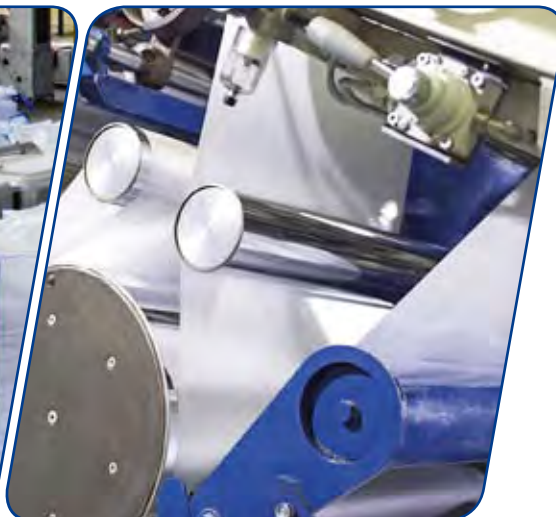
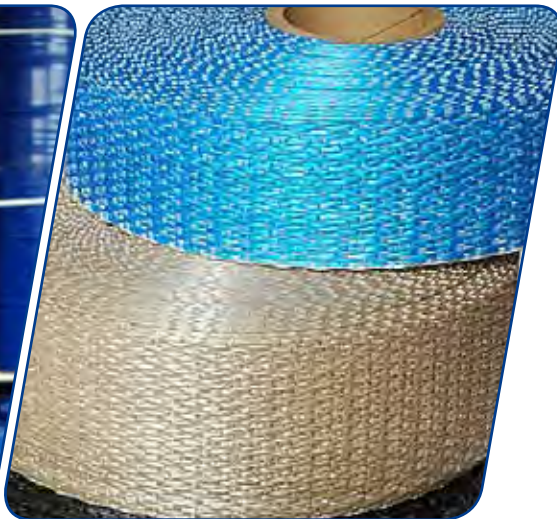
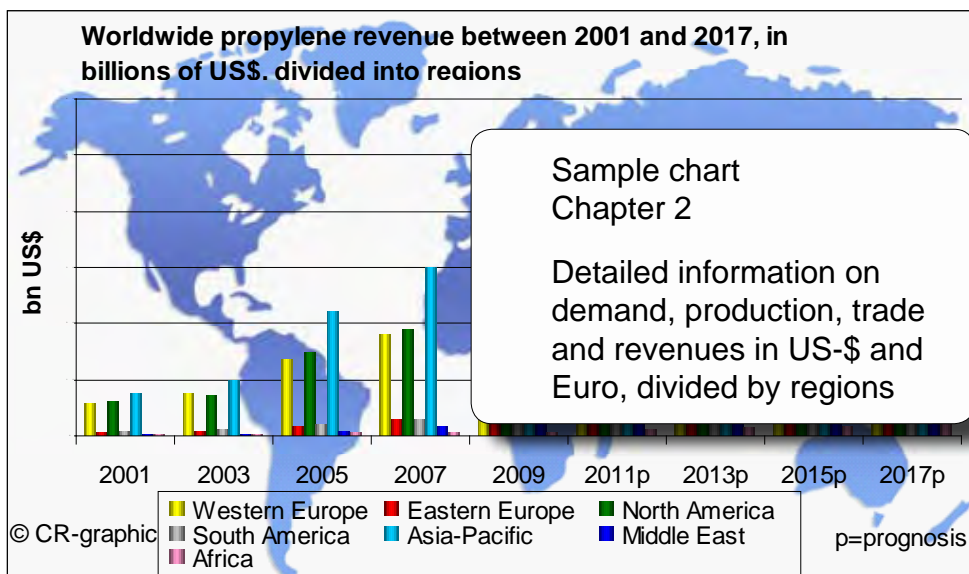


Market Study: Propylene



**Ceresana
Research**

Market Study: Propylene



Ceresana Research expects a dynamic development of the global demand for propylene, namely an increase of more than 20 million tons by 2017. An important factor, which will impact the global propylene market, is the massive capacity expansions for propylene and downstream products in the Middle East and China. Sales of propylene will surpass the current 2008 peak value of over 90 billion US\$ as soon as in 2012.

China overtakes USA

Middle Eastern countries exhibit the largest increases in propylene production and demand. We expect that supply and demand in these countries will have doubled by 2014. However, the Asia-Pacific region will continue to dominate the market and generate more than 45% of all demand. China is rising to become the greatest propylene consumer worldwide and will most likely edge out the U.S. to the second place in 2011.

Plastic made of Propylene

The most important buyers of propylene include manufacturers of polypropylene who account for nearly two thirds of all demand. Polypropylene is a plastic with a very wide range of applications and is, for example, needed for the manufacturing of films, packaging, caps and closures as well as for indivi-

dual parts for the electrical and automobile industry. We anticipate that producers of polypropylene will continue to strengthen their dominant position by 2017.

An Important Pre-Product

The second-largest propylene market consists of producers of acrylonitrile, followed by propylene oxide. The production of cumene accounts for about 5.5% of the global demand for propylene. Other applications make up about 12.5%. Acrylonitrile is mainly used to produce acrylic fibers, which are processed into textiles. The derivatives of propylene oxide are needed as raw materials for the manufacturing of products like polyurethane, lacquers and adhesives, polyester resins, cooling agents, antifreeze, and solvents. Cumene is mainly used to manufacture phenol and acetone, and is therefore also a pre-product for bisphenol A, phenol resins, caprolactam, and methyl methacrylate.

The Study in Brief:

Volume I, chapter 2 starts with a presentation and analysis of the propylene market - including forecasts until 2017: Demand, production, imports, exports, revenues, and prices are analyzed. In addition, the study offers a comprehensive insight in the development of individual regions and global market dynamics.

51 countries are thoroughly analyzed in chapter 3: demand divided by applications, production, capacities, and trade as well as their influencing factors.

Chapter 4 analyzes the propylene demand worldwide and of the 7 world regions (Western and Eastern Europe, North and South America, Asia-Pacific, Middle East, and Africa), divided by applications. Most important application areas are: Polypropylene, acrylonitrile, propylene oxide, cumene, isopropanol, acrylic acid, 2-ethylhexanol, and n-butanol.

Volume II offers a useful list of manufacturers: 137 profiles of producers of propylene, clearly arranged according to contact details, foundation and staff, turnover and earnings, product range, production sites, associated companies, profile summary, technologies, licenses as well as current and planned production plants and capacities.

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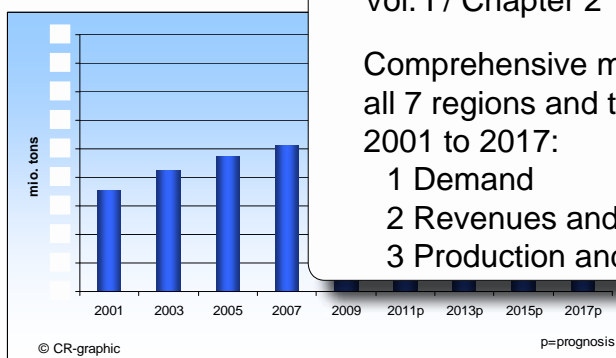
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2.5.1 Demand – South America

Demand for propylene in South America totaled X million tons in 2001. Following an average growth of X% per year, demand increased steadily to around X million tons in 2009 (Graph). We anticipate seeing a further growth in South American propylene demand at an average annual rate of X% between 2009 and 2017, resulting in a demand of X million tons in 2017.



Vol. I / Chapter 2

Comprehensive market data on all 7 regions and the world from 2001 to 2017:

- 1 Demand
- 2 Revenues and Prices
- 3 Production and Capacities

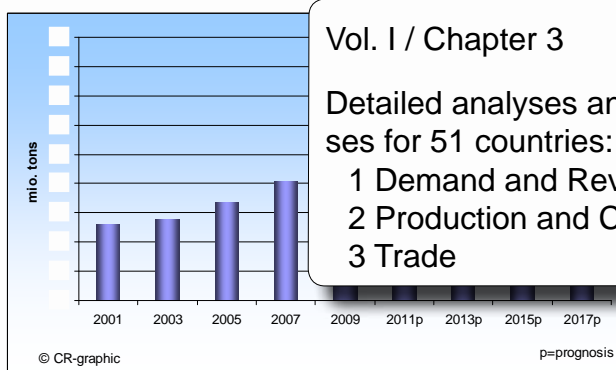
Graph: Demand for propylene in South America from 2001 until 2017, in millions of tons

Country	Share in 2009	Share in 2017
Brazil	X%	X%
Colombia	X%	X%
Argentina	X%	X%
Venezuela	X%	X%
Chile	X%	X%
Total	100%	100%

Table: Various countries' shares in South American demand for propylene between 2009 and 2017

3.2.6.2 Production and Capacities - Russia

While around X million tons of propylene were produced in 2001, this later rose to X million tons in 2009 (Graph). Thus, producers in Russia achieved a X% share of all Eastern European production. We anticipate that production will increase at an annual rate of X% to X million tons by 2017. Producers in Russia had a combined capacity of X million tons in 2009 (Table).



Vol. I / Chapter 3

Detailed analyses and prognoses for 51 countries:

- 1 Demand and Revenues
- 2 Production and Capacities
- 3 Trade

Graph: Production of propylene in Russia from 2001 until 2017

Company	Capacity in tons
	XXX
	XXX
	XXX
	XXX
	XXX
Total	XXX

Table: Propylene capacity in Russia during 2009, in tons

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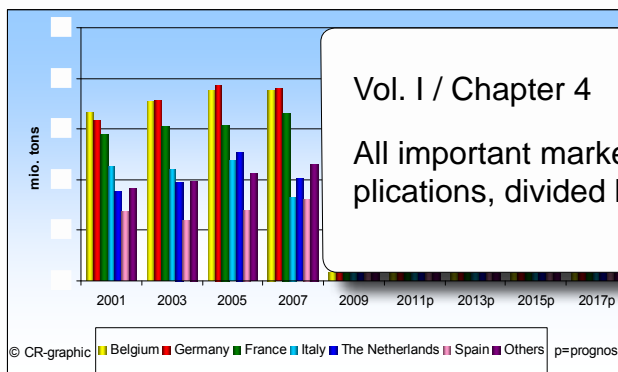
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- List of Graphs
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4.2.1 Polypropylene – Western Europe

Demand for propylene on the polypropylene market rose at an average annual rate of X% over the past eight years and totaled X million tons in 2009 (Graph). We expect demand in this sector will increase slightly by X% per year until 2017. Germany accounted for the largest share of Western European demand with X% in 2009, followed by Belgium, France, the Netherlands, Italy, and Spain (Table). Shares in Western Europe will hardly change during the upcoming eight years.



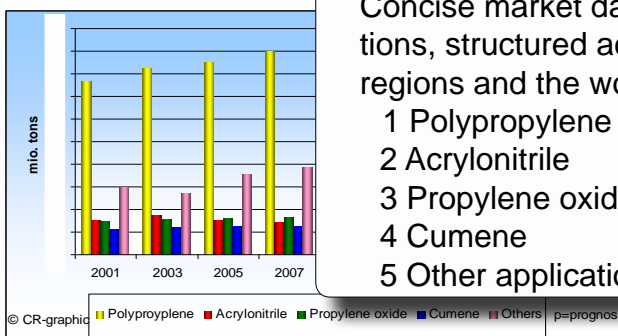
Vol. I / Chapter 4

All important market data on applications, divided by countries

Graph: Demand for propylene for production of polypropylene in Western Europe between 2001 and 2017, divided into the most important countries

Country	Share in 2001	Share in 2009	Share in 2017p
Belgium		X%	X%
France		X%	X%
Germany		X%	X%
Italy		X%	X%

4.4 North America – Applications



Vol. I / Chapter 4

Concise market data on applications, structured according to 7 regions and the world

- 1 Polypropylene
- 2 Acrylonitrile
- 3 Propylene oxide
- 4 Cumene
- 5 Other applications

Graph: Demand for propylene in North America between 2001 and 2017, divided into applications

Demand in millions of tons	2001	2003	2005	2007	2009	2011p	2013p	2015p	2017p
PP	X	X	X	X	X	X	X	X	X
Acrylonitrile	X	X	X	X	X	X	X	X	X
PO	X	X	X	X	X	X	X	X	X
Cumene	X	X	X	X	X	X	X	X	X
Others	X	X	X	X	X	X	X	X	X
Total	X	X	X	X	X	X	X	X	X

Table: Demand for propylene in North America between 2001 and 2017, divided into applications

Total demand for propylene in North America amounted to X million tons in 2009, whereof more than half was needed for the manufacture of polypropylene (Graph).

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Kuwait Petroleum Corporation (KPC)	
P.O. Box 26565	
Safat, 13126	
Kuwait	
Tel.	965 2499 3000
Fax	968 2499 4991
Web	www.kpc.com.kw
E-mail	media@kpc.com.kw
Foundation	1980
Staff	16,331 (31.03.2009)
Turnover 09	KWD 27.72 billion (€)
Turnover 08	KWD 27.02 billion (€)
Turnover 07	KWD 21.77 billion (€)
Earnings 09	KWD 2.05 billion (€)
Earnings 08	KWD 2.37 billion (€)
Earnings 07	KWD 1.71 billion (€)
Divisions, Product range	The company is divided into: <ul style="list-style-type: none"> • Domestic Upstream • Domestic Downstream • Crude Oil and Bulk Products Marketing • Petrochemicals • Transportation • International Upstream • International Downstream • Kuwait Energy Demand • Other Strategic Directions
Production sites	The company coordinates and supervises the various group subsidiaries in Kuwait.

Vol. II / Chapter 5

Extensive company profiles for all manufacturers, as for example BASF SE, China National Petroleum Corp. (CNPC), Eni SpA, Enterprise Products Partners L.P., Exxon Mobil Corp., Formosa Plastics Group (FPG), Ineos Group Ltd., LyondellBasell Industries AF S.C.A., Reliance Industries Ltd., Royal Dutch Shell PLC, Saudi Basic Industries Corp. (SABIC), Sinopec Corp., The Dow Chemical Company, Total S.A., Valero Energy Corp.

*Note: The profiles are assigned to the country in which the company or holding is headquartered. Company profiles also include JV and subsidiaries.

Production sites	The company's production site is located in:	
	<ul style="list-style-type: none"> • [Redacted] Kuwait 	
Associated Companies	Subsidiary companies: <ul style="list-style-type: none"> • Kuwait National [Redacted] • Kuwait Petroleum [Redacted] Joint Ventures: <ul style="list-style-type: none"> • [Redacted] Joint Venture between [Redacted] and [Redacted] (share: [Redacted]%) • [Redacted] JV between [Redacted] and [Redacted] ([Redacted]%) and the [Redacted] Corp (IKC) ([Redacted]%) and [Redacted] 	
Technologies / Licenses	Propylene recovery, olefin conversion	
Site / Plant (current)	Capacity (tons / year)	
[Redacted] Kuwait	[Redacted]	
[Redacted], Italy (JV [Redacted])	[Redacted] % of [Redacted]	
Total capacity (currently)	[Redacted]	
Site / Plant (planned)	Capacity (tons / year)	Start-Up
[Redacted]	[Redacted],650	20[Redacted]
[Redacted] Vietnam (JV [Redacted])	[Redacted] % of [Redacted],000]	
Total Capacity (20[Redacted])	[Redacted],650	

Vol. II / Chapter 5

Clearly arranged data and facts on 137 manufacturers:

- Contact details
- Foundation and staff
- Turnover and earnings
- Product range
- Production sites
- Associated companies
- Profile summary
- Technologies / Licenses
- Current and planned production plants and capacities

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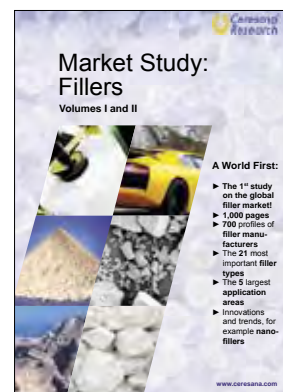
Solvents

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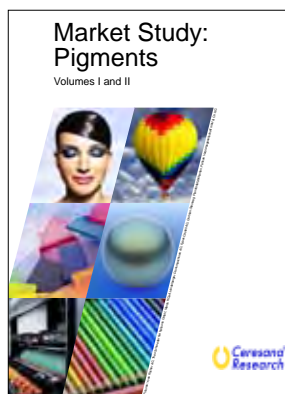
Flame Retardants

44 Products; 241 Producers; 627 Pages, 82 Graphs, 33 Tables; 07/06



Fillers

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Polyethylene - HDPE

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- chemicals
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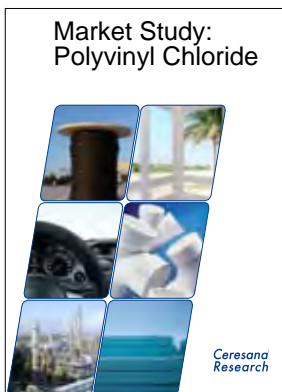
- Producers and traders of propylene and its pre-products
- Processors of propylene, as for example producers of polypropylene, acrylonitrile, propylene oxide, cumene, isopropanol, acrylic acid, 2-ethylhexanol, and n-butanol, as well as their clients
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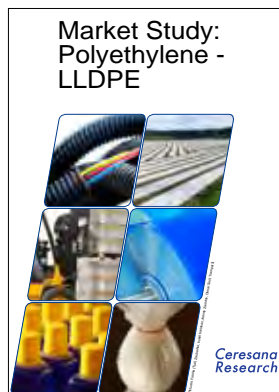
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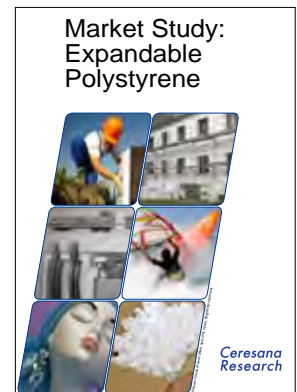
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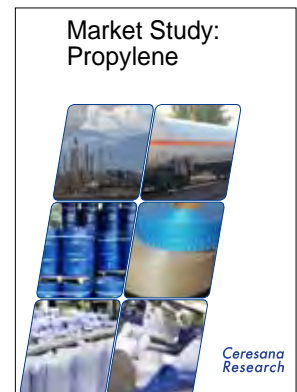
Polyethylene - LDPE
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