



Latin American Engineering Plastics Market

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Certification

- We hereby certify that the views expressed in this research service accurately reflect our views based on primary and secondary research with industry participants, industry experts, end-users, regulatory organizations, financial and investment community, and other related sources.
- In addition to the above, our robust in-house forecast & benchmarking models along with the Frost & Sullivan Decision Support Databases have been instrumental in the completion and publishing of this report.
- We also certify that no part of our analyst compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this service.

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Executive Summary



Methodology

- The research methodology combines primary and secondary research to provide a holistic analysis of the Latin American engineering plastics, following the principles of Frost & Sullivan's market engineering research methodology.
- This is a measurement-based system of market measurement, analysis, forecasting, strategy development, and monitoring. The full research cycle is outlined in the chart alongside. Frost & Sullivan's approach is designed to fully integrate market research, goal setting, strategic marketing, market planning, implementation, and monitoring as integral components of the marketing process in agreement with its clients.
- This study is specifically based on comprehensive interviews with technical staff, sales, and business development and marketing management of engineering plastics companies in Latin America. In addition, extensive secondary research on market trends has been conducted to support the analysis.

Market: Engineering Plastics (Latin American), 2008-2015



Source: Frost & Sullivan

Research Objectives

This research service aims at:

- Providing a comprehensive analysis of the Latin American market for engineering plastics;
- Analyzing and providing insights into the market dynamics and industry challenges faced by suppliers;
- Analyzing and providing revenue forecasts for the product segments of ABS, PA, PC, POM, PBT, and PMMA.
- Analyzing end-users and identifying opportunities for product segments in Latin America.
- Providing strategic recommendations for manufacturers;
- Analyzing the impacts of the economic downturn in this industry and the participants' response to the crisis, highlighting the best practices adopted by the industry.

Market Overview

- This research service analyzes the Latin American engineering plastics market. The market is divided according to resin types into six major segments, namely:
 - Acrylonitrile Butadiene Styrene (ABS)
 - Polyamide (PA)
 - Polycarbonate (PC)
 - Polyoxymethylene (POM)
 - Polybutylene Terephthalate (PBT)
 - Polymethylmethacrylate (PMMA)
- Engineering thermoplastics are sold in much lower quantities, and are thus, more expensive per unit weight than commodity plastics. The applications are more specific and niche products are constantly required by the end-users.
- In Latin America, the main end-user for engineering plastics is the automotive industry, followed by the electronics sector.
- The Latin American market for engineering plastics is considered to be in an early mature stage, as the market has already many possibilities to grow through new applications.
- The market is mainly concentrated in Brazil and Mexico, which lead engineering plastics production and imports.

Market Overview (Contd...)

Frost & Sullivan recently presented the top ten performance materials themes for 2009 and some of these themes are affecting the engineering plastics industry. The following trends are related to the engineering plastics industry in Latin America:

Differentiation and Customer Focus

Companies are trying to reorganize their business units around end-user sectors rather than by product type. Engineering plastics manufacturers are adopting this trend, such as Saudi Basic Industries Corporation (SABIC), for instance. Companies are seeking higher value niches, as the engineering polymers sector is highly dependent on the automotive and electronic segments. Manufacturers are investing in R&D to make it happen as beyond materials, it is a matter of solutions working in synergy with the industries. Companies are also seeking new applications in the actual segments, replacing traditional materials.

Expansion Strategies

Latin American region is a key market for global companies in the engineering plastics sector, generating additional growth. The Southern Cone and the Andean regions are perceived, from Mexico's perspective, as markets with major opportunities for engineering plastics. In the Andean region, Colombia is working on the plastics cluster conformation in order to be more competitive in the national and international markets.

Increasing Product Performance

As the engineering plastics industry offer solutions for specific needs, the end-user tends to require higher performance from these polymers. The most requested properties are high impact and thermal resistance.

Market Overview (Contd...)

Supply Chain Management

Service and logistics are gaining importance in the engineering plastics sector as multinational companies already have high-quality products. This means that working together with the industrial companies in new developments and in logistics improvements is a matter of competition in Latin American markets.

Sustainable Production

Environmental concerns are major trends in the engineering plastics sector and the Latin American regulatory framework is moving toward this trend. Companies are developing biopolymers and recyclable engineering plastics (as Rhodia with polyamide) and are increasingly adopting sustainable production processes: energy efficiency, cleaner processes, and water reuse.

Materials with Multiple Functionality

The ability to offer a polymer that satisfies more than one key requirement of an application is likely to remain an important competitive factor. For example, a polyamide can be used to replace metals in a car, be high-impact resistant, and have UV protection and no painting needs as well.

Materials as Enablers of Improved Safety

The trend of increased safety is strong in the automotive and electronics sectors and engineering polymers have an important role in this. For the automotive sector, polymers can replace metals and meet the European requirements for pedestrian safety. For the electronics sector, polymers with flame retardants were developed as a way to increase safety.

Market Overview (Contd...)

Engineering Plastics Market: Major Market Drivers and Restraints (Latin America), 2009-2015

Drivers

Growth in industrial sectors demanding engineering plastics

Engineering plastics as an alternative to commodity plastics, metal, and glass

Technical improvements generating more engineering plastics applications

Increasing safety concerns

Restraints

Competition from traditional materials and other polymers

Increasing energy and raw material prices

High cost of the resins restricts the range of applications

Competition from Asian products

Source: Frost & Sullivan

Summary of Major Findings

Revenues and Pricing Forecasts:

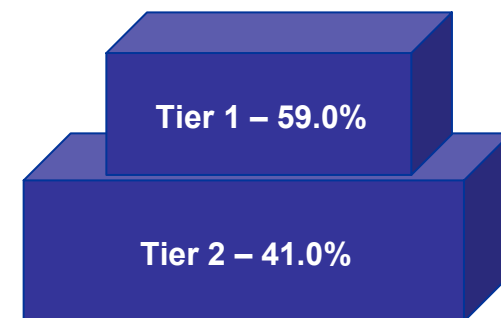
- The Latin American engineering plastics market (resin) was worth \$1,855 million in 2008. Total market revenues are forecasted to grow to \$2,514 million by 2015, at a compound annual growth rate (CAGR) of 4.4 percent from 2008 to 2015.
- The revenue growth rate in the region was 5.4 percent in 2008, driven mainly by the remarkable growth in the automotive sector in countries such as Brazil.
- A deceleration in the engineering plastics market growth in Latin America is expected in 2009 due to the impacts of the economic downturn and as a direct effect of petrochemical feedstock prices.
- With the strong deceleration of the automotive industry globally, engineering plastics suppliers are pursuing new markets and applications in order to diversify their end-users and maintain margins.
- In terms of revenues, ABS, PA, and PC are the leading plastics in the region. There are local production capacities for ABS, PA, PC, and PMMA.
- Volumes of POM and PBT are totally imported, as the current demand is not attractive to participants to establish a production unit in Latin America.
- In general, engineering plastics prices have reduced since the last quarter of 2008 due to decrease in demand. Prices are expected to recover by the second quarter of 2009.
- Blends are gaining space in the market as a way to improve performance or reduce costs.

Summary of Major Findings (Contd...)

Market Structure:

- The Latin American engineering plastics market is fragmented and dominated by multinational manufacturers. In some cases, these major manufacturers do not compete directly as they are not represented in all product segments. The market is concentrated on tier 1 competitors.
- Many local companies also import the resins and mix them with additives. These companies are called compounders.
- There are many different buyer groups with varied needs and requirements. The largest buyers are the automotive, electrical, and consumer appliances industries. While price is important for many groups of engineering plastics buyers, polymer performance, quality, and availability are also key considerations.
- Engineering polymers and compounds are distributed directly through company sales network or through specialist plastics distributors. Most companies use a combination of direct sales and distributors to reach plastics processors that extrude or mould them into many different applications. The main end-user markets are automotive, electrical and electronics, consumer appliances, mechanical parts, and business machine housings.

Total Engineering Plastics Market: Competitive Structure (Latin America), 2008



Tier 1: DuPont, Sabic, Bayer, Rhodia, and BASF

Tier 2: Ticona, Unigel, Samsung, ChiMei, Radici, DSM, Arkema, Evonik Degussa, Mazzaferro, Grupo Idesa, and other participants, such as regional and Asian manufacturers .

Note: All figures are rounded; the base year is 2008.

Source: Frost & Sullivan

Summary of Major Findings (Contd...)

Major Conclusions:

- The engineering plastics market has as important trends the applications differentiation and product performance improvement.
- Latin American Southern Cone countries present opportunities for plastic due to the high plastic industry cluster investment and development.
- Biopolymers are gaining more market awareness and the regulatory frame is will have to adequate in the near future for these new range of plastics.
- An average of 30.0 percent decrease in engineering plastics demand occurred from October 2008 to March 2009 due to the economical crisis and most of it is from the automotive segment. For some market participants, this decreased rate in sales was even higher, between 40.0 to 50.0 percent. Mexico's exports to the United States in the automotive segment decreased by 60.0 percent. Major companies expect growth rates to stabilize and recover by 2010.
- Appliances segment present higher growth rates than the automotive segment. Electrolux recently opened a new plant in the border limits between Mexico and the United States and GE (General Electric Company), Whirlpool Corporation, DAEWOO International Corporation, LG Electronics, and Mabe are located in Mexico as well.