Market Study: Polyethylene - HDPE (4th ed.)

Ceresana

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Nowadays, information is available at the push of a button, always, and in overwhelming amounts. But what is the best way to find the crucial data?

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Oliver Kutsch, CEO

Our studies - Your benefits

- Gain new customers
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- Locate optimal procurement markets
- Recognize opportunities and risks
- Identify and profit from future markets

Our studies are useful for:

- Traders and manufacturers of packaging, films, bags, sacks, containers, covers, insulation, sheathing, coating, sport and household items, hygiene articles, toys, medical technology, and others
- Producers of HDPE as well as suppliers of raw materials and additives such as pigments, fillers, stabilizers, and others.
- Companies operating in the areas of flexible and rigid packaging, the construction industry, transportation, the electrical and electronics industry, fibers, and consumer goods.
- Executive board, technology and production, strategic planning, corporate development, R&D, market research, marketing, sales and distribution, procurement

MADE IN GERMANY

High-density polyethylene (HDPE) is the type of polyethylene offering the highest rigidity and least flexibility. The rigid and slightly hard plastic is highly suitable for a broad range of applications such as rigid containers and tubes as well as a variety of everyday household goods such as flasks, clothes pins, or handles of dishwashing brushes. Further, HDPE is processed into films. Ceresana already publishes the fourth study on the world market for HDPE. The current study expects a growth of the HDPE demand of, on average, 2.7% p.a. until 2024.

Western Europe Growing Again

The Asia-Pacific region is by far the largest consumer of HDPE with a global market share of about 45%. This region will experience the most dynamic growth in the upcoming eight years, however, not in the same extent as in the past. The development in Western Europe is reverse: While the HDPE market only registered marginal growth in the past, it will presumably increase at higher rates.

Nozzles under Pressure

The most important HDPE methods of processing are extrusion, blow molding procedures, and injection molding. The extrusion of films plays the most important role:Almost 11 million tonnes were processed in 2016. Ceresana forecasts growth rates of 3.3% per year in the upcoming eight years for the processing of pipes and profiles by extrusion.

Building with HDPE

Milk bottles, water pipes or fireworks: HDPE is used for a wide range of products. In 2016, this plastic was mostly used in the production of rigid packaging. Almost 28% of global HDPE were processed into butter dishes, yogurt cups, trays, bottles, boxes as well as caps. Another significant application area are products for the construction industry, such as tubes and cables. The demand for HDPE in the construction industry will presumably develop especially dynamic.

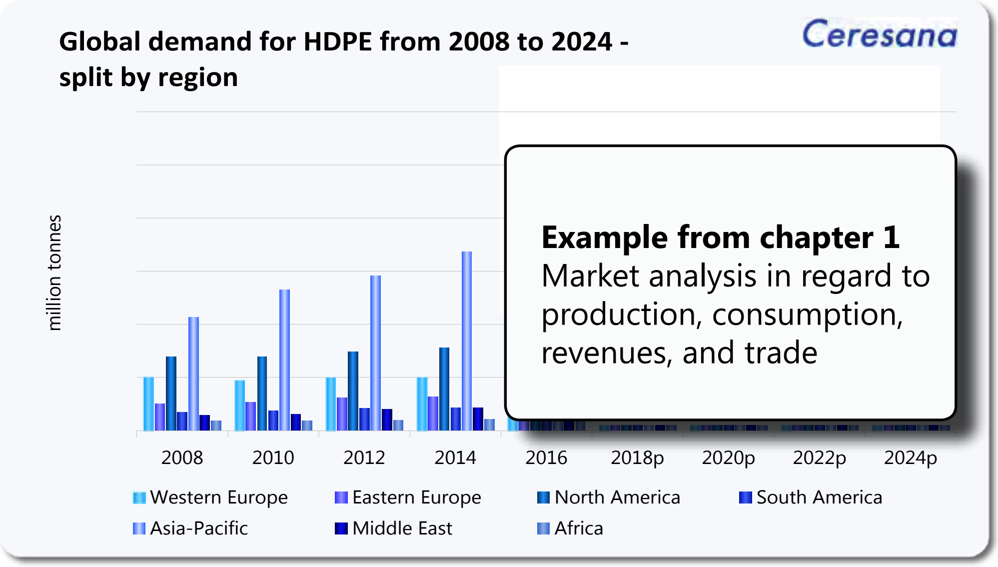
The Study in Brief:

Chapter 1 provides a presentation and analysis of the global market for high-density polyethylene (HDPE), including forecasts up to 2024: The development of demand (tonnes), revenues (dollar and euro), as well as production (tonnes) is depicted for each region.

Chapter 2 offers a detailed analysis of the HDPE market in the 29 major countries: Belgium, France, Germany, Italy, Spain, the Netherlands, the United Kingdom, Poland, Russia, Czechia, Turkey, Hungary, Canada, Mexico, the USA, Argentina, Brazil, China, India, Indonesia, Japan, Malaysia, South Korea, Taiwan, Thailand, Iran, Saudi Arabia, Egypt, and South Africa. Data on demand, revenues, production, producers of HDPE and their capacities as well as import and export are provided. Additionally, the countries are examined in detail regarding the HDPE application areas and technologies (injection molding / blow molding / extrusion - films / extrusion - pipes & profiles / other technologies)

Chapter 3 offers a detailed analysis of applications for HDPE. Data on demand development in individual applications are given for the world as a whole and split by the regions Western Europe, Eastern Europe, North America, South America, Asia-Pacific, the Middle East, and Africa. Information is given for the segments flexible packaging, rigid packaging, construction, transportation, industry and E&E, and other applications.

Chapter 4 provides 79 useful company profiles of the largest producers of HDPE – clearly arranged according to contact details, turnover, profit, product range, production sites, capacities, and profile summary. In-depth profiles of the most important producers are given, including Braskem, Chevron Phillips, CNPC, Dow, ExxonMobil, INEOS, LyondellBasell, SABIC, Sinopec, and Total.



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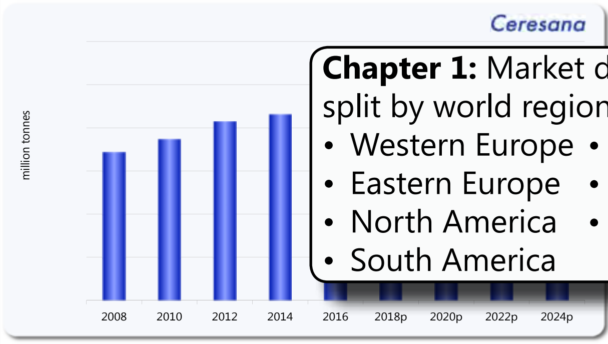
Nigeria (1)
South Africa (1)

1.5 South America

South America processed a little more than X million tonnes of HDPE in 2016. Compared to 2008, consumption volume rose at an AAGR of X%. Accounting for about X% of regional market volume, Brazil is by far the largest individual consumer in South America. Demand is projected to continue to increase to approx. X million tonnes between 2016 and 2024. That year, South America's share of the global HDPE demand will account for roughly X%.

Revenues generated with HDPE in South America amounted to USD X billion in 2016. We forecast a stronger development of sales at a rate of X% p.a. for the period 2016 to 2024.

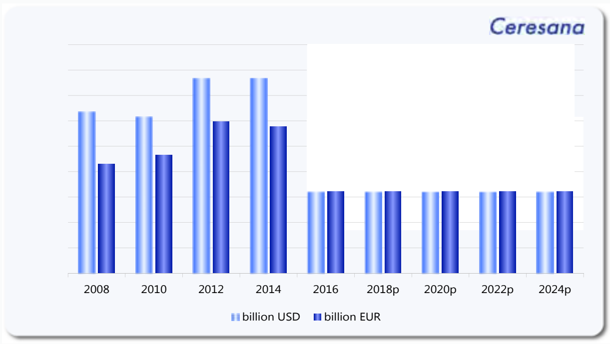


Chapter 1: Market data split by world regions:
- Western Europe
- Eastern Europe
- North America
- South America
- Asia-Pacific
- Middle East
- Africa

Graph: HDPE demand in South America from 2008 to 2024

in 1,000 tonnes	2008	2010	2012	2014	2016	2018p	2020p	2022p	2024p	2016-2024
Argentina	X	X	X	X	X	X	X	X	X	X.X% p.a.
Brazil	X	X	X	X	X	X	X	X	X	X.X% p.a.
Other	X	X	X	X	X	X	X	X	X	X.X% p.a.
Total	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X.X% p.a.**

Table: Demand for HDPE in South America from 2008 to 2024 – split by major countries



Graph: Revenues generated with HDPE in South America from 2008 to 2024 in billion USD and billion EUR

In 2016, about X.X million tonnes of HDPE were manufactured. In South America, HDPE is mainly produced in Brazil. In 2016, Brazilian producers accounted for X.X% of total regional production volume. During the upcoming eight year period, we forecast production volume to increase by X.X% p.a. to approx. X.X tonnes in 2024.

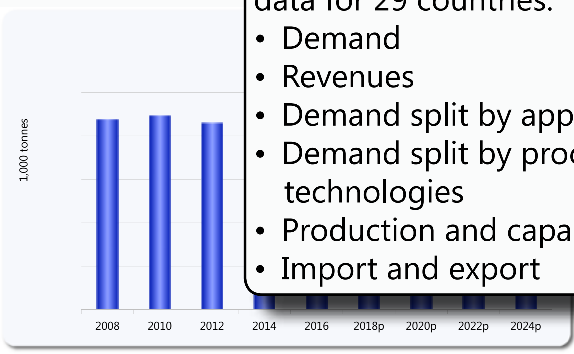
2.5.6 The Netherlands

2.1.6.1 Demand and Revenues

Demand for HDPE in the Netherlands amounted to X tonnes in 2016. Compared to 2008, this constitutes an average increase of X% per year. We forecast total demand to further increase by X% p.a. to approx. X tonnes in 2024. Revenues generated with HDPE in the Netherlands in 2016 totaled about EUR X billion. Market value is projected to increase at an average rate of X% p.a.

Chapter 2: Extensive market data for 29 countries:

- Demand
- Revenues
- Demand split by applications
- Demand split by processing technologies
- Production and capacities
- Import and export



Graph: Demand for HDPE in the Netherlands from 2008 to 2024

2.1.6.2 Demand per Application and Technology

Prime sales market for HDPE in 2016 was the construction sector. The transportation sector is likely to experience the most dynamic development of the next eight years. Demand is projected to increase by, on average, X% p.a.

in 1,000 tonnes	2008	2010	2012	2014	2016	2018p	2020p	2022p	2024p	2016-2024
Flexible Packaging	X	X								
Rigid Packaging	X	X								
Construction	X	X								
Transportation	X	X								
Industry / E&E	X	X								
Others	X	X								
Total	X	X								p.a.

Chapter 2: Demand split by processing technologies:

- Injection molding
- Blow molding
- Extrusion films
- Extrusion pipes & profiles
- Other technologies

Table: Demand for HDPE in the Netherlands from 2008 to 2024 – split by applications

in 1,000 tonnes	2008	2010	2012	2014	2016	2018p	2020p	2022p	2024p	2016-2024
Injection molding	X	X	X	X	X	X	X	X	X	X.X% p.a.
Blow molding	X	X	X	X	X	X	X	X	X	X.X% p.a.
Extrusion - Films	X	X	X	X	X	X	X	X	X	X.X% p.a.
Extrusion - Pipes/Profiles	X	X	X	X	X	X	X	X	X	X.X% p.a.
Other	X	X	X	X	X	X	X	X	X	X.X% p.a.
Total	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X.X% p.a.**

Table: Demand for HDPE in the Netherlands from 2008 to 2024 – split by processing technology

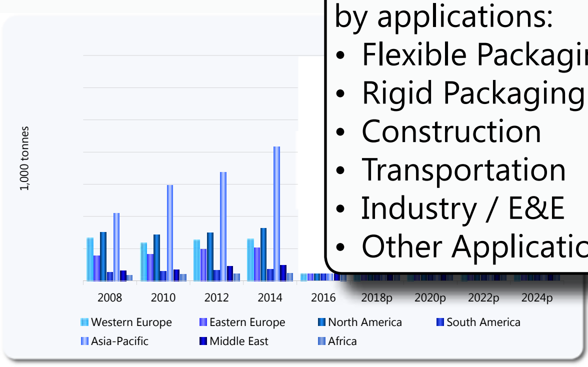
3.1.3 Construction

The application construction includes all products made of plastics that are used in civil engineering and building construction. In addition to residential construction, plastics are utilized in office buildings, sports facilities, and department stores. Examples for the use of plastics in the construction industry are: films, cables, tubes, profiles and coverings, sheets and pipes, dowels, screws, glazing, mounting elements, coatings, and membranes.

In 2016, X million tonnes of HDPE were demanded worldwide for application in the construction industry. Thus, demand for HDPE in this segment rose by, on average, X.X% p.a. when compared to 2008. We forecast global demand for HDPE in this segment to increase by X.X% p.a. to approx. X.X mill

Chapter 3: Demand split by applications:

- Flexible Packaging
- Rigid Packaging
- Construction
- Transportation
- Industry / E&E
- Other Applications



Graph: Global demand for HDPE in the construction industry from 2008 to 2024 – split by regions

Saudi Basic Industries Corp. (SABIC)

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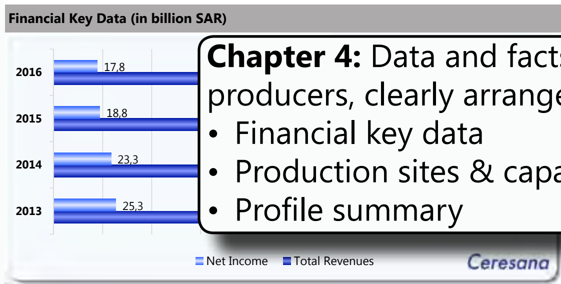
Financial Key Data (in billion SAR)



Chapter 4: Data and facts on 79 producers, clearly arranged by:

- Financial key data
- Production sites & capacities
- Profile summary

General Information about the Company

Divisions, Product Range	The company operates in four business areas: • Petrochemicals: olefins, industrial gases, oxygenates, aromatics, glycols, chemical intermediates, ethanolamines, linear alpha olefins, polyethylene, polypropylene, polyethylene terephthalate, polyvinyl chloride, polystyrene • Agri-Nutrients: urea, ammonia, phosphates • Specialties: NORYL, ULTEM, EXTEM, LNP specialty compounds, specialty films and sheets. • Metals
Production Sites	SABIC owns 36 manufacturing companies across the Middle East (24), Asia (2), Europe (5), and America (5).
Profile Summary	SABIC's businesses are grouped into the segments Chemicals, Polymers, Agri-Nutrients, Metals, and Specialties with about 88% of total sales generated with chemicals.

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1) Please Choose Your Market Studies (W = World; E = Europe)

Chemicals

- ☐ Ammonia - W
- ☐ Antioxidants - W
- ☐ Benzene - W
- ☐ Biocides - W
- ☐ Butadiene - W
- ☐ Butanol - W
- ☐ Carbon Black - W
- ☐ Catalysts - W
- ☐ Chelating Agents - W
- ☐ Crop Protection - W
- ☐ Ethylene - China
- ☐ Ethylene - USA
- ☐ Ethylene - W
- ☐ Fatty Acids - W
- ☐ Fatty Alcohols - W
- ☐ Fertilizers - E
- ☐ Fertilizers - W
- ☐ Fillers - W
- ☐ Flame Retardants - W
- ☐ Flavors - W
- ☐ Fragrances - W
- ☐ Glycerol - W
- ☐ Hydrofluoric Acid & Fluorochem. - W
- ☐ Petrochemicals & Plastics - Iran
- ☐ Pigments - W
- ☐ Plastic Additives - W
- ☐ Plasticizers - W
- ☐ Propylene - China
- ☐ Propylene - USA
- ☐ Propylene - W
- ☐ Solvents - W
- ☐ Stabilizers - W
- ☐ Styrene - W
- ☐ Surfactants - W
- ☐ Titanium Dioxide - W
- ☐ Toluene - W
- ☐ Urea - W
- ☐ Xylene - W

Plastics

- ☐ Bioplastics - W
- ☐ Butadiene Rubber - W
- ☐ Composites (CFRP/GFRP) - W
- ☐ Engineering Plastics - W
- ☐ Expandable Polystyrene - W
- ☐ Masterbatches - W
- ☐ Plastics - E
- ☐ Plastics - W
- ☐ Polyamide (PA6 & PA66) - W
- ☐ Polyethylene (HDPE) - W
- ☐ Polyethylene (LDPE) - W
- ☐ Polyethylene (LLDPE) - W
- ☐ Polypropylene - W
- ☐ Polystyrene - W
- ☐ PUR & Isocyanates - W
- ☐ Polyvinyl Chloride - W
- ☐ Silicones - W
- ☐ Styrene-Butadiene Rubber - W
- ☐ Synthetic Rubber - W
- ☐ Thermoplastic Elastomers - W

Industry

- ☐ Adhesives - E
- ☐ Adhesives - W
- ☐ Adhesive Tapes - E
- ☐ Automotive Coatings - W
- ☐ Automotive Plastics - W
- ☐ Bitumen - E
- ☐ Construction Plastics - W
- ☐ Insulation Materials - E
- ☐ Insulation Materials - W
- ☐ Paints & Varnishes - E
- ☐ Paints & Varnishes - W
- ☐ Pipes - E
- ☐ Plastic Extrusion - W
- ☐ Plastic Injection - W
- ☐ Plastic Pipes - E
- ☐ Plastic Pipes - W
- ☐ Plastic Windows - W
- ☐ Printing Inks - E
- ☐ Printing Inks - W
- ☐ PUR – Adhesives & Sealants - W
- ☐ PUR – Paints & Coatings - W
- ☐ Windows & Doors - E

Packaging

- ☐ Bags & Sacks - E
- ☐ Bags & Sacks - W
- ☐ Caps & Closures - E
- ☐ Corrugated/ Solid Board/ Carton - E
- ☐ Flexible Packaging - E
- ☐ Food Packaging - E
- ☐ Labels - E
- ☐ Plastic Bottles - E
- ☐ Plastic Caps & Closures - E
- ☐ Plastic Caps & Closures - W
- ☐ Plastic Containers - E
- ☐ Plastic Containers - W
- ☐ Plastic Films - E
- ☐ Plastic Films - W
- ☐ Rigid Metal Packaging – E

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