Market Study: Polypropylene

Ceresana® Research

Vol. 1: Table of Contents (Abstract)

Ceresana® Research

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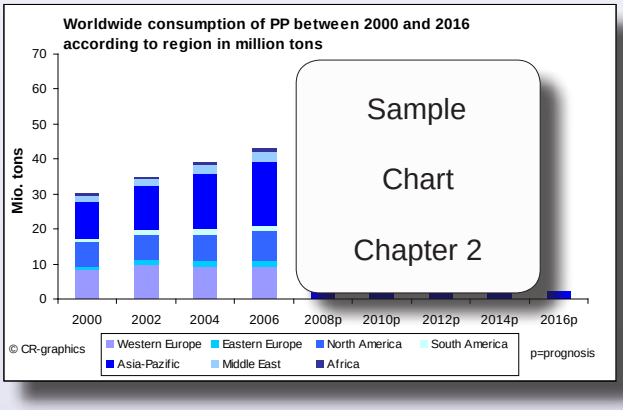
In 2007, the global market for polypropylene (PP) had a volume of 45,1 mio. tons. A turnover of about 65 billion US $ (47,4 billion €) was made by PP, mostly in Asia, followed by Europe and North America. With annual growth rates of x,x%, volume is expected to increase to xx,x mio. tons in the year 2016.



Both the demand and the production of PP shifts continuously from North America, Western Europe and Japan to the emerging markets of Asia, particularly China and India. In the threshold countries, domestic demand grows alongside products which contain PP, for example, packaging, automobiles, consumer products, building products, textiles and medicinal goods.

In this multi-user market study from Ceresana Research, the newest data, facts, developments and trends are thoroughly analyzed and concisely presented:

- Information on the PP market is value based and quantitatively processed. It is also structured in 7 different regions, West and East Europe, North and South America, Asia-Pacific, Middle East and Africa.
- Capacities, output and demands, sales figures and prices, as well as imports and exports of 64 countries are indicated.
- The worldwide report provides the most comprehensive market overview for the period from 2000 until 2016.
- The study provides information about the legal situation, environment and health, areas of application, as well as the varieties of PP, including their technical properties.
- This useful reference work compromises 100 company profiles of established and future manufacturers with information on their respective product ranges, as well as current and scheduled capacities.

Vol. 2: Table of Contents (Abstract)

(continued on next column)

film and fiber products compared to homopolymers. However, PP copolymers are more expensive than homopolymers.

The selection of the right grade of PP for a specific application involves

- choosing between homopolymer
- choosing a reactor or controlled
- defining the melt flow rate require

However, with changes in manufacturi lyst systems, the traditional differences copolymers have been blurred.

Property	Be
Stiffness	Hi
Resistance to high temperature	Hi
Chemical resistance	Hi
Surface hardness	Hi
Impact strength	Bl
Toughness	Bl
Strength at low temperatures	Bl
Transparency	Ra
Flexibility	Ra
Sealability	Ra

Table: Strengths of PP grades in compa

Sample from Chapter 1

businesses, and institutions produced more than 229 million tons of MSW, which is approximately 2 kg of waste per person per day, up from 1.2 kg per person per day in 1960. 11% or 25.4 million tons of MSW was plastics. For example, the recycling rate of plastic soft drink containers was 35.6%

Life Cycle Analysis (LCA) accounts for all the steps in the life of an article, from its initial creation to its final disposal, and cons nvironment. An eco-balance, or LCA, is a systematic a npares different products performing the same functio PP included, consume less energy and natural resource Plastic in general consumes little energy d n a high proportion of this energy is later recoverabl the material reaches the end of its lifespan. Moreover ert polyolefin resins into useful articles is considerably les carry out the machining, cutting, and bending operations used to transform conventional materials.

Sample from Chapter 4

Among plastic materials, PP has an extremely low environmental impact. The processes used to produce it are considered to be among the cleanest and most efficient in the industry. PP doesn't suffer a significant change in the polymer microstructure during repeated extrusion processing, if it has been properly stabilized.

	PP	Aluminum	Paper	Glass
Weight	1	1.71	1.00	17.14
Material used	1	5.54	2.10	18.26
Water	1	0.63	13.00	15.63
Energy	1	6.00	1.14	2.86
Solid waste	1	11.82	1.09	32.64
Critical volume water	1	3.40	37.20	4.53
Critical volume air	1	4.07	2.15	6.30

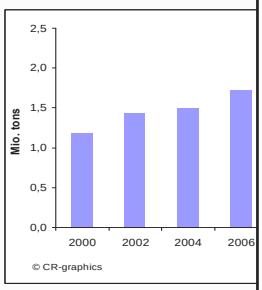
Table: Comparative Eco-Balances: production and disposal of a 1-l container

US emission permits

With the passage of the Clean Air Act Amendments of 1990 (CAAA-1990), U.S. Congress mandated that operations, with few exceptions, require air permits to release

Polypropylene – Market in South Korea

Up until 2007, demand increased approximately 5.4% to 1.7 million tons from 1,19 million tons in 2000 (Graph), which equals a total market value of over 2.3 billion US$ (1,68 billion Euro). With an average gro South Korea is expected to reach a heig



Graph: Demand of PP in South Korea b

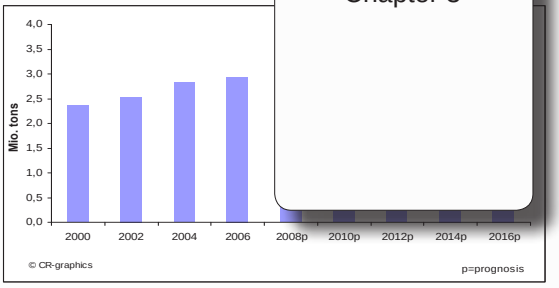
The automobile industry particularly ha reason for this is the relatively high ac Beneficial characteristics of PP in th processing, while still maintaining c increase in the production of automob growth of the PP demand.
Additional demand impulses come fro sectors, which are two of the most increasing significantly in these branch and expanding capacities. With this, th companies could compete with less ex India. This development is partially carr PP will primarily be demanded.

Production of PP has grown an average of 3.4% since 2000, and reached a total volume of just under 3 million tons in 2007 (Graph 2). The most important manufacturers had a total capacity of 3.27 million tons during 2007 (Table 1). Under these conditions, the degree of utilization sits at over 90%. A continued increase in production is expected in 2008/2009 if the production capacity of Lotte Daesan Petrochemical is increased by 300,000 tons.

Company:	Capacity in Tons:
PolyMirae Co.	
Samsung Total Petrochemicals Co	
Honam Petrochemical Corp.	
Korea Petrochemical Industry	
SK Energy Co.	
Hyosung Corp.	
LG Chem	
Lotte Daesan Petrochemical	
GS Caltex Corp.	
Total	

Table: PP – Capacity in South Korea

Sample from Chapter 3



Graph: Production of PP in South Korea between 2000 and 2016, in millions of tons

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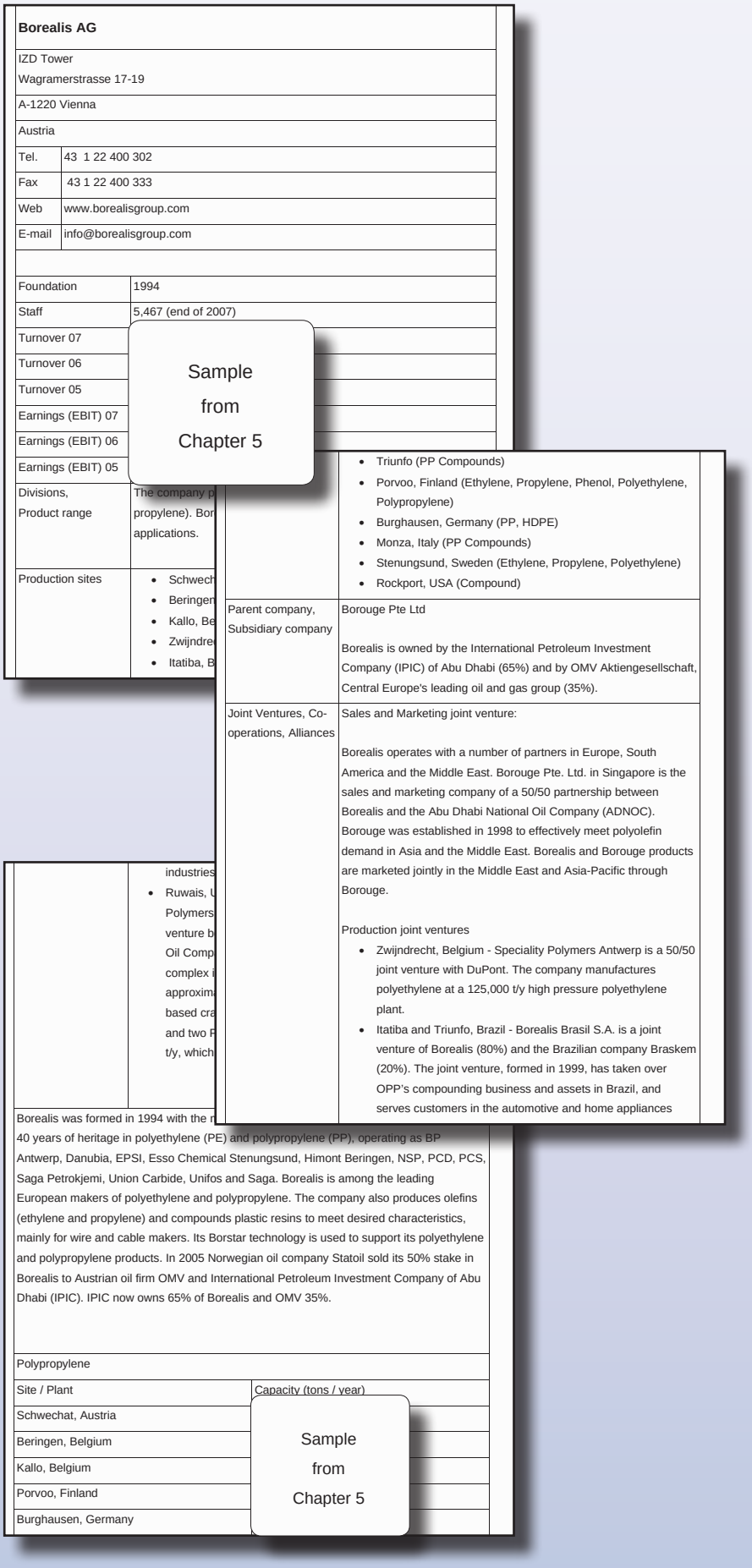

Borealis AG

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A-1220 Vienna

Austria

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Fax	43 1 22 400 333
Web	www.borealisgroup.com
E-mail	info@borealisgroup.com

Foundation	1994
Staff	5,467 (end of 2007)
Turnover 07	
Turnover 06	
Turnover 05	
Earnings (EBIT) 07	
Earnings (EBIT) 06	
Earnings (EBIT) 05	
Divisions, Product range	The company p… propylene). Bor… applications.
Production sites	• Schwech… • Beringen… • Kallo, Be… • Zwijndre… • Itatiba, B… • Triunfo (PP Compounds) • Porvoo, Finland (Ethylene, Propylene, Phenol, Polyethylene, Polypropylene) • Burghausen, Germany (PP, HDPE) • Monza, Italy (PP Compounds) • Stenungsund, Sweden (Ethylene, Propylene, Polyethylene) • Rockport, USA (Compound)
Parent company, Subsidiary company	Borouge Pte Ltd Borealis is owned by the International Petroleum Investment Company (IPIC) of Abu Dhabi (65%) and by OMV Aktiengesellschaft, Central Europe's leading oil and gas group (35%).
Joint Ventures, Co-operations, Alliances	Sales and Marketing joint venture: Borealis operates with a number of partners in Europe, South America and the Middle East. Borouge Pte. Ltd. in Singapore is the sales and marketing company of a 50/50 partnership between Borealis and the Abu Dhabi National Oil Company (ADNOC). Borouge was established in 1998 to effectively meet polyolefin demand in Asia and the Middle East. Borealis and Borouge products are marketed jointly in the Middle East and Asia-Pacific through Borouge. Production joint ventures • Zwijndrecht, Belgium - Speciality Polymers Antwerp is a 50/50 joint venture with DuPont. The company manufactures polyethylene at a 125,000 t/y high pressure polyethylene plant. • Itatiba and Triunfo, Brazil - Borealis Brasil S.A. is a joint venture of Borealis (80%) and the Brazilian company Braskem (20%). The joint venture, formed in 1999, has taken over OPP's compounding business and assets in Brazil, and serves customers in the automotive and home appliances

Sample from Chapter 5

industries…
• Ruwais, U… Polymers… venture b… Oil Comp… complex i… approxim… based cra… and two P… t/y, which…

Borealis was formed in 1994 with the r… 40 years of heritage in polyethylene (PE) and polypropylene (PP), operating as BP Antwerp, Danubia, EPSI, Esso Chemical Stenungsund, Himont Beringen, NSP, PCD, PCS, Saga Petrokjemi, Union Carbide, Unifos and Saga. Borealis is among the leading European makers of polyethylene and polypropylene. The company also produces olefins (ethylene and propylene) and compounds plastic resins to meet desired characteristics, mainly for wire and cable makers. Its Borstar technology is used to support its polyethylene and polypropylene products. In 2005 Norwegian oil company Statoil sold its 50% stake in Borealis to Austrian oil firm OMV and International Petroleum Investment Company of Abu Dhabi (IPIC). IPIC now owns 65% of Borealis and OMV 35%.

Polypropylene

Site / Plant	Capacity (tons / year)
Schwechat, Austria	
Beringen, Belgium	
Kallo, Belgium	
Porvoo, Finland	
Burghausen, Germany	

Sample from Chapter 5

About Ceresana Research

As an independent market research company, we are among the worldwide leading specialists for commodities as well as the chemical and manufacturing industries. Our multi-user market studies and individually commissioned reports provide the foundation for strategic decisions for our clients.

Customers from over 40 countries profit from our approach:

- Intensive research based on interviews with experts, our own database, and secondary market research.
- Objective analysis through reliable and methodical data handling.
- Clear and extensive documentation.

Benefit from our expertise and gain sustainable competitive advantages!

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12 Reasons to order now

- Get the most extensive overview of the global polypropylene market.
- Find current prognoses for the world market in 7 single regions and 64 countries until 2016.
- Gain an objective and detailed analysis of factors which influence your business.
- Recognize chances and risks for your enterprise.
- Benefit from data for the world market and single regions.
- Use reliable information for a successful business plan.
- Be well informed about mergers and acquisitions.
- Gather information on research and technology trends.
- Learn about the most important application fields.
- Gain a detailed description of PP: performance, usage and requirements.
- Analyze technical and toxicological product characteristics.
- Be up to date on the most important manufacturers with the 100 company profiles included.

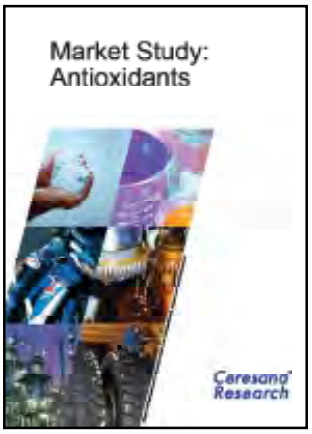
The study is particularly suitable for

- Manufacturers and retailers of polypropylene
- Suppliers of feedstocks and additives
- Users of PP - such as manufacturers of products for automotives, consumer products, medical goods, textile fibers, packaging as well as construction
- Associations and institutes
- Organizations and authorities

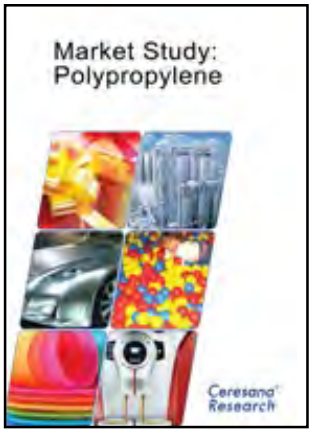
Executives and professionals benefit from the market study

- Business Management
- Engineering / Production
- Strategic Planning
- Research and Development
- Marketing / Market Research
- Sales
- Purchasing
- Import / Export

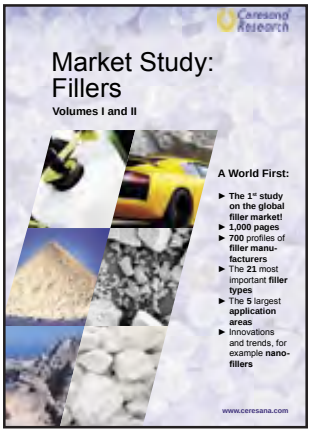
Up-to-date Market Studies from Ceresana Research



90 Products; 68 Companies; 505 p.; from €1,895; 2008



New: 100 Companies; 900 p.; from €1,895



21 Products; 702 Companies; 1.074 p.; from €1,995 ; 2007

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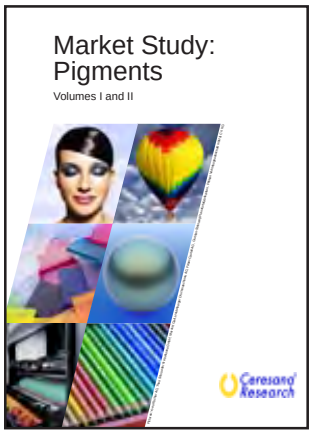

300 Products; 250 Companies; 1.154 p.; from €1,995; 2007

69 Products; 145 Companies; 273 p.; from €995; 2005

77 Products; 270 Companies; 452 p.; from €1,295; 2006

44 Products; 241 Companies; 627 p..; from €1,295; 2006

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