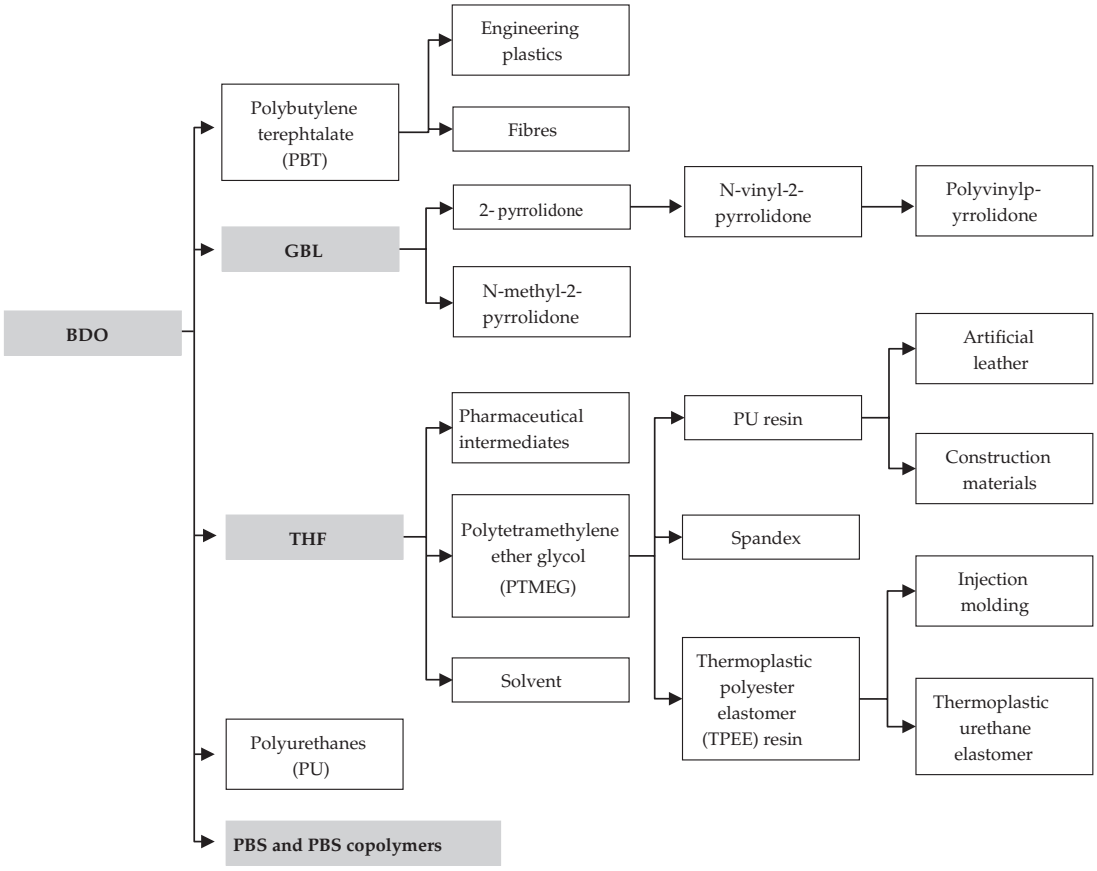
This section contains certain information and statistics concerning the BDO, PBS and PBS Copolymer industries in China. We have derived the information and data partly from Beijing Huajing Consulting Limited, Freedonia Custom Research Inc., publicly available information, official government publications and industry research reports, which have not been independently verified by us, the Joint Sponsors, the Underwriters or any of their respective affiliates and advisers. We have taken such care as we consider reasonable in the extraction, compilation and reproduction of such information. The information in such sources may not be consistent with information compiled by other institutions within or outside China. We make no representation as to the correctness or accuracy of such information and accordingly such information should not be unduly relied upon.

INTRODUCTION OF BDO

BDO, known by its chemical name of 1, 4-Butanediol, is a saturated carbon-4 straight-chain dibasic alcohol, having a molecular formula of $C_4H_{10}O_2$. BDO is a colorless and almost odorless viscous liquid at room temperature. It is an important basic organic chemical raw material and a feedstock of fine chemicals such as tetrahydrofuran/polytetramethylene ether glycol (THF/PTMEG), polybutylene terephthalate (PBT), gamma-butyrolactone (GBL), polyurethane (PU) and other solvents. These chemicals are widely used in fibres, engineering plastics, medicines, cosmetics, artificial leather, pesticides, plasticizers, hardener, solvent and rust remover etc. According to the Huajing Report prepared by Beijing Huajing, the immediate downstream product which accounts for the largest consumption of BDO in China is THF. It accounted for approximately 41.2% of total BDO consumption in China in 2009.

BDO is an acetylene-series chemical product of which production can be traced back to the 1930s. In the past few years, leveraged on the rapid development of downstream chemicals such as PBT, PU, PTMEG, THF and GBL, the BDO market has experienced significant growth. BDO is also a principal feedstock in the manufacture of PBS and PBS copolymers. (Further information on PBS and PBS copolymers is provided in the later paragraphs of this section). According to the Huajing Report prepared by Beijing Huajing, demand for BDO in China has increased from 141,000 tons to 252,000 tons between 2005 and 2009, representing a CAGR of 15.6%.

The diagram below illustrates the derivative and downstream product tree of BDO.



PBT

PBT is an immediate downstream product of BDO and is known by its chemical name of polybutylene terephthalate. It is a semi-crystalline, white or off-white thermoplastic polyester with high heat resistance and superior electrical insulation properties. PBT is suitable for a variety of applications including automotive headlamps and taillamps, encapsulation of transformers/motors/solenoids, capacitors and electronic components, circuit breakers, lamp sockets and connectors, etc.

GBL

GBL is an immediate downstream product of BDO and is known by its chemical name of γ-butyrolactone, having a molecular formula of $C_4H_6O_2$. It is a colorless and oily liquid at room temperature with a weak characteristic odor and is soluble in water. It offers excellent solvent quality with low toxicity and diminished environmental concerns.

GBL has a wide range of applications, including cosmetics, hair sprays, germicides and tablet binders. GBL is used for manufacturing N-methyl-2-pyrrolidone, a dipolar aprotic solvent which is used as intermediary for the synthesis of agrochemicals, pharmaceuticals, textile auxiliaries, plasticizers, stabilizers and specialty inks, and by the electronics industry for printed circuit board manufacturing. It is also used in the manufacture of 2-pyrrolidone, an intermediary product in the manufacture of polyvinylpyrrolidone, which in turn is used in the production of tablet binders, hair fixative preparations, adhesives, coatings and inks, photoresist, paper, photography, textiles and fibers applications.

THF

THF is an immediate downstream product of BDO and represents the most popular use for BDO. It is known by its chemical name of tetrahydrofuran, having a molecular formula of C_4H_8O. THF is a colorless, water miscible organic liquid with low viscosity at standard temperature and pressure.

THF is mainly used as a precursor to polymers and is often used to produce PTMEG, which in turn is a reactant for making other polymers. PTMEG is used in the manufacture of castable and thermoplastic polyurethanes, thermoplastic polyester elastomers and polyurethane fibers (spandex), which are commonly found in industrial and commercial end products, from caster wheels, industrial tires, mining screens, industrial belts, cable jacketing, hot-melt coatings hoses, tank and pipe liners, adhesives and sealants, to skate wheels, ski boots, transparent films for laminating, medical tubing, fabric and leather coatings and artificial leather. Due to its broad solvency for both polar and non-polar compounds, THF is used as a solvent in many pharmaceutical syntheses. In addition, THF's high volatility and very high purity facilitate solvent removal and recovery without leaving residues on the products.

PU

PU is an immediate downstream product of BDO and is known by its chemical name of polyurethane, having a molecular formula of $C_{25}H_{42}N_2O_6$. It was introduced commercially a long time ago into the market of high performance synthetic polymers. Its physical and chemical properties vary over a wide range, depending on the constituent monomers and reaction conditions. Therefore, PU is extremely versatile plastics, available in a variety of forms ranging from flexible or rigid foams to elastomers, coatings, adhesives, sealants, spandex fibers and hard plastic parts, etc.

PBS and PBS Copolymers

See paragraph headed "Introduction of degradable polymers" under this section.

BDO PRODUCTION TECHNOLOGY

At present, there are four major BDO production methods commonly employed, namely the REPPE Process, the DAVY Process, the butadiene acetoxylation process and the propylene oxide process. A brief comparison of each of the methods is as follows:

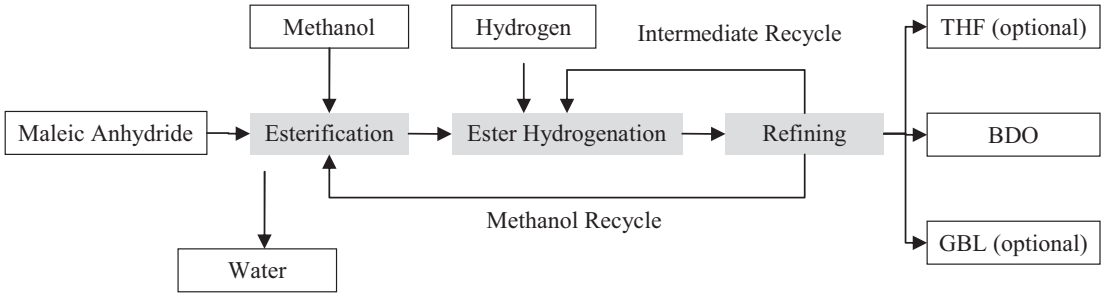
Production Method		Advantage	Disadvantage
REPPE Process	**Traditional**	– Mature technology – Short production process and high production efficiency – Low operating cost	– Feedstock acetylene is dangerous for long distance transport – Stringent operating conditions and high pressure in production – Limited availability of cheap acetylene – Expensive equipments
	Refined	– Mature technology – Short production process and high production efficiency – Active catalyst with long life – Low investment and suitable for mass production – Safe production process with low pressure	– Feedstock acetylene is dangerous for long distance transport – Limited availability of cheap acetylene
DAVY Process		– Low investment cost and production cost – Mild reaction conditions – High efficiency of esterification	– Long production process
Butadiene Acetoxylation Process		– Feedstock is widely available – Mild operating conditions – Little liquid waste produced – Co-production of THF	– Long and complicated production process – High investment cost – Energy consuming – Serious erosion of equipment
Propylene Oxide Process		– Catalyst has long life – Low investment cost – Simple production technology – Efficient utilization of stream from the production process	– More by-products produced

The global BDO industry has been shifting away from the acetylene-based REPPE process to other cheaper processes using propylene, butadiene, or butane/maleic anhydride as the principal feed material. According to the Huajing Report prepared by Beijing Huajing, in 2008, over 80% of BDO production capacity in the world was still employing the REPPE Process while most of the newly built BDO production facilities employed the DAVY Process.

DAVY PROCESS FOR BDO PRODUCTION

The DAVY Process can jointly produce BDO and two of its derivative products, namely THF and GBL, in adjustable ratios. It uses maleic anhydride as principal feedstock, which can be obtained by the oxidation of butane or benzene.

During the process, maleic anhydride is esterified with a solid esterification catalyst under a reaction column to form a di-methyl maleate intermediate ester which is then hydrogenated in the gaseous state to produce a mixture of BDO, GBL and THF. By varying the operating conditions and catalyst usage, the output ratio between BDO and THF can be adjusted to suit the needs of the producer. On the other hand, GBL is always produced during the production process and can either be recycled or extracted as required. The chart below illustrates the DAVY Process in BDO production.



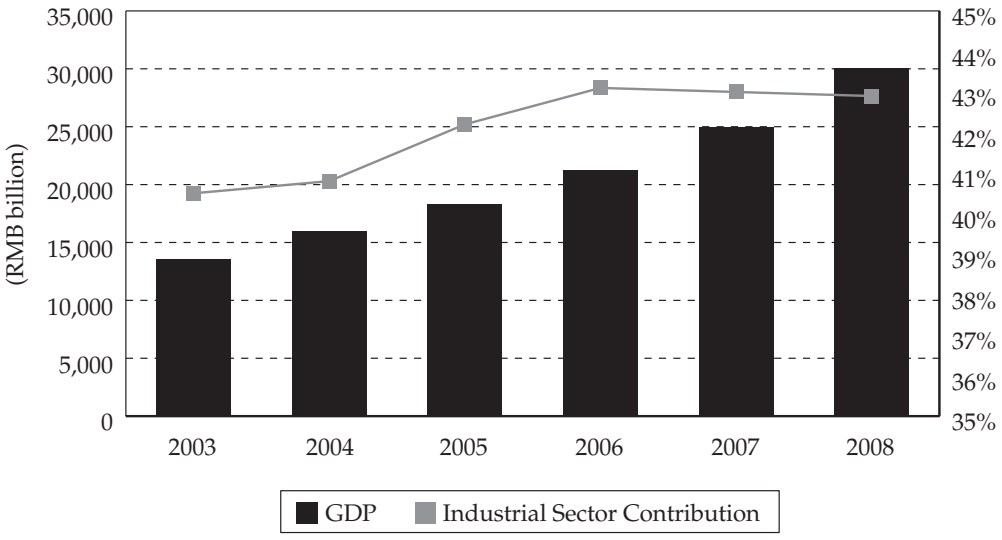
Source: DAVY Process Technology Limited

The DAVY Process generally requires a lower cost of investment and production. It is considered as an efficient, safe and reliable process among the four major BDO production methods commonly adopted nowadays and is capable of producing high-graded BDO with a higher purity level than those manufactured from REPPE Process.

CHINA CHEMICAL MATERIALS MARKET

Since BDO is an important basic organic chemical raw material and a feedstock of fine chemicals such as THF/PTMEG, PBT, GBL, PU and other solvents, its market demand is influenced by the overall development of China's economy and chemical industry. Leveraged on the rapid economic development of China in the past few years, China's industrial and chemical sector has also experienced accelerated growth. According to the China Statistical Yearbook, between 2003 and 2008, China's GDP contribution from industrial sector increased from approximately RMB5,495 billion to RMB12,911 billion, representing a CAGR of 18.6% and surpassing the CAGR of the overall GDP of 17.2%.

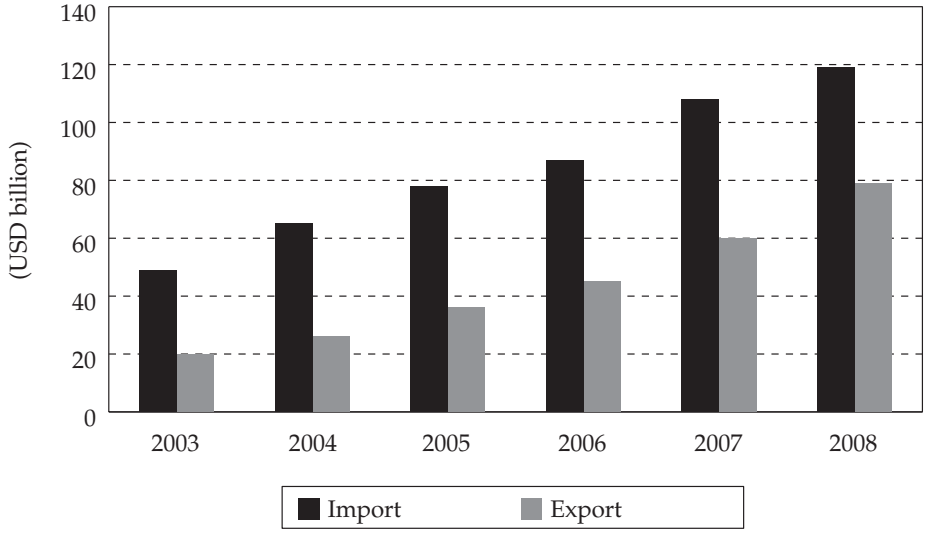
Gross Domestic Product of China



Source: China Statistical Yearbook 2009

Owing to the development of China's chemical manufacturing industry, import and export activities of chemicals and related products have also been enhanced. According to the China Statistical Yearbook, the total import of chemicals and related products in China has increased from approximately USD49 billion to approximately USD119 billion between 2003 and 2008, representing a CAGR of 19.4%. The total export of chemicals and related products in China has increased from approximately USD20 billion to approximately USD79 billion between 2003 and 2008, representing a CAGR of 31.6%

Import and Export of Chemicals and Related Products in China

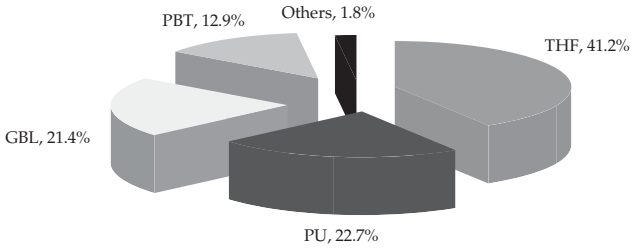


Source: China Statistical Yearbook 2009

CHINA BDO MARKET OVERVIEW

During the past few years, BDO has been mainly used for the production of THF, PU, GBL and PBT in China. The diagram below illustrates the composition of BDO demand in China in 2009.

Composition of BDO Demand in China in 2009

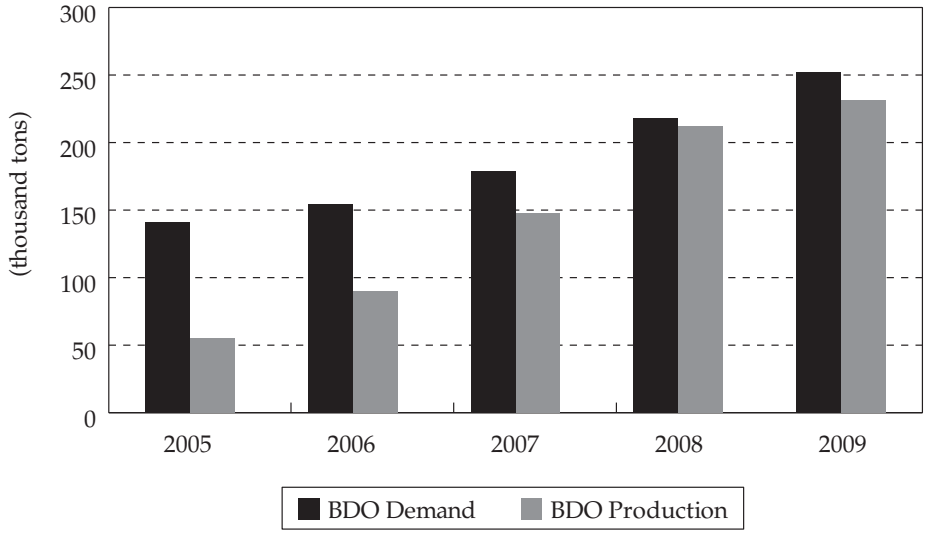


Source: Huajing Report

China's BDO manufacturing industry has experienced a rapid development in the past few years. Prior to such rapid development, most of the domestic BDO demand was fulfilled by the small-scale domestic production plants or imports. With the establishment of more well-developed domestic BDO manufacturers from 2001, domestic BDO production has increased significantly thereafter.

According to the Huajing Report prepared by Beijing Huajing, the demand for and production of BDO in China in 2005 were approximately 141,000 tons and 56,000 tons respectively. In 2009, the demand for and production of BDO in China were approximately 252,000 tons and 231,000 tons, representing a CAGR of 15.6% and 42.5% respectively.

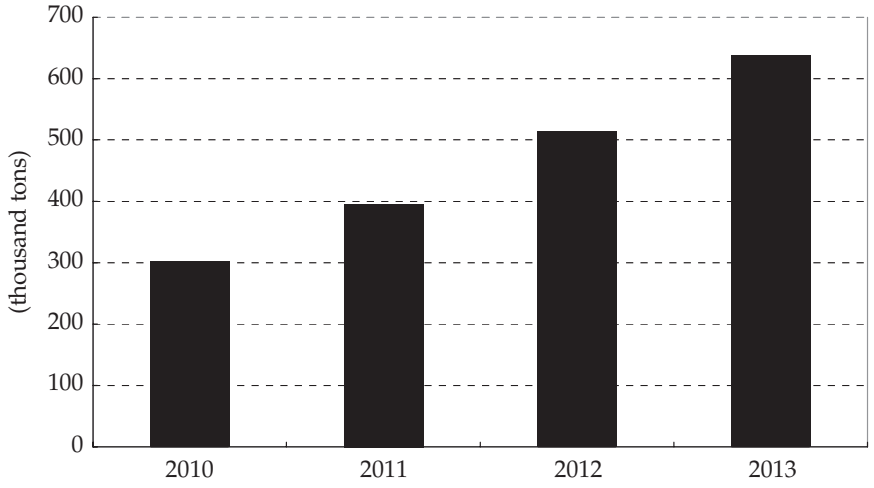
BDO Demand and Production in China



Source: Huajing Report

Despite the significant growth in BDO production in the past few years, domestically produced BDO still cannot fully satisfy the demand in China. According to the Huajing Report prepared by Beijing Huajing, it is expected that the demand for BDO in China will further increase from approximately 300,800 tons in 2010 to approximately 636,000 tons in 2013, representing a CAGR of 28.3%.

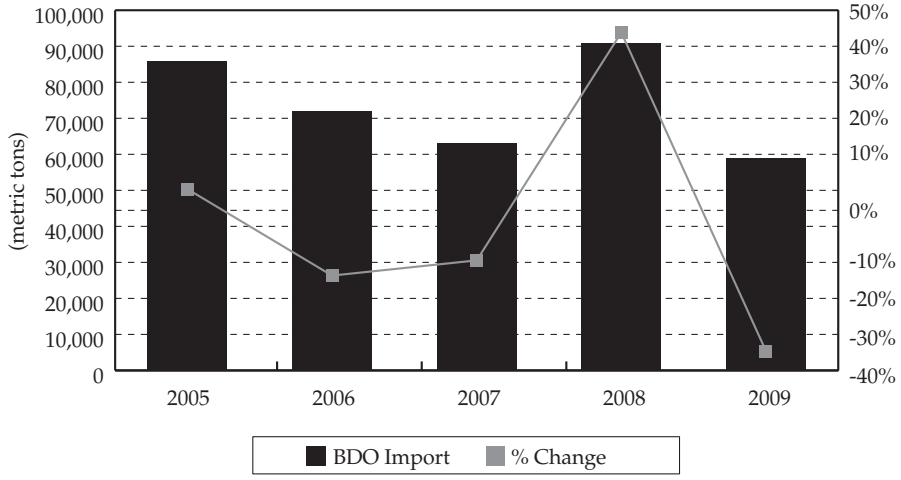
Forecasted BDO Demand in China



Source: Huajing Report

With the substantial increase in domestic production of BDO, BDO imports gradually fell in the past few years from approximately 82,000 tons in 2005 to approximately 59,000 tons in 2009. Among the imported BDO in 2009, approximately 56.3% came from Taiwan, 25.3% from Saudi Arabia, 7.3% from Malaysia, 5.3% from Holland, 3.4% from Japan and 2.4% from others.

China Import Volume of BDO Product



Source: Huajing Report

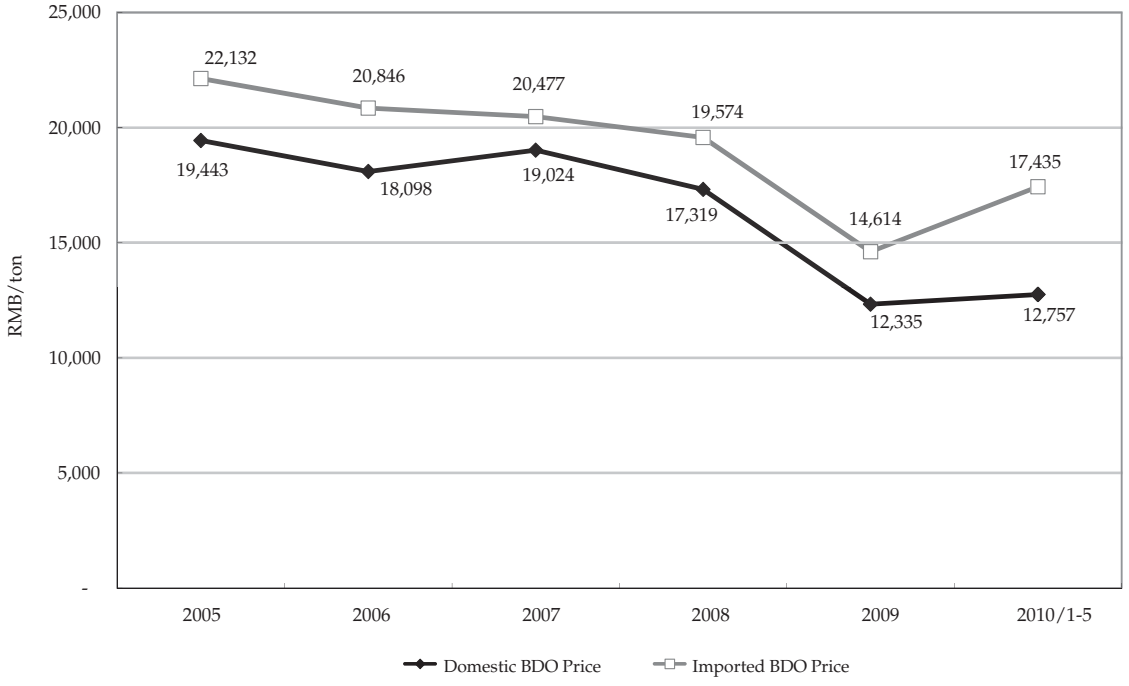
RECENT ANTI-DUMPING CASE

Since 2007, imported BDO price had been decreasing. In August 2008, BDO producers in China alleged that BDO producers in Saudi Arabia and Taiwan were dumping BDO in the China market. In response to complaints from BDO producers in China, on December 24, 2009, MOFCOM considered that BDO producers from Saudi Arabia and Taiwan had been dumping BDO in the China market which significantly damaged the domestic BDO industry. As a result, MOFCOM imposed an anti-dumping duty at a rate of 4.5% to 13.6% on BDO imported from Saudi Arabia and Taiwan into China for a period of five years from December 25, 2009.

PRICING IN CHINA MARKET

Due to the global economic downturn and excessive price pressure resulted from the dumping behavior of foreign BDO manufacturers, the domestic price of BDO in China had decreased significantly from 2007 to 2008, from the highest at RMB23,000 per ton to the lowest at RMB9,200 per ton. In April 2009, the domestic price of BDO in China started to rebound as a result of the expected affirmative anti-dumping investigation results and global economic recovery. In December 2009, most of the domestic BDO manufacturers priced their BDO products at or over RMB13,500 per ton, representing an increase of 46.7% from its trough.

Historical BDO Price in China



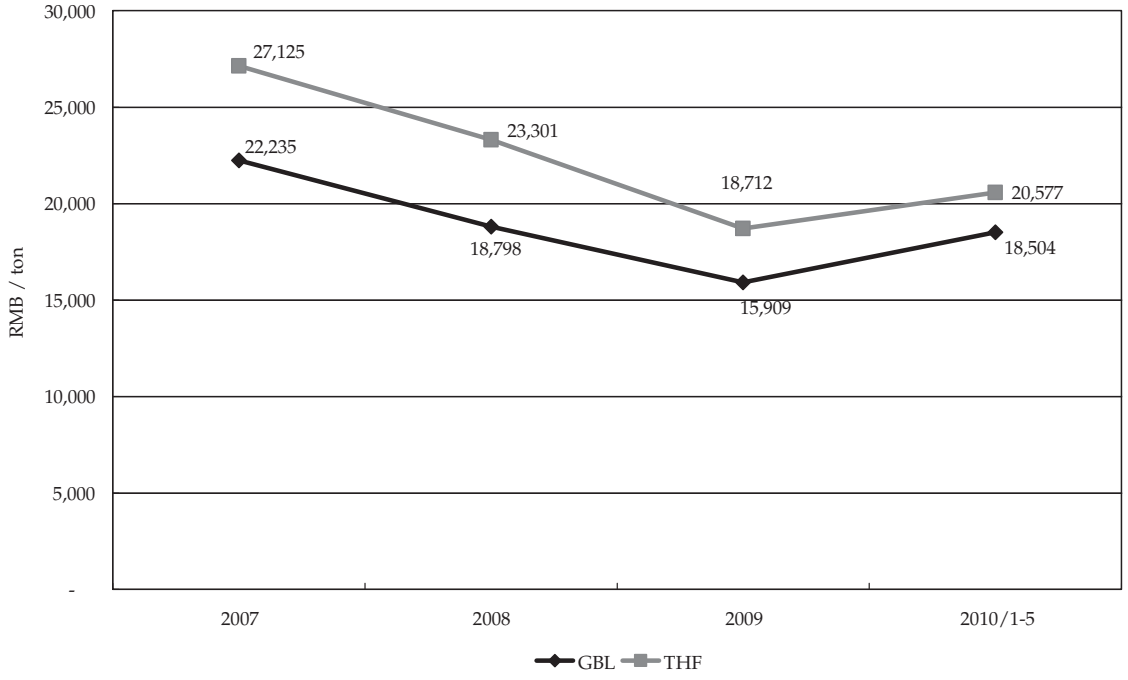
Source: Huajing Report

Note:

The above historical BDO prices in China include value added tax.

Being two of the major downstream products of BDO and the Group's primary products, the prices of GBL and THF had experienced similar pattern as BDO since 2007. The prices of GBL and THF had dropped from their highest of RMB23,106 and RMB28,342 per ton in 2007, to their lowest of RMB14,623 and RMB16,113 per ton in 2009. The prices of GBL and THF started to rebound in 2010 and by the month of October 2010, the prices of GBL and THF reached RMB23,004 and RMB24,927 per ton, representing an increase of approximately 57.3% and 54.7% respectively compared to their respective 2009 average price.

Historical GBL and THF Prices in China



Source: Huajing Report

Note:

The above GBL and THF prices in China include value added tax.

BDO MANUFACTURERS IN CHINA

As far as we are aware, there are currently nine major BDO manufacturers in China with a total designed BDO production capacity of 371,000 tons in 2009. A summary of them is as follows:

Company	Designed BDO Production Capacity in 2009 (tons)	Technology Employed	Market Share in 2009 (sales volume of BDO in the PRC market) *(note 2)*
Shanxi Sanwei Group Co., Ltd.* (山西三維集團股份有限公司)	75,000	REPPE Process	34.2%
Xinjiang MarkorChem Co., Ltd.* (新疆美克化工有限責任公司)	60,000	REPPE Process	15.2%
Nanjing Bluestar New Chemical Materials Co., Ltd.* (南京藍星化工新材料有限公司)	55,000	DAVY Process	9.5%
Dairen Chemical Corp.* (大連化學工業股份有限公司)	36,000	Propylene Oxide Process	N/A
Dongying Shengli A&C Chemical Co., Ltd.* (東營勝利中亞化工有限公司), a subsidiary of our Group	***35,000***	***DAVY Process***	***16.0%***
Fujian Meizhou Lvjian Industry Co., Ltd.* (福建湄洲氯堿工業有限公司)	30,000 *(note 1)*	REPPE Process	N/A
Shanxi Bidi Ouhua Chemical Co., Ltd.* (陝西比迪歐化工有限公司)	30,000 *(note 1)*	REPPE Process	3.5%
Sichuan Tianhua Co., Ltd.* (四川天華股份有限公司)	25,000	REPPE Process	4.8%
Yunnan Yunwei Group Co., Ltd.* (雲南雲維集團有限公司)	25,000 *(note 1)*	REPPE Process	N/A

Source: Huajing Report

Notes:

1 Facilities were in construction or commenced trial production during the year of 2009.

2 Only the market share of the six largest BDO manufacturers in China in terms of sales volume is available in the Huajing Report.

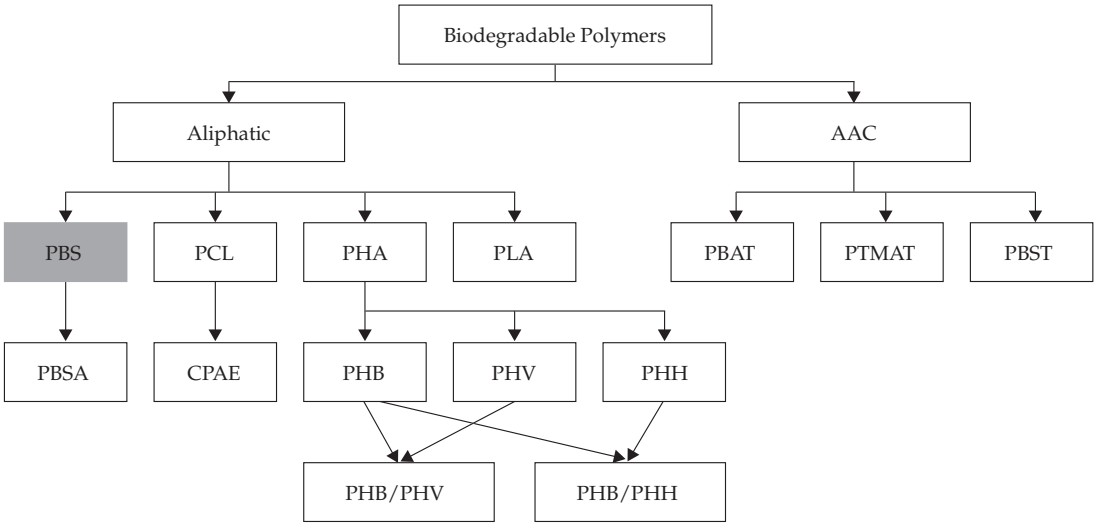
In terms of sales volume of BDO in the PRC market in 2009, according to the Huajing Report prepared by Beijing Huajing, we ranked second in the PRC with a market share of approximately 16.0%.

INTRODUCTION OF DEGRADABLE POLYMERS

Degradable polymers are polymers capable of degrading in natural or compost environments in accordance with international standards. Most degradable polymers are derived from biological raw materials, such as polylactic acid (PLA) and polyhydroxyalkanoates (PHAs). Other degradable polymers such as polybutylene succinate (PBS) are petroleum-based. In addition to these products, there are also a small number of experimental, lab- or pilot-stage degradable polymers that are not yet commercialized.

Degradable polymers are currently experiencing strong market growth. The primary driver of adoption of degradable polymers is their favorable environmental properties, which are boosting resin consumption as firms respond to increasing environmental awareness among consumers and as governments enact regulations benefiting environmentally-friendly products. The value consumers place on more environmentally-benign products enables degradable polymers to compete against conventional polymers despite the former's generally higher costs and poorer performance characteristics. For some products, improved resin properties, particularly with respect to heat tolerance and durability, are broadening the range of possible degradable polymer applications and supporting increased resin consumption. According to Freedonia, global consumption of degradable polymers is expected to increase more than 10% annually from 2009 to 2014, significantly exceeding that of the overall plastic market.

The common types of products categorized under biodegradable polymers include PLA, polycaprolactone (PCL), PHA, PBS and aliphatic-aromatic copolymers (AAC). The following chart illustrates the classification of biodegradable polymers:



Notes:
PBSA – polybutylene succinate/adipate
CPAE – copolyamide-esters
PHB – polyhydroxybutyrate
PTMAT – polytetramethylene adipate/terephthalate
PHV – polyhydroxyvalerate
PHH – polyhydroxyhexanoate
PBAT – polybutylene adipate/terephthalate
PBST – polybutylene succinate/terephthalate

The table below sets out the major characteristics of common types of biodegradable polymers:

Polymers	**Description**
PBS	PBS is a fully biodegradable synthetic aliphatic polyester having a melting point of about 114°C and is in solid form under room temperature. PBS is a relatively new product among the biodegradable polymers in the global market which can be applied to a range of applications such as film, lamination, extrusion, monofilament, fiber, injection molding, foamed sheet and blow molding. PBS is generally blended with other compounds, such as thermoplastic starch and adipate copolymers (to form PBSA) enabling a more economical use.
PCL	PCL is a fully biodegradable synthetic aliphatic polymer with a low melting-point of about 62°C and is suitable for use as food-contact foam trays, loose fill and film bags.

PHA	PHA is a fully biodegradable aliphatic polyester with a melting point ranging from 40°C to 180°C. PHA has attractive qualities for thermo-processing applications and can be applied to blow and injection-moulded bottles and plastics films. However, PHA's fragile characteristic and narrow range of processing temperature bring a lot of difficulties in production and eventually limit its applications.
PLA	PLA is a fully biodegradable aliphatic polyester with a melting point of about 175°C and can be applied to major end products including extruded sheet for thermoformed products, biaxially oriented film, blow moulded bottles, injection-moulded products and fibres for apparel and nonwovens. However, PLA is a hydrolytically unstable material that even the presence of a small amount of moisture can degrade them in storage, during processing and device fabrication. It is also sensitive to high temperature because its molecular weight decreases at high temperature, which will be unstable during storage and sterilisation.
AAC	AAC is an aromatic polyester which is biodegradable. AAC meets all the functional requirements for cling film such as transparency, flexibility and anti-fogging performance and can be used for commercial food wrap for fruit and vegetables.

DEGRADABILITY STANDARDS AND CERTIFICATION

Degradable polymers are often classified according to their mechanisms of degradation. Historically, sales of degradable polymers have been restrained by a lack of consistent standards defining degradability. Significant strides have been achieved in the establishment of degradability standards and regulations in a number of countries. Standards have generally been established for biodegradable/compostable polymers, while efforts to develop standards for photodegradable and other types of degradable polymers (eg, hydrodegradable) are progressing worldwide.

There are several different methods by which polymers can be degraded. Biodegradation is the breakdown of organic materials by naturally existing microorganisms, such as bacteria, fungi or algae, over a period of time. This biodegradation can occur in a wide range of environment, including soil, home compost, industrial compost and even fresh and salt water. Organic materials subjected to aerobic conditions are fully biodegradable if they can be totally converted by microorganisms to carbon dioxide, water and humus. Full biodegradation under anaerobic conditions results in carbon dioxide, methane and humus. A compostable polymer is a polymer that

undergoes degradation by biological processes composting to carbon dioxide, water, inorganic compounds and biomass at a rate consistent with other known, compostable materials and leaves no visually distinguishable or toxic residues. Photodegradable polymer is degraded by the action of natural sunlight. Oxidative degradable polymer is degraded by oxidation. Hydrolytic degradable polymer is degraded by hydrolysis.

In the U.S., degradable polymers are covered under three main ASTM International standards which are:

- ASTM D6400, measuring the ability of the product or material to be converted to carbon dioxide by the organisms found in a compost pile at an acceptable rate;

- ASTM D6868, measuring the ability of the materials to fragment, so that products do not clog the screening equipment; and

- ASTM D7081, measuring the ability of the resulting compost to support plant growth.

In the E.U., EN 13432 is the harmonized standard used to certify the degradability of materials, including polymers. Under EN 13432, polymers must be degraded of at least 90% in six months under controlled composting conditions. Polymers must also be sufficiently disintegrated, without leaving large pieces of materials in the compost mixture. EN 13432 is very similar to ASTM D6400, and nearly all polymers that pass one standard will also pass the other.

In China, most firms using degradable polymer resins are export-oriented; as such, domestic degradable polymer manufacturers must generally conform to globally-accepted standards, such as ASTM D6400 and ASTM D6868. Depending on the application, firms will also need to meet Chinese standards such as QB/T 2670, 2671 and 2672, or GB/T 19277, 20197 and 21660, which are based upon ISO standards.

LEGISLATION AND REGULATION

The degradable polymers industry is influenced by government policies and legislation, primarily at the national level but also often at the municipal level. The extent of legislation concerning degradable polymers and its effect on the industry vary considerably from country to country, although such laws tend to be fairly limited in nature and related to tax breaks or restrictions on competing products.

In the U.S., federal and state governments have generally taken a laissez-faire approach to waste management and environmental issues, leaving corporations, retailers and other organizations to provide the stimulus for increased use of degradable polymers. This is in stark contrast to many West European countries, which have high waste disposal taxes and a variety of laws governing materials use and disposal. For example, Belgium, Ireland and Italy levy a tax on conventional plastic bags, which promotes the use of degradable and reusable bags, while Germany, the Netherlands and Switzerland require grocery store customers to pay for conventional plastic bags. Spain is also taking steps to

reduce plastic bag use, while the UK has numerous municipal bans and is considering national legislation. In North America, no national bans are in effect, although a number of major cities – including San Francisco, Oakland, Washington DC, Toronto and Mexico City – have enacted taxes or other restrictions on plastic bag use.

While plastic bag restrictions are common in developed countries, similar legislation can be found in heavily urbanized parts of the developing world as well, where solid waste pollution is often a major problem. China established a ban on thin plastic bags and a tax on other bags in 2008, while some of the largest cities in India and Bangladesh also maintain plastic bag bans. Elsewhere in the Asia/Pacific region, Taiwan has enacted a tax on plastic bags, and Australia is considering a similar measure.

Besides, the Chinese government is also providing financial support for the research, development and industrialization of biotechnology, including bio-based degradable plastics. The government also allows identified high-tech bio-enterprises to pay a reduced tax on their income (15% as opposed to 30%) to promote the development of such firms. China is also actively promoting the use of degradable films, particularly in farming applications.

CHARACTERISTICS OF PBS AND PBS COPOLYMER PRODUCT

PBS

Generally speaking, PBS has good overall performance among the biodegradable polymers in terms of mechanical properties, processability and heat resistance.

- Mechanical properties – Mechanical properties of PBS lie between polyethylene (PE) and polypropylene (PP), thus it can satisfy the general requirements for use in plastic. PBS is basically stable in the atmosphere but biodegradable in soil, seawater and compost. It can maintain a stable performance in a relatively long storage and usage period while being degraded quickly after use.

- Processability – PBS has the best processability among the general degradable polymers and it can be processed by injection molding, extrusion molding or blow molding using conventional polyolefin processing equipment, lowering barrier to switch to PBS from other polymers.

- Heat resistance – PBS's thermal deformation temperature is approximately 100°C which can be increased to over 100°C after property alteration. Therefore, it has a good heat resistance performance compared to other fully biodegradable polymers and is able to meet the heat resistance requirement of daily articles, such as cold/hot drink packaging and food containers.

- Comprehensiveness – PBS has great flexibility and is applicable to a broad usage including daily disposable supplies.

Due to its superior characteristics in terms of the mechanical properties, processability and heat resistance over the other types of biodegradable polymers, the use of PBS has emerged as a biodegradable material potentially for a wide range of applications, such as styrofoam packaging materials, food containers, packaging films, garbage bags, disposable medical devices, hygiene products, textiles and covering materials for landscaping purposes. It can also be blended with other compounds, such as starch and adipate copolymers, enabling a more economical use.

PBS Copolymers

PBS copolymers are fully biodegradable synthetic aliphatic/aromatic copolyesters having a melting point between 100°C and 120°C and are in solid form under room temperature. Relative to PBS, PBS copolymers have the following characteristics:

- Enhanced tensile strength and tear strength so that the packaging bag made by PBS copolymer can carry heavier weight and be re-used;

- Higher transparency and suitable for use in the packaging of food and cigarette and as advertising materials;

- Improving the compatibility of degradable polymers with other materials, such as starch, PLA and PHB so that the toughness and processability of the mixed degradable materials will be enhanced.

Therefore, PBS copolymers are believed to be the most suitable degradable material to be used in packaging, films and fibre materials in terms of its mechanical properties and processability.

PBS AND PBS COPOLYMER APPLICATIONS

Due to the comparatively superior characteristics in mechanical properties, processability and heat resistance, PBS and PBS copolymers can be used in a wide range of applications in various industries. The following table illustrates some of the major applications of PBS and PBS copolymers and their corresponding industries:

Industry	Applications
Packaging	Garbage bag, plastic bag, label bottle (not for water nor alcohol), foamed cushion, barrier sheet, pharmaceutical and cosmetics products packaging
Agricultural	Composite film, seed breeder, mulch films and pesticide carrier
Greenery	Lawn-planting net and vegetation cover
Fishery	Bait bag, cushioning product, net and fish line
Consumer Products	Handbag, pen, card, diaper, magnetic card and hygiene product
Food	Food and beverage packaging, container and disposable tableware
Medical	Medical container and syringe

In addition to the above application, PBS copolymers can also be used as additive to improve the compatibility of degradable polymers (such as PLA and PHB) with other materials, (such as starch), so that the toughness and processability of the mixed degradable materials will be enhanced. Since PBS copolymers can improve the compatibility of degradable polymers and other materials, the greater the demand for these polymers, the greater the demand will be for PBS copolymers.

PRODUCTION PROCESS OF PBS AND PBS COPOLYMERS

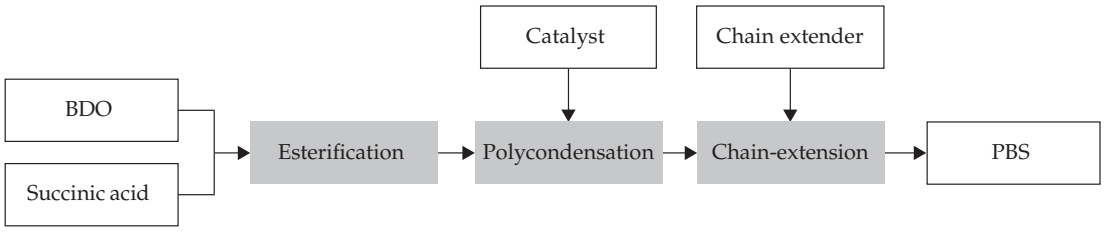
PBS

To the best of our Directors' knowledge, PBS is generally produced from BDO and succinic acid (丁二酸) in the presence of catalyst through one of the two production methods: the chain extension process (擴鏈法) or the direct polycondensation process (一步法). Production of PBS under each of the chain extension process and the direct polycondensation process may involve either the intermittent reaction process (間歇法) or the continuous reaction process (連續法) depending on the production scale. The intermittent reaction process is generally applicable to production of PBS at a small scale from approximately 3,000 tpa to 5,000 tpa while the continuous reaction process is generally applicable to production of PBS at a larger scale.

Chain extension process

The chain extension process is a formerly developed production methodology. It mainly involves three steps: (1) esterification (酯化), (2) polycondensation (縮聚) and (3) chain-extending process (擴鏈). The initial step of esterification involves the manufacture of butylene succinate through esterification of succinic acid and BDO at 150–200°C under normal pressures. The butylenes succinate then undergoes the polycondensation process in the presence of catalyst at 200–280°C to form low molecular weight PBS. Finally, the low molecular weight PBS is reacted with a chain extender, such as isocyanate (二異氰酸酯) under the chain-extending process to produce PBS. However, isocyanate is hazardous to human health. Therefore PBS produced by chain extension process is not suitable for use in applications where hygienic requirement is needed.

The following chart sets out the production process of chain extension process:

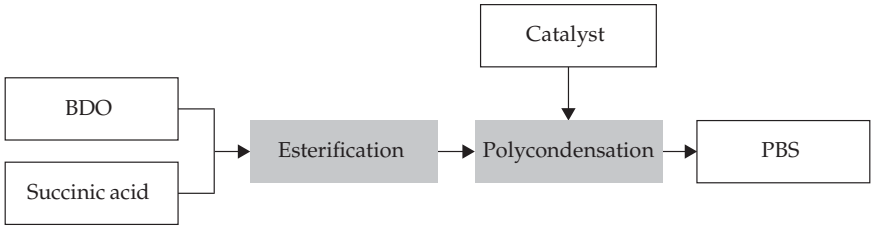


IPCCAS Direct Polycondensation Process

The IPCCAS Direct Polycondensation Process, on the other hand, is modified from the chain extension process. IPCCAS and HKH National Engineering Research Center of Plastics Co., Ltd (海爾科化工程塑料國家工程研究中心股份有限公司) jointly developed the IPCCAS Direct Polycondensation Process pursuant to which the parties have separately applied and obtained in relevant patents on the technologies.

Under the IPCCAS Direct Polycondensation Process, PBS is produced directly from the polycondensation of BDO with succinic acid and maleic acid using a high-efficiency catalyst for polymerization, which is also developed by IPCCAS.

The following chart sets out the production process of the IPCCAS Direct Polycondensation Process for PBS product:



PBS produced by the IPCCAS Direct Polycondensation Process has a number of principal advantages over those produced by the chain extension process, which include:

- unlike the chain extension process which requires the use of chain extenders such as isocyanate (which is hazardous to human health), PBS produced by the IPCCAS Direct Polycondensation Process is free from isocyanate, and therefore has an absolute advantage in producing PBS that is suitable for use in the food and beverage packaging, cosmetics and medical related applications where the hygiene requirement is essential;

- the IPCCAS Direct Polycondensation Process has a shorter overall reaction process and thus a lower investment and production cost;

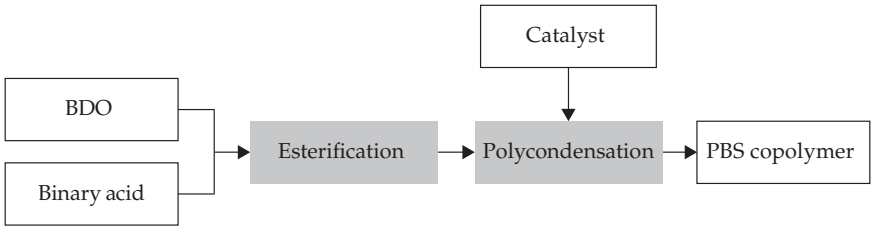
- the IPCCAS Direct Polycondensation Process is environmentally-friendly and does not lead to emission of pollutants during production;

- IPCCAS has successfully made enhancements to the IPCCAS Direct Polycondensation Process to achieve higher stability and avoided acidic erosion to production facilities during the production process.

PBS Copolymers

The production process of PBS copolymers intended to be adopted by us is similar to the IPCCAS Direct Polycondensation Process while the raw material inputs are BDO and binary acid instead. PBS copolymers are produced directly from the polycondensation of BDO with different kind of binary acid using a high-efficiency catalyst for polymerization.

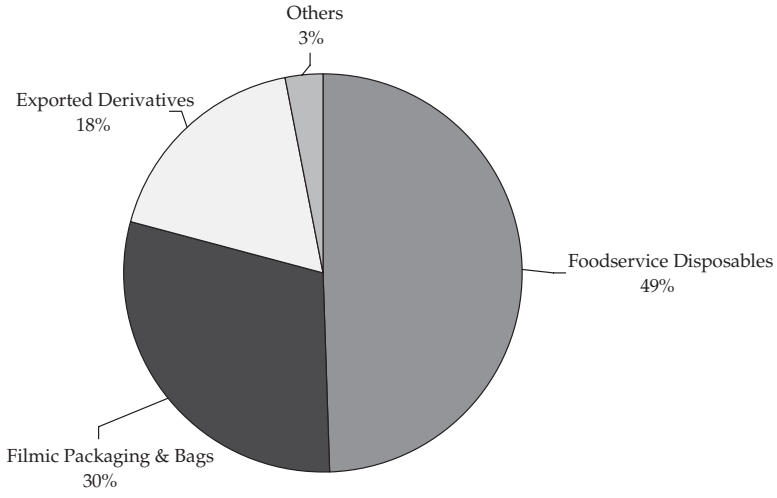
The following chart sets out the production process of PBS copolymers to be adopted by us:



CHINA PBS AND PBS COPOLYMER MARKET

Until recently, China had been entirely reliant on foreign supplies of PBS and PBS copolymers, primarily from suppliers in Japan and South Korea. According to Freedonia, total demand for PBS and PBS copolymers reached approximately 5,050 tons in China in 2009. Nearly 50% of demand for PBS and PBS copolymers in 2009 was attributable to the use in domestic production of foodservice disposables, while 30% of the resin was consumed in the production of filmic packaging and bags. Approximately 18% of demand for PBS and PBS copolymers is used for resin blends that are ultimately bound for export markets. Other applications, such as flower pots, combs and toothbrushes, accounted for the remaining of China's consumption of PBS and PBS copolymers.

China PBS and PBS Copolymers Demand by End-use in 2009



Source: Freedonia

Due to the high cost relative to competing products, nearly all of the PBS and PBS copolymers consumed in China are blended with other resins, most commonly starch and PLA-based products, to create cost-competitive degradable plastic resins. These blends are subsequently either exported or used domestically in the production of finished goods. These finished goods include degradable foodservice disposables, packaging films and plastic bags, almost all of which are destined for export markets. The ultimate driver of the consumption of PBS and PBS copolymers in China is demand for degradable plastic products in developed regions, particularly the E.U. and the U.S..

Following the expansion of its domestic PBS manufacturing capacity, China will become much less dependent on imported PBS. According to Freedonia, China is expected to become a net exporter of PBS by 2013. Despite rising exports, the vast majority of the PBS produced in China will continue to be used domestically. China's PBS imports are expected to decline significantly as domestic production increases, as less price-competitive foreign suppliers are crowded out by cheaper Chinese suppliers. According to Freedonia, the demand for PBS in China is expected to increase at a CAGR of 33.5% between 2009 and 2014.

PBS copolymers are used as additives or modifiers in the manufacture of starch- or PLA-based films, for the purpose of producing fully degradable filmic packaging and bags. To the best knowledge of our Directors, currently, no PBS copolymers are produced in China and they are imported for use as additives or modifiers in the production of degradable plastic films. Our Group is expected to begin selling PBS copolymers domestically in 2011. Demand for PBS copolymers is expected to rise very rapidly in the next few years, with gains supported by increased resin availability and a reduction in resin prices as large-scale domestic production begins. Demand for PBS copolymers will also be driven by rising demand for fully degradable packaging materials in the US, the EU and other export markets, particularly in countries requiring plastic packaging films and bags to meet EN 13432 and ASTM D6400 certifications. According to Freedonia, the demand for PBS copolymers in China is expected to increase at a CAGR of 54.0% between 2009 and 2014.

According to National Research Center of Engineering Plastic of IPCCAS, the characteristics of different industries regarding the application of degradable polymers are set out below:

Industry	Technical Barrier	Policy Environment	Industry Concentration	Necessity for Applying Degradable Materials	Proportion of Cost Increment Applying the Degradable Materials
Packaging	Low	Very favourable	Low	High	Higher
Agricultural and Forestry	High	Normal	Higher	Normal	Higher
Daily Necessity	Low	Normal	Low	Normal	Higher
Medical	High	Favourable	Higher	High	Normal

Source: National Research Center of Engineering Plastic, IPCCAS

Filmic Packaging and Bags Market in China

According to Freedonia, consumption of polymers for use in packaging films and bags produced in China had a CAGR of 8.9% between 2005 and 2009 to approximately 6,900,000 tons, among which less than 0.1% are demand for degradable polymers. Between 2009 and 2014, it is expected that the consumption of polymers for use in packaging films and bags produced in China will increase 6.4% annually to approximately 9,400,000 tons. Although degradable polymers accounted only for a small portion currently, its share is expected to increase rapidly in the future. Demand for degradable polymers in producing packaging films and bag is projected to rise 59.5% annually between 2009 and 2014. The table below sets out the characteristics of different application in packaging industry.

Sector	Application	Industry Concentration	Necessity for Applying Degradable Materials	Consumer Concern over Degradability of Packaging
Food and Beverage	Packaging and bottle	High	Very High	Normal
Toy and Daily Necessity	Products and Packaging	Low	High	Normal
Agricultural and Forestry	Plastic Sheeting and Pesticide Container	High	Very High	Concern
Plastic Bag and Film	Garbage Bag and Packaging Bag	Low	Very High	Concern

Source: National Research Center of Engineering Plastic, IPCCAS

Leading applications for PBS and PBS copolymers in this sector include shopping bags and food wrapping films. For PBS copolymers, gains will be driven primarily by the resins being blended into the increasing volumes of starch- and PLA-based film packaging products being manufactured in China. In these applications, PBS copolymers are often used as additives and modifiers to improve finished product performance. In food wrapping films, PBS benefits from its clarity and thermal resistance which can improve product aesthetics and enable the packaging of hot food and beverage products. Other PBS film packaging applications include clear cigarette packaging.

Along with other degradable polymers, PBS and PBS copolymers used in packaging films and bags are benefiting from rising environmental concerns, company efforts to enhance their reputations as being environmentally friendly and foreign demand, particularly from the U.S. and E.U.. The degradability of these products, and the positive reaction consumers have to such products, will be primary drivers of PBS and PBS copolymers demand in packaging films and bags going forward. These concerns are driving the consumption of PBS and PBS copolymers by China's packaging films manufacturers, with demand for these resins expected to rise robustly at 65.9% CAGR between 2009 and 2014 according to Freedonia.

Medical disposables market in China

According to Freedonia, consumption of plastic resin used in the production of medical disposables in China had risen 5.8% annually to approximately 3,890,000 tons between 2005 and 2009. It is expected that the same will increase 4.1% annually between 2009 and 2014 to approximately 4,990,000 tons. Among the plastic resin consumed, there was no degradable plastic consumed in 2009. Growth in demand for the degradable resins is expected to strongly outpace that of conventional resins going forward, as degradable resins benefit from their favourable environmental profile and efforts to promote the greater use of sustainable raw materials such as maize, which is a raw material in some degradable resins, most notably PLA. Among the disposable medical products expected to begin using degradable plastic resins going forward are syringes, medical plates, medicine bottles, and surgical masks, gloves, aprons and gowns. Although most of these products are still in the early stages of development, some items are expected to be

marketed in the near future. According to Freedonia, the demand for degradable polymers in medical disposable application is projected to increase at a CAGR of 65% between 2011 and 2014.

Key factors supporting PBS consumption growth in the production of medical disposable include environmental concerns, company efforts to enhance brand images and rising demand for green products from more developed areas such as the U.S. and Western Europe. Chinese government initiatives will also support increased PBS consumption. For example, in 2005, NDRC issued Decree 40 encouraging the development of biodegradable polymers, while in 2006, the same commission set up a fund in support of this goal. Between 2011 and 2014, it is expected that the demand for PBS and PBS copolymers in medical disposable application in China will increase 81.7% annually, according to Freedonia.

Foodservice disposables market in China

Foodservice disposables are a major application for degradable polymers. Because of the relatively low-performance nature of most foodservice applications, degradable polymers have been able to penetrate the market without needing major improvements in resin properties. Cutlery is the leading application for degradable polymers in foodservice disposables, and is expected to continue posting solid demand growth. Opportunities are also expected in other products such as plates, trays, dishes, bowls and cups. According to CAS, China consumes approximately 6 billion fast-food boxes, 5 billion instant noodle bowls, 60 billion pairs of disposable chopsticks annually. These products are widely used in fast-food and other dining outlets, as well as in the home, and are relatively easy to segregate for composting along with food residuals. According to Freedonia, the foodservice disposables accounted for 49% of the total PBS and PBS copolymer demand in China in 2009.

Prices of PBS and PBS copolymers in China

According to Freedonia, the price of PBS in China averaged approximately RMB36,000 per ton in 2009, which represents a significant fall from the 2008 level, with the decline being heavily influenced by the emergence of domestic PBS production. Price of PBS is expected to decline in the next few years as driven by the increasing availability of PBS from domestic producers, which are expected to be able to offer PBS at lower prices than foreign suppliers due to greater economies of scale and reduced operating costs. For China-based resin users, PBS manufacturing in Japan and South Korea is moderately more expensive than PBS produced in China, although this depends partly on product quality, order size and specific trade-related costs.

In 2009, the prices of PBS copolymers averaged approximately RMB55,000 per ton, which were higher than that in Western Europe and the U.S. due to a lack of direct sales in China, import taxes and agent charges. However, prices are expected to decrease going forward due to the greater availability of imported and domestically-manufactured copolymers. Despite the downward pricing pressure from sharply increasing supply, our Directors expect that prices for the PBS copolymers will remain supported by raw material costs.

Market Forecast

According to Freedonia, demand for PBS and PBS copolymers in China is forecasted to experience significant growth, with a CAGR of approximately 56.2% from approximately 5,050 tons to approximately 47,000 tons between 2009 and 2014, and China will become a net exporter of PBS from 2013 onward. According to Freedonia, these demand forecasts are arrived at based on estimates for the production of downstream goods that consume PBS or PBS copolymers, most often in the form of blends with starch- or PLA-based degradable resins. Within these resin blends, PBS and PBS copolymers are generally used at specific levels for different applications, which Freedonia analyzed to determine the possible market demand for the targeted products. When formulating these demand forecasts, Freedonia has taken into account, among other factors, the restraints on increased consumption including higher prices and inferior technical performance relative to conventional plastics in some applications. In particular, the higher prices generally require product manufacturers to have a significant customer base willing to pay price premium for environmentally-friendly materials. The small existing base of PBS and PBS copolymers demand will also be regarded as a restraint on consumption over the next several years, due to the time associated with commercializing new products and adjusting to technical issues across the various stages of finished goods production. PBS and PBS copolymers may also be limited by resin availability, both for these products and for key blending components such as PLA. It is also assumed that existing government legislation and regulations regarding degradable polymers remain in their current state in both China and key export markets.

Despite the strong forecast growth in demand, Freedonia also expects China's PBS production to lag behind its installed PBS capacity in the near future, resulting in significant under-utilization due to the immaturity of many targeted PBS applications both domestically and globally.

That said, taking into consideration, among other things, (i) the supportive view of PRC state agencies on biodegradable cutlery and toiletries and practices (such as levy imposition) to discourage the use of non-biodegradable plastic bags; (ii) the suitability of PBS as a raw material for surgical bandages and sanitary napkins as highlighted by academic publications; (iii) the strong growth in popularity of biodegradable materials in overseas markets and (iv) PBS formulation progress reports and trial test results prepared by IPCCAS under our collaborative arrangements on PBS applications to be adopted by our potential PBS customers; our Group is of the view that if any of the growth barriers identified by Freedonia are to diminish at a faster pace, the PBS and PBS copolymers market may grow at a much faster pace than that currently forecasted.

Further, our Directors are confident that given our Group's solid foundation as a BDO manufacturer using the DAVY Process, a competitive advantage in terms of securing the principal raw material for the production of PBS and PBS copolymers; its collaborative relationship with IPCCAS, the patent holder of the IPCCAS Direct Polycondensation Process to be adopted by us; our ability to tap onto the expertise of the Polymer Research Institute* (高分子研究所) and the State Key Laboratory of Polymer Materials Engineering* (高分子材料工程國家重點實驗室) of Sichuan University through our chief technical officer, Dr. Zhang Aimin, and our collaborative relationship with Sichuan University; and our scheduled expansion in our BDO and PBS production capacity, our Group is well posed to become an early mover in China's PBS and PBS copolymers market.

SOURCES OF INFORMATION

Beijing Huajing

Beijing Huajing is a renowned economic information research institution in China with experts and professors from the Development Research Center of the State Council (國務院發展研究中心), Society of Competitive Intelligence of China (中國競爭情報學會) and the School of Business in Renmin University of China (中國人民大學商學院). As the core member of a long-term research project hosted by Development Research Center of the State Council, the research conducted by Beijing Huajing has been recognized as an authority of the latest industry development in China. In 2008, it have 21 industry research departments, covering areas such as energy, petrochemical, tourism and hotel, real estate, food, apparel, pharmaceutical, mechanical, cultural, building material, metallurgy and circulation industry research, etc. We purchased a report, namely Industry Development Study Report for BDO in 2010 from Beijing Huajing at RMB35,000 regarding market environment as well as the independent forecast of BDO demand in China.

The Huajing Report represents data, research opinion or viewpoints developed independently by its researchers. The Huajing Report was complied based on various data collected by Beijing Huajing through different means, including but not limited to (i) publicly available information from government and industry association; and (ii) onsite visits or telephone interviews with market participants. Forecasts in the Huajing Report are based on data from 2005 to 2009 using index forecast model, logarithm forecast model and linear forecast model. Beijing Huajing also made certain assumptions, including but not limited to the fact that there will not be any significant change in the industry, the upstream industry; the downstream industry and end users.

Freedonia

Freedonia Custom Research, Inc is a wholly owned subsidiary of The Freedonia Group, a leading business research publisher. Freedonia Custom Research, Inc conducts bespoke industry analysis and provides industry outlook and assessment and includes product and market forecasts, industry trends, threats and opportunities, competitive strategies, market share determinations and company profiles.

We commissioned Freedonia Custom Research, Inc to conduct an independent sizing and forecasting of demand in China for PBS and a group of selected PBS copolymers, as well as further analysis of and findings on the broader market environment for degradable polymers. The fee payable to Freedonia Custom Research, Inc for the preparation of the report is US$56,000. The payment of such amount was not contingent upon our successful listing or on the results of the report.

The report prepared by Freedonia ("**Freedonia Report**") represents data, research opinion or viewpoints developed independently on its behalf and does not constitute a specific guide to action. In preparing the report, Freedonia used various sources, including company financial filings, government statistical reports, press releases; industry magazines, and interviews with employees of manufacturers of related products (including client), manufacturers of competitive products, distributors of related products, and government and trade associations. Growth rates in the Freedonia Report are based on many variables, such as currency exchange rates, trade barriers, raw material costs and pricing of competitive products, and such variables are subject to wide fluctuations over time. The Freedonia Report is accurate as at its original delivery date (and not as at the date of this Prospectus), and the opinions and forecasts expressed in the Freedonia Report are subject to change without notice.