

Biomaterials China News

GUARANTEED EXCLUSIVE ANALYSIS



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China's biomaterials industry is emerging rapidly!

Biomaterials, referring to those use renewable materials as raw materials, have developed rapidly in China in recent years and are expected to have a promising market in the future, though the industry is an emerging one.

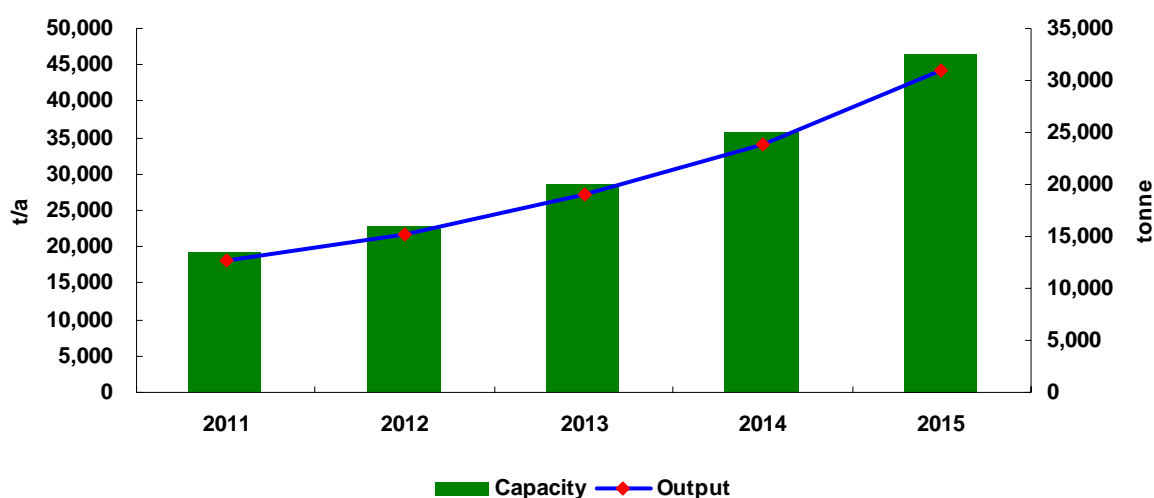
Biomaterials are mainly divided into four types in the news: natural bio-based materials, microbial synthetic materials, chemical synthesis of bio-based materials and bio-nylon. Undoubtedly, the application of biomaterials is the trend in the future, thanks to many reasons, such as environmental protection, excellent properties of biomaterials, etc. However, many domestic producers in this industry still face the gloomy domestic demand due to high production costs and weak awareness of environmental production currently.

Yet, there are some types of biomaterials achieving great process, and even have been industrialized by now, such as Poly (lactic acid) (PLA), Polyhydroxyalkanoate (PHA) and Poly (butanediol succinate) (PBS), some starch-based biomaterials and some other chemical synthesis of bio-based materials. Many domestic processors or investors still have high expectation on domestic market and continue to expand their capacities or invest in biomaterials, aiming to occupy leading advantage in domestic and overseas markets in the future. Fortunately, the Chinese government has done many things to support them.

By contrast, the biomaterials market in developed countries, such as the U.S & the EU, has developed much better, thanks to the advanced technology and stricter environmental protection. Therefore, most domestic biomaterials processors export their products to developed countries, competing with multinational biomaterials companies directly!

PLA, one biodegradable material, is the primary example: in China, total production capacity of PLA has reached 19,100t/a in April 2011, and is estimated to reach 46,556t/a in 2015, with CAGR of 38.91%, which is aided by the market situation: the oil sources are running out rapidly currently; whilst the Chinese government pays more attention to the reduction of carbon emissions in recent years, especially after the Copenhagen Conference in December 2009.

Figure: Projected capacity and output of PLA in China, 2011-2015



Source: CCM International

For example, the Chinese government launched Plastic Shopping Bags National Mandatory Standards in May 2008, aiming to limit the

production, sales and use of plastic shopping bags. And at present, the Chinese government is considering forbidding the use of plastic shopping bags.

It's a huge market: China's plastic film output has reached 7.99 million tonnes (including 1.57 million tonnes for agriculture plastic film), compared with the figure of 20 million tonnes for the total output in the world as estimated, which provides a development opportunity for PLA.

Table: Governmental preferential policies on bioplastics production and consumption

Policy name	Published time	Main content
Inefficient Production Capacity of Process and Product Catalogue	1999.01	Ruling that disposable foaming plastic cutlery shall be eliminated before the year of 2000.
Regulation	2006	New high technology of bioplastics indentified by local governments can get national financial support.
Plastic Shopping Bags National Mandatory Standards	2008.05	1.Forbidding production, sales and use of ultra-thin plastic shopping bags (Thinkness \leq 0.025 millimeter). 2. Plastic shopping bags can't be supplied for free in all retail markets. 3. Strengthening supervision on production, sales, and use of plastic bags.
Policy to Promote Bio-industry to Speed up its Development	2009.06	1. Encourage development of bioplastics enterprises. 2. High-tech enterprise qualified by local science and technology bureau can enjoy tax preference for three years. 3. Strengthening independent research and development capacity.
General Technical Requirements of Plastic Disposable Tableware (GB18006.1-2009)	2009.12	1. Degradability standard of degradable plastics shall reach new standard of GB/T 20197-2008, replacing GB/T 18006.2-1999. 2. Ruling that starch content of starch-based disposable plastic tableware shall exceed 40%. 3.Ruling that disposable plastic tableware shall be marked with "Degradable" or "Non-degradable".

Source: CCM International

Of course, PLA is not the only biomaterial to substitute petroleum-based plastics, and it has to face challenges from other biodegradable materials, such as PHA and PBS. Many companies seek to expand their capacities of PHA and PBS respectively, aiming to occupy the superiority in the competition. For example, in early March 2011, China's top three producers of PHA resin, including Shenzhen Ecomann Technology Co., Ltd. (Shenzhen Ecomann), Ningbo Tian'an Biological Materials Co., Ltd. (Ningbo Tian'an) and Tianjin Green Bioscience Co., Ltd. (Tianjin Green), expressed their intentions to expand their PHA capacity in the near future. While Kingfa Sci.& Tech, one of top three PBS producers, revealed that it will expand its capacity to 240,000t/a in 2015 from 5,000t/a in 2011.

The above examples show that the production of biomaterials have developed rapidly in China in recent years, and many processors increase their efforts to exploit the downstream market, such as environmentally friendly PLA pens and PLA food containers, etc.

However, the market is still immature in China, due to the high production cost and sales prices of biomaterials products. So most domestic biomaterials companies export their products to overseas, and they will continue to increase their efforts in this direction in the near future. Therefore, keeping abreast of the dynamics of China's biomaterials companies is very important for the multinational companies.

It's no doubt that China's market is promising in the future, and many domestic processors make persistent efforts to improve the technology, aiming to cut down the cost, thus exploiting the market. A primary example is Anqing Hexing, also a leading PBS processor, has succeeded in getting a National High Technology Research and Development Programme (863 programme) in September 2011, aiming to optimize the fermentation process of succinic acid and develop the PBS efficient polymerization process and materials processing technology by 2014. If Anqing Hexing succeeds, the company can expand its business not only in China but also in overseas markets easily.

By the way, the 863 programme is just one measure of the Chinese government to support the development of biomaterials, besides the programme, the government will take many other measures to boost the development of biomaterials, such as the 12th Five-Year Plan of new material, the plan will be published in the near future, according to which the government plans to increase the value of the new materials industry (including biomaterials industry) to about USD310 billion by 2015. Therefore, the period of the 12th Five-Year Plan is a key time for the development of biomaterials industry.

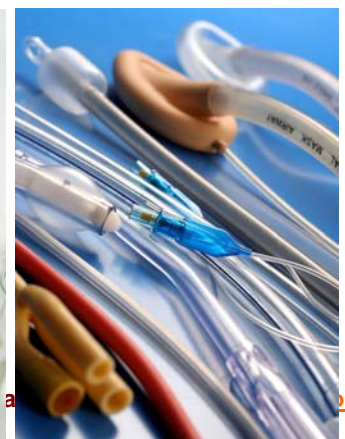
Such a plan encourages many domestic biomaterials processors, such as Shenzhen Rainbow, though the company's sales revenue of starch-based materials in H1 2011 was down 12.51% over H1 2010, it expressed its intention to find new business opportunities of the starch-based materials, especially opening the Chinese market.

Whilst for those multinational companies which seek to expand their capacities and business in China, the government's dynamics and direction is very important. NatureWorks, the largest PLA producer in the world, is the primary instance. The company expressed its intension to build a plant in China, but it has not gotten the approval from the Chinese government until now.

Of course, where to build the plant is very important: some regional governments will provide preferential policies to introduce biomaterials companies while some not or even forbid the building of biomaterials plant. For example, Zhejiang Xinfu, one of the largest PBS processor, has to suspend its PBS production and relocate its plant from Zhejiang to Chongqing in June 2011. Actually, the company just started its investment in PBS production in 2007, and launched its new production facilities in July 2011, therefore, such relocation will cause significant loss for the company and its market share may be taken over by its formidable rivals — Kingfa and Anqing Hexing.

Therefore, China's biomaterials market is promising, and focusing on the country's biomaterials industry is a good way for China's and multinational processors to cooperate or compete with each other!

Biomaterials China News, including 12 to 14 topics in one issue per month, will bring you the latest information on the latest market dynamics, company dynamics, new biomaterials products, new biomaterials technology development, new legislations and policies and raw material supply dynamics that are shaping the market.



Main Content

Market Dynamics

Report the situations, such as supply & demand, new products, recent investment, large projects, policy, and monitoring of Chinese biomaterials market. Analyze the impacts or reasons, explain how and why supply and demand of biomaterials will change, and forecast the trends in the future.

- **A latest event or news** in biomaterials market.
- **Driving forces**, including biomaterials market supply and demand, development trend, growth pole, etc., and how they influence the event.
- **Potential and current influence** of the event
- **The companies' responses, actions and strategies or the associations' opinions** to the event
- **Market trend** for the future

Price Update

Provide the latest market price of important biomaterials products every month in China or in some provinces or key companies. Figure out the factors behind the price fluctuations, including the dynamics of supply and demand, raw materials--supply and price, and policies, etc.

- **Figures** showing price trends of biomaterials in recent months, when it falls? When it rises? What is the degree of price drop or rise? *CCM International will update the price every month and add it into figures and tables.*
- **Analysis** of the factors influencing price fluctuation and how the factors work.
- **Exclusive prediction** of the price trend in the near future in China or in certain provinces of China.
- If necessary, the price fluctuation of competing products will be provided.

Company Dynamics

Cover the latest company dynamics, including company strategies, market expansion, business situation, marketing, cooperation, etc.

- **Introduce the updated news** occurring in biomaterials companies in China

- **Company's strategies** to capture market share
- **Potential and current influence** to biomaterials
- **Responses** from other companies, experts and associations
- **Company's strategies** for the future

Import & Export Analysis

Provide the latest information about Import & Export of biomaterials, including volumes, prices, and the influencing factors.

- **Introduction** to the import & export situation
- **Influencing factors**—find out and analyze the factors behind the situation, including the supply & demand, policy, etc.
- **Feedback from consumers, wholesalers, retailers, and supermarkets**
- **Analysis of the future trend of the import & export**

Raw Material Supply

Keeping track of latest situation of raw material supply and analyzing what the influencing factors are, and how they influence the development of sugar and sweetener industry.

- **A new story** of raw material
- **Driving forces** behind the story --- viewpoints of upstream processors
- **How they affect the production of sugar and sweeteners?**—opinions from relevant companies and associations
- **Trend of raw material supply** in the short-term future

Special report

Some irregular reports about some special topics, including:

- **Interview of** insiders from domestic companies, associations, distributors or the government, revealing their views about domestic or overseas biomaterials industry or the influencing factors.
- **Depth report of** the some government policies or regulations,
- **Survey about** the development of biomaterials industry.

**Gain latest business news,
be informed of company dynamics**

What is the scope?

- **Raw Material**
- **Raw material including** corn, potato and cassava, etc.
- **Biomaterials**
- **Natural bio-based materials:** starch (PSM), cellulose, protein, chitin and lignin;
- **Microbial synthetic materials:** microbial polysaccharides; microbial polyesters (PHA products);
- **Chemical synthesis of bio-based materials:** polylactic acid (PLA); poly butylene succinate (PBS); poly propylene carbonate (PPC); polyvinyl alcohol (PVA); polyethylene terephthalate (PTT); polyethylene terephthalate (PET); poly amino acids; poly phosphazene; poly anhydride.
- **Bio-nylon: polyamide** (PA, raw materials from castor oil, etc.); long-chain dicarboxylic acid (LDA)

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