4.4.1 DEGREE OF COMPETITION

4.4.2 SUPPLIERS' POWER

4.4.3 BUYERS' POWER

4.4.4 THREAT OF SUBSTITUTES

4.4.5 THREAT OF NEW ENTRANTS

4.5 PATENT ANALYSIS

5 SOURCES OF PHA PRODUCTION

5.1 INTRODUCTION

5.2 GENERAL PRODUCTION PROCESS

5.2.1 CHOICE OF RAW MATERIALS

5.2.2 PHA COST BY RAW MATERIALS

5.2.3 STRAINS SELECTION

5.2.4 BIOPROCESSES & DOWNSTREAM PROCESSING

5.3 PLANT SUGAR

5.4 PLANT OIL

5.5 WASTE LIPIDS

5.6 MILK WHEY

5.7 OTHER FEASIBLE SOURCE OF PRODUCTION

5.7.1 ENGINEERED MICROBES

5.7.2 SWITCHGRASS

5.7.3 TOBACCO PLANT

5.7.4 OILSEED CROP

6 GLOBAL PHA MARKET, BY APPLICATIONS

6.1 INTRODUCTION

6.2 SHIFTING TRENDS TOWARDS BIOPLASTICS

6.3 MARKET SHARE BY APPLICATIONS

6.3.1 PACKAGING

6.3.1.1 Introduction

6.3.1.2 Rigid packaging to have highest PHA usage in this application

6.3.1.3 Europe: Largest market for packaging applications

6.3.2 FOOD SERVICES

6.3.2.1 Demand for packaged food items are rising

6.3.2.2 North America will be the largest market for food services application

6.3.3 BIO-MEDICAL

6.3.3.1 Biodegradability driving PHA consumption in bio-medical applications

6.3.3.2 Bio-medical application to have highest growth rate in Asia-Pacific

6.3.4 AGRICULTURE

6.3.4.1 PHA helps in solving disposal problems

6.3.4.2 Rising PHA application in agriculture will drive the market

6.3.5 OTHER APPLICATIONS

6.3.5.1 Specialty applications of PHA are increasing

6.3.5.2 Asia-Pacific to have the highest growth for other applications market

7 PHA MARKET, BY GEOGRAPHY

7.1 INTRODUCTION

7.2 GLOBAL PHA CONSUMPTION V/S REVENUE

7.3 MARKET SHARE ANALYSIS, BY GEOGRAPHY

7.4 EUROPE AND NORTH AMERICA TO DRIVE THE GLOBAL PHA MARKET

7.4.1 NORTH AMERICA

7.4.1.1 Rising environmental concerns driving North American market

7.4.1.2 Corn present in abundance in North America

7.4.1.3 Bio-medical and food services application to drive PHA consumption in North America

7.4.2 EUROPE

7.4.2.1 European PHA market driven by stringent regulations

7.4.2.2 Milk whey and sugar beet most promising raw materials in Europe

7.4.2.3 Packaging application to drive the European PHA market

7.4.3 ASIA-PACIFIC

- 7.4.3.1 Waste disposal is a serious problem in Asia-Pacific
- 7.4.3.2 Huge reserves of sugarcane and palm oil in Asia-Pacific
- 7.4.3.3 Packaging applications to drive growth in Asia-Pacific
- 7.4.4 ROW
 - 7.4.4.1 Brazil – Emerging market
 - 7.4.4.2 Brazil – Largest sugarcane producer
 - 7.4.4.3 Moderate growth rate expected in ROW

8 COMPETITIVE LANDSCAPE

8.1 STRATEGIC DEVELOPMENTS

- 8.1.1 MAXIMUM DEVELOPMENTS IN 2012
- 8.1.2 NORTH AMERICA: REGION WITH MAXIMUM DEVELOPMENTS
- 8.1.3 EXPANSION: MOST POPULAR GROWTH STRATEGY
- 8.1.4 NEW PRODUCTS LAUNCH/DEVELOPMENTS
- 8.1.5 PARTNERSHIPS
- 8.1.6 R&D
- 8.1.7 OTHER DEVELOPMENTS

9 COMPANY PROFILES (OVERVIEW, FINANCIALS, PRODUCTS & SERVICES, STRATEGY, AND DEVELOPMENTS)

- 9.1 BIOMATERA
- 9.2 BIOMER
- 9.3 BIO-ON SRL
- 9.4 KANEKA CORPORATION
- 9.5 MEREDIAN INC.
- 9.6 METABOLIX INC.
- 9.7 NEWLIGHT TECHNOLOGIES, LLC
- 9.8 PHB INDUSTRIAL S.A.
- 9.9 POLYFERM CANADA INC.
- 9.10 SHENZHEN ECOMANN BIOTECHNOLOGY CO. LTD
- 9.11 TIANAN BIOLOGIC MATERIALS CO. LTD
- 9.12 TIANJIN GREENBIO MATERIALS CO. LTD (Details on Overview, financials, product & services, strategy, and developments might not be captured in case of unlisted companies.)

APPENDIX

U.S. PATENTS
EUROPE PATENTS
JAPAN PATENTS
CHINA PATENTS

List Of Tables

LIST OF TABLES

TABLE 1 COMPARISON OF PHA PRODUCTS, BY COMPANIES

TABLE 2 GLOBAL PHA PRODUCTION CAPACITY, BY COMPANIES, 2011 – 2013
(MT/YEAR)

TABLE 3 NORTH AMERICA & EU REGULATIONS

TABLE 4 CONVENTIONAL PLASTICS: HEALTH CONCERNS

TABLE 5 PHA MARKET GROWTH RATE, BY APPLICATIONS, 2013 – 2018

TABLE 6 NEW PRODUCTS DEVELOPMENT

TABLE 7 PHA: PRODUCTION PROCESS & RAW MATERIAL, BY COMPANIES

TABLE 8 PHA: COST ANALYSIS OF RAW MATERIAL

TABLE 9 GLOBAL PLASTICS MARKET VOLUME, 2011 – 2018 ('000 MT)

TABLE 10 GLOBAL PHA MARKET VOLUME, BY APPLICATIONS, 2011 – 2018 (MT)

TABLE 11 GLOBAL PHA MARKET REVENUE, BY APPLICATIONS, 2011 – 2018
(\$THOUSAND)

TABLE 12 PACKAGING: PHA MARKET CONSUMPTION, BY TYPES, 2011 – 2018
(MT)

TABLE 13 OVERALL PACKAGING: PHA MARKET REVENUE, BY TYPES, 2011 –
2018 (\$THOUSAND)

TABLE 14 PACKAGING: PHA MARKET CONSUMPTION, BY GEOGRAPHY, 2011 –
2018 (MT)

TABLE 15 PACKAGING: PHA MARKET REVENUE, BY GEOGRAPHY, 2011 – 2018
(\$THOUSAND)

TABLE 16 FOOD SERVICES: PHA MARKET CONSUMPTION, BY GEOGRAPHY,
2011 – 2018 (MT)

TABLE 17 FOOD SERVICES: PHA MARKET REVENUE, BY GEOGRAPHY, 2011 –
2018 (\$THOUSAND)

TABLE 18 BIO-MEDICAL: PHA MARKET CONSUMPTION, BY GEOGRAPHY, 2011 –
2018 (MT)

TABLE 19 BIO-MEDICAL: PHA MARKET REVENUE, BY GEOGRAPHY, 2011 – 2018
(\$THOUSAND)

TABLE 20 AGRICULTURE: PHA MARKET CONSUMPTION, BY GEOGRAPHY, 2011
– 2018 (MT)

TABLE 21 AGRICULTURE: PHA MARKET REVENUE, BY GEOGRAPHY, 2011 – 2018
(\$THOUSAND)

TABLE 22 OTHER: PHA MARKET CONSUMPTION, BY GEOGRAPHY, 2011 – 2018
(MT)

TABLE 23 OTHER: PHA MARKET REVENUE, BY GEOGRAPHY, 2011 – 2018
(\$THOUSAND)

TABLE 24 GLOBAL PHA MARKET VOLUME (MT) & REVENUE (\$THOUSAND), 2011
– 2018

TABLE 25 PHA: MARKET CONSUMPTION, BY GEOGRAPHY, 2011 – 2018 (MT)

TABLE 26 PHA: MARKET REVENUE, BY GEOGRAPHY, 2011 – 2018 (\$THOUSAND)

TABLE 27 NORTH AMERICA: RAW MATERIAL AVAILABILITY ('000 MT)

TABLE 28 NORTH AMERICA: PHA MARKET CONSUMPTION, BY APPLICATIONS,
2011 – 2018 (MT)

TABLE 29 NORTH AMERICA: PHA MARKET CONSUMPTION, BY APPLICATIONS,
2011 – 2018 (\$THOUSAND)

TABLE 30 EUROPE: RAW MATERIAL AVAILABILITY ('000 MT)

TABLE 31 EUROPE: PHA MARKET CONSUMPTION, BY APPLICATIONS, 2011 –
2018 (MT)

TABLE 32 EUROPE: PHA MARKET CONSUMPTION, BY APPLICATIONS, 2011 –
2018 (\$THOUSAND)

TABLE 33 APAC: RAW MATERIAL AVAILABILITY ('000 MT)

TABLE 34 APAC: PHA MARKET CONSUMPTION, BY APPLICATIONS, 2011 – 2018
(MT)

TABLE 35 APAC: PHA MARKET CONSUMPTION, BY APPLICATIONS, 2011 – 2018
(\$THOUSAND)

TABLE 36 ROW: RAW MATERIAL AVAILABILITY ('000 MT)

TABLE 37 ROW: PHA MARKET CONSUMPTION, BY APPLICATIONS, 2011 – 2018
(MT)

TABLE 38 ROW: PHA MARKET CONSUMPTION, BY APPLICATIONS, 2011 – 2018
(\$THOUSAND)

TABLE 39 COMPETITIVE DEVELOPMENTS, BY APPROACHES, 2009 – 2013

TABLE 40 EXPANSIONS, 2009 – 2013

TABLE 41 NEW PRODUCTS LAUNCH/DEVELOPMENTS, 2010 – 2013

TABLE 42 PARTNERSHIPS, 2012 – 2013

TABLE 43 R&D, 2010 – 2012

TABLE 44 OTHER DEVELOPMENTS, 2009 – 2013

TABLE 45 BIOMATERA: PRODUCT SPECIFICATION

TABLE 46 BIOMER: PRODUCT SPECIFICATIONS

TABLE 47 BIOMER: PRODUCT GRADES & ITS APPLICATIONS

TABLE 48 BIO-ON: PRODUCT SPECIFICATION

TABLE 49 KANEKA: PRODUCT SPECIFICATION

TABLE 50 MEREDIAN: PRODUCT SPECIFICATION

TABLE 51 METABOLIX: PRODUCT DESCRIPTION

TABLE 52 NEWLIGHT: PRODUCT SPECIFICATION
TABLE 53 PHB INDUSTRIAL: PRODUCT DESCRIPTION
TABLE 54 POLYFERM: PRODUCTS SPECIFICATION
TABLE 55 POLYFERM: VERSAMER PHA NAMING CONVENTION
TABLE 56 ECOMANN: PRODUCT SPECIFICATION
TABLE 57 TIANAN: PRODUCT SPECIFICATION
TABLE 58 TIANAN: ENMAT GRADES & ITS APPLICATIONS
TABLE 59 TIANJIN: PRODUCT SPECIFICATION

List Of Figures

LIST OF FIGURES

FIGURE 1 PHA: MARKET CONSUMPTION, BY APPLICATIONS & GEOGRAPHY, 2012 (MT)

FIGURE 2 GLOBAL PHA MARKET SEGMENTATION

FIGURE 3 PHA MARKET SCENARIO IN DIFFERENT REGIONS

FIGURE 4 PHA MARKET REVENUE TREND, BY GEOGRAPHY, 2011 – 2018 (\$THOUSAND)

FIGURE 5 GLOBAL PHA MARKET SNAPSHOT

FIGURE 6 PHA MARKET CONSUMPTION, BY APPLICATIONS & GEOGRAPHY, 2013 (MT)

FIGURE 7 PHA CONSUMPTION, BY APPLICATIONS, 2013 – 2018 (MT)

FIGURE 8 YEAR WISE STRATEGIC DEVELOPMENTS

FIGURE 9 PATENT ANALYSIS, BY GEOGRAPHY, 2009 – 2012

FIGURE 10 VALUE CHAIN FOR PHA MARKET

FIGURE 11 IMPACT OF GLOBAL PHA MARKET DRIVERS

FIGURE 12 WASTE DISPOSAL METHODS FOR NON-BIODEGRADABLE PLASTICS & MATERIALS

FIGURE 13 OIL IMPORT PRICE ESTIMATES, 2000 – 2030

FIGURE 14 IMPACT OF GLOBAL PHA MARKET RESTRAINTS

FIGURE 15 PRICE COMPARISON – CONVENTIONAL & UNCONVENTIONAL PLASTICS

FIGURE 16 IMPACT OF GLOBAL PHA MARKET OPPORTUNITIES

FIGURE 17 PORTER'S FIVE FORCES FOR PHA MARKET

FIGURE 18 PATENT ANALYSIS, BY GEOGRAPHY, 2009 – 2012

FIGURE 19 PATENT ANALYSIS, BY YEARS, 2009 – 2012

FIGURE 20 NUMBER OF PATENTS, BY COMPANIES, 2009 – 2012

FIGURE 21 PHA RAW MATERIAL AVAILABILITY

FIGURE 22 PHA PRODUCTION PROCESS

FIGURE 23 PHA PRODUCTION FROM SUGAR CANE

FIGURE 24 PHA PRODUCTION FROM PLANT(PALM) OIL

FIGURE 25 PHA PRODUCTION FROM WASTE LIPIDS

FIGURE 26 PHA PRODUCTION FROM WASTE LIPIDS

FIGURE 27 PHA PRODUCTION FROM MILK WHEY

FIGURE 28 PHA MARKET SEGMENTATION, BY APPLICATIONS

FIGURE 29 GLOBAL PHA MARKET SHARE, BY APPLICATIONS, 2012

FIGURE 30 PHA MARKET SEGMENTATION, BY GEOGRAPHY

FIGURE 31 PHA: MARKET CONSUMPTION, BY GEOGRAPHY, 2012

FIGURE 32 GLOBAL PHA MARKET DEVELOPMENTS, BY COMPANIES, 2009 – 2013

FIGURE 33 COMPETITIVE DEVELOPMENTS, BY TYPES, 2009 – 2013

FIGURE 34 GROWTH STRATEGIES OF TOP 2 COMPANIES, 2009 – 2012

FIGURE 35 DEVELOPMENTS, BY REGIONS, 2009 – 2013

FIGURE 36 EXPANSIONS, 2009 – 2013

I would like to order

Product name: Polyhydroxyalkanoate (PHA) Market, By Application (Packaging, Food Services, Bio-medical, Agriculture) & Raw Material — Global Trends & Forecasts to 2018

Product link: <https://marketpublishers.com/r/PC60E49B851EN.html>

Price: US\$ 4,650.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/PC60E49B851EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970

