Market Study: Expandable Polystyrene

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Ceresana Research

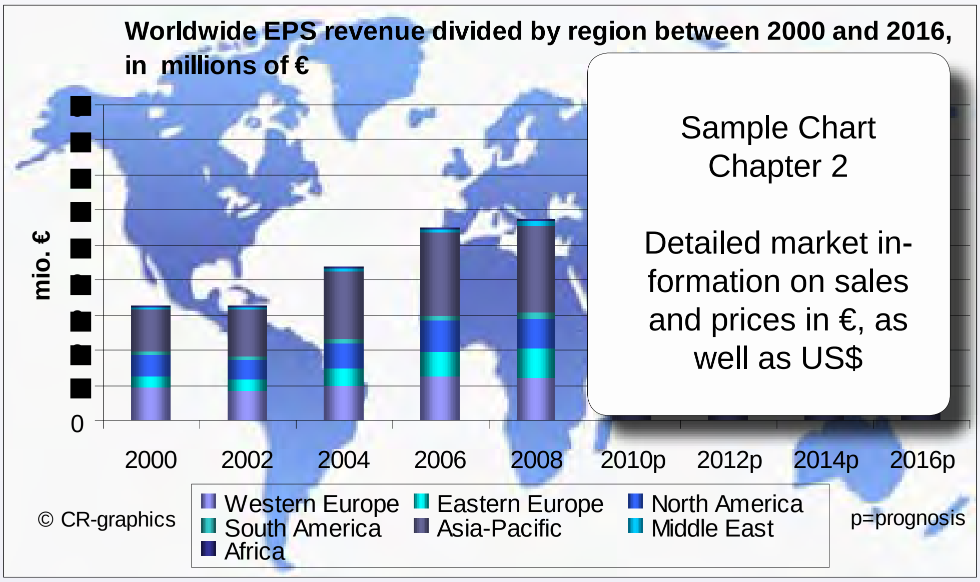
Market Study: Expandable Polystyrene

The newest study from Ceresana Research covers the plastic, expanded polystyrene (EPS). Due to its technical characteristics, such as its light weight, rigidity and excellent formability, this material can be found in a wide range of applications: insulation against heat, sound, and cold, as well as in the packaging industry, and in leisure and sporting goods.

The construction industry is the largest EPS market, with a worldwide share of just less than 60%. This sector's importance will continue increasing in the future. Manufacturing of products for the construction industry will most likely account for 66% of EPS demand in 2016.

After EPS revenue had increased at an average rate of 7.3% per year between 2000 and 2008, market value fell to roughly 4.3 billion € in 2009. Price decreases caused revenue to fall by up to one third in certain regions. However, we expect that the 2008 level will be seen again in 2012.

The primary reasons for this are consumption increases in China, as well as foreseeable price increases starting in 2010. Positive demand impulses exist in saturated markets, as a result of government measures to increase the energy efficiency in new buildings and especially in old building renovations. These measures compensate the declining construction industry in many European countries, so that we can expect growth in EPS demand here again in 2010. Nevertheless, consumption in Western Europe and North America during 2016 will most likely remain below levels seen in 2008.



EPS production in Eastern Europe and the Asian-Pacific is exhibiting very dynamic development. We anticipate seeing an compound annual growth rate of 7.1% in Eastern Europe and 5.9% in Asia, until 2016. Japan and South Korea are the exception here, and will most likely see decreases in production. Capacities in China will grow by more than 750,000 tons, while Eastern Europe will see an increase of just less than 350,000 tons.

In brief

- The multi-client study concisely presents the most important information on the different types of EPS, their advantages, and application possibilities, as well as legal situations, certifications, and recycling.
- Valuable data on production and capacities, as well as imports and exports is provided for 64 countries.
- Data on the EPS market is prepared quantitatively with regard to consumption, the most important application areas and markets – including prognoses up to 2016. Revenue and prices are each given in € and US$ values.
- EPS consumption, divided by application area, is examined in detail for the world and 7 world regions – and additionally for the 11 countries with the highest revenue.
- This useful reference work offers 63 profiles for current and future manufacturers, with information on each product portfolio, as well as current and future capacities.
- The company profiles are structured according to contact information, product ranges, and corporate integration.
- Some of the manufacturers include, among others: BASF, Dart Container, INEOS Group, Jiangsu Sunchem Chemicals Industry, LG Chem, Loyal Group, Ming Dih Group, Nova Chemicals, Polimeri Europa, Sunpor Kunststoff, Synthos, Wuxi Xingda Group

Table of Contents (1/3)

Vol. I

1 Fundamentals

1.1 Basic Knowledge

Outline of this Section:
- Fundamental Terms
- Short History
- Organization of EPS Branches

EPS, **expanded Polystyrene**, also known as P… limitlessly moldable granulated foam plastic, ma… Expanded rigid polystyrene foam is the most impo… tities sold. The most significant application areas… as well as packaging, whereby considerable diffe… world regions. EPS competes mainly with PUR fo… for packaging.

Additional foams based on styrene polymers, whic… clude for example fine pored, extruded foams (-> see the excursus about the properties of XPS and EPS at the end of section 1.2) and ligneous integral foams, which are manufactured through injection molding (TSG process / thermoplastic foam molding) or extrusion (TSE process / twin-screw extruder). These foams posses a rigid shell around the cellular core and are processed into furniture or housings, among other things.

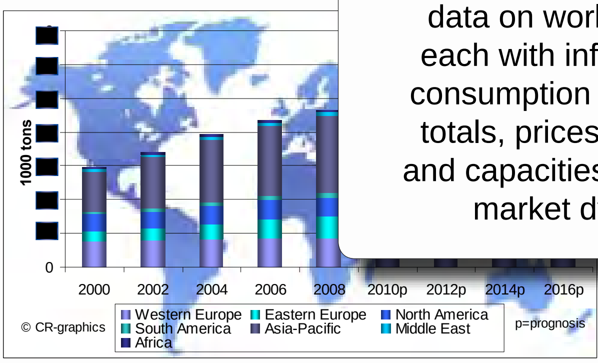
Polystyrene / PS is a transparent, amorphic, or partially crystalline thermoplastic composed of carbon and hydrogen (chemical formula: C_8H_{8n}). Its IUPAC-name is Poly(1-phenylethane-1,2-diyl), its CAS-Nr. 9003-53-6. This bulk plastic with average hardness and rigidity is typically manufactured through the radical polymerization of styrene, an aromatic monomer. **Styrene** is composed of a benzene ring and a two-carbon atom lateral chain with a double bond, known as vinyl residue. This toxic, flammable liquid is produced by the chemical industry, using petroleum. The name originates from storax, a tree species with an odorous resin.

Vol. I / Chapter 1

All important, fundamental information regarding EPS – compiled overview

2 Market Data – World

Worldwide consumption of EPS amounted to roughly X million tons in the year 2000 (see Graph). This amount increased at an ave… of X million tons in 2008. The constructio… consumer of EPS with a share of X%, so… development of the regional building sectors… packaging sector, with a share of X%.



Graph: Worldwide EPS demand divided by region between 2000 and 2016

The Asian Pacific's processing industry reached the largest share of global market volume in 2008, with a share of X%, followed by Western Europe (X%), Eastern Europe (X%), and North America (X%). We expect that the Asian Pacific region will increase its share by more than X percentage points to roughly X% by 2016. The global EPS market is expected to grow at a rate of X% between 2008 and 2016, resulting in a total EPS consumption volume of X million tons. We anticipate seeing less substantial demand growth between 2008 and 2010, in the average amount of X% per year.

Vol. I / Chapter 2

Comprehensive market data on world regions – each with information on consumption and revenue totals, prices, production and capacities, trends, and market dynamics

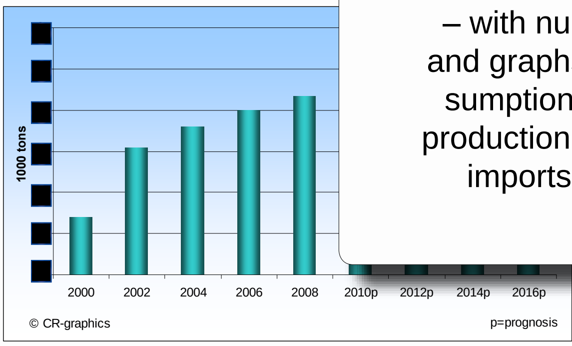
Table of Contents (2/3)

3.4.2.2 Production and Capacities in Brazil

EPS production in Brazil reached a volume of approximately X tons, due to enormous growth over the past eight years, totaling an average of X% annually (see Graph). Accordingly, Brazil is the largest EPS manufacture
X%. A considerable increase in production too
Brazil's volume doubled during these two years, e
X tons in 2001 and steadily rising demand. We a
of X% per year between 2008 and 2016, resulting

Vol. I / Chapter 3

Detailed country analyses – with numerous tables and graphs covering consumption and revenue, production and capacities, imports and exports



Graph: EPS production in Brazil between 2000 and 2016

Company	Capacity in Tons
BASF SE	XX,000
Termotécnica Ltda	XX,000
Resinas Sinteticas do Nordeste SA - (Resinor)	XX,000
Construlev Distribuidora Ltda.	XX,000
Engefril Industria e Comercio Ltda.	XX,000
Total	XX,000

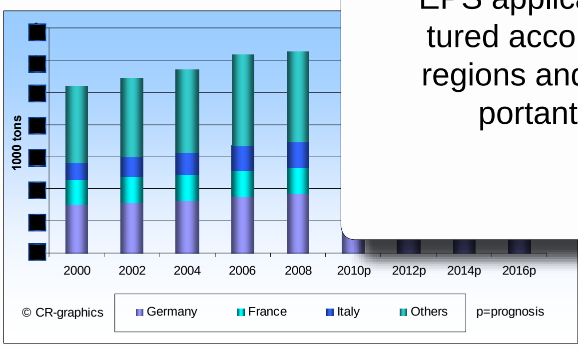
Table: EPS capacity in Brazil during 2008

4.2.1 Construction – Western Europe

Western Europe's construction industry processed approximately X tons of EPS during 2008, accounting for X% of worldwide demand in this sector. Manufacturers in Germany were responsible for the largest sh
followed by France and Italy, each with X% (se
countries attained a market share of more than X%
industry is expected to fall at an average rate of X
period of stagnation, consumption will begin to inc
likely reach 2008 levels again in 2016.

Vol. I / Chapter 4

Concise market data for EPS applications – structured according to world regions and the most important countries



Graph: West European demand of EPS in construction between 2000 and 2016, divided by the most important countries

Past dynamic development seen in the West European construction industry was abruptly halted during the financial crisis. The construction industry's growth rate over the previous four years totaled X% annually, so a decrease in building activities is expected in the next year. Already declining new home construction continued falling in 2008. Slow development of real wages and the generally uncertain situation on the job market will most likely lead to delays in long-term and large purchases from private households. Consequently, a quick recovery is not expected for housing construction. In contrast, renovation measures are having a positive effect on the

Table of Contents (3/3)

Volume II

5.1.3 Germany

BASF SE	
Carl-Bosch-Strasse 38	
67056 Ludwigshafen	
Germany	
Tel.	49 621 60 0
Fax	49 621 60 42525
Web	www.basf.com
E-mail	global.info@basf.com
Foundation	1865
Staff	> 95,000 (2008)
Turnover 08	EUR XX billion
Turnover 07	EUR XX billion
Turnover 06	EUR XX billion
Earnings 08	EUR XX billion (EBIT)
Earnings 07	EUR XX billion (EBIT)
Earnings 06	EUR XX billion (EBIT)
Divisions, Product range	The company's product portfolio includes: • Chemicals Inorganics, petrochemicals, intermediates • Plastics Performance polymers, polyurethanes • Performance Products Dispersions & pigments, care chemicals, paper chemicals, performance chemicals

Vol. II / Chapter 5

Extensive company profiles for 63 manufacturers – with sales and earnings figures, product ranges, production facilities, cooperations, and new developments

Site / Plant (current)	Capacity (tons / year)	Start-Up
Ludwigshafen, Germany	XX,000	
Ludwigshafen, Germany	XX,000	
Nanjing, China (JV BASF-YPC Co., Ltd.)	XX,000 [XX% of XX,000]	
Mangalore, India	XX,000	
Pasir Gudang, Malaysia	XX,000	
Santiago, Chile	XX,000	
Guaratinguetá, Brazil	XX,000	
General Lagos, Argentina	XX,000	
Ulsan, South Korea	XX,000	
Altamira, Mexico (JV Polioles SA de CV)	XX,000 [XX% of XX,000]	
Tarragona, Spain	XX,000	
Total capacity (currently)	XX,000	
Site / Plant (planned)	**Capacity (tons / year)**	**Start-Up**
Ludwigshafen, Germany	XX,000	2009
General Lagos, Argentina	XX,000 + XX,000	2009
Tarragona, Spain	XX,000 - XX,000	2009
Total Capacity (2009)	XX,000	

Type (Density / Bead Size) / Application	Trade Name/Grade
25 - 40 kg/m^3 (Normal bulk density range) / 1.0 - 2.3mm Application: perimeter insulating panels, molded parts exhibiting very low water absorption	Peripor 200

Vol. II / Chapter 5

List of current EPS production facilities – and prognoses regarding future capacities

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12 reasons to order today

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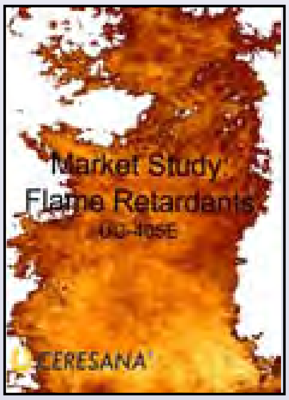

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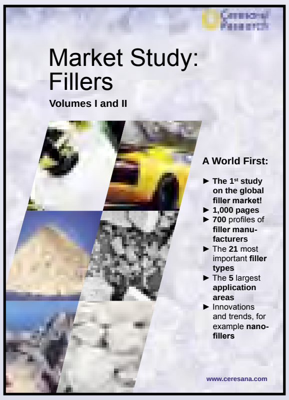

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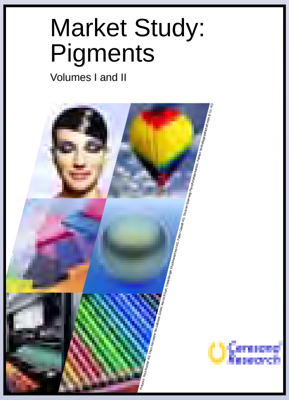

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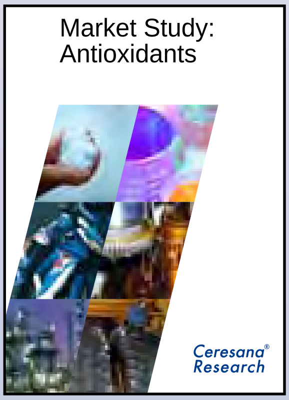

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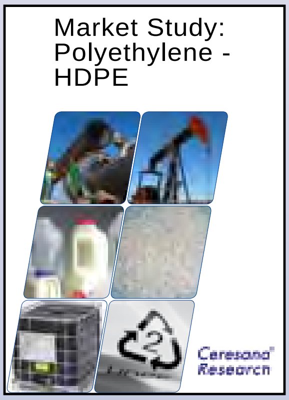

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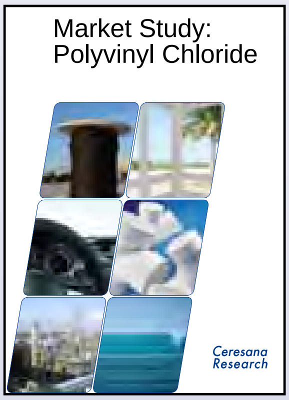

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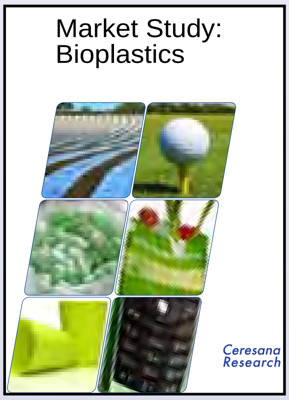

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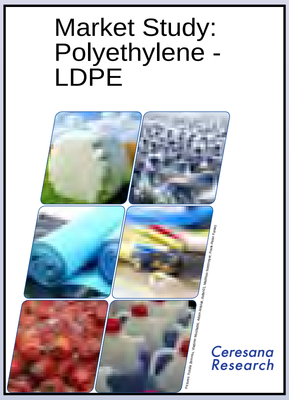

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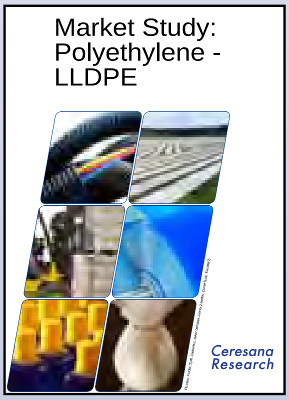

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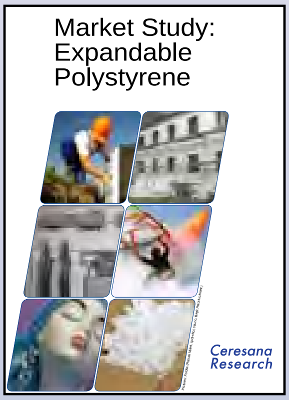

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