Strategic Analysis of the Global High Performance Fillers 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 organisations, 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

Market Overview

- This research service analyses the global high performance fillers market.
- High performance fillers are defined as particulates which are added to a matrix in order to induce specific properties in the end product, not to reduce costs.
- The following functional properties are considered in this study:
  - Mechanical property modifiers
  - Electrical property modifiers
  - Processability modifiers
  - Flame retardants
  - Niche markets
- Niche markets include:
  - Weight reducing fillers
  - Permeability modifiers
- The high performance fillers market is experiencing significant growth, fuelled by legislative pressure to reduce carbon dioxide emissions and phase out toxic chemicals.
- The high performance fillers market is expected to grow throughout the forecast period from the base year (2008) to 2015.
- The total high performance fillers market is analysed according to the following regions:
  - Europe
  - North America
  - Asia
  - Rest of the World

Industry Challenges

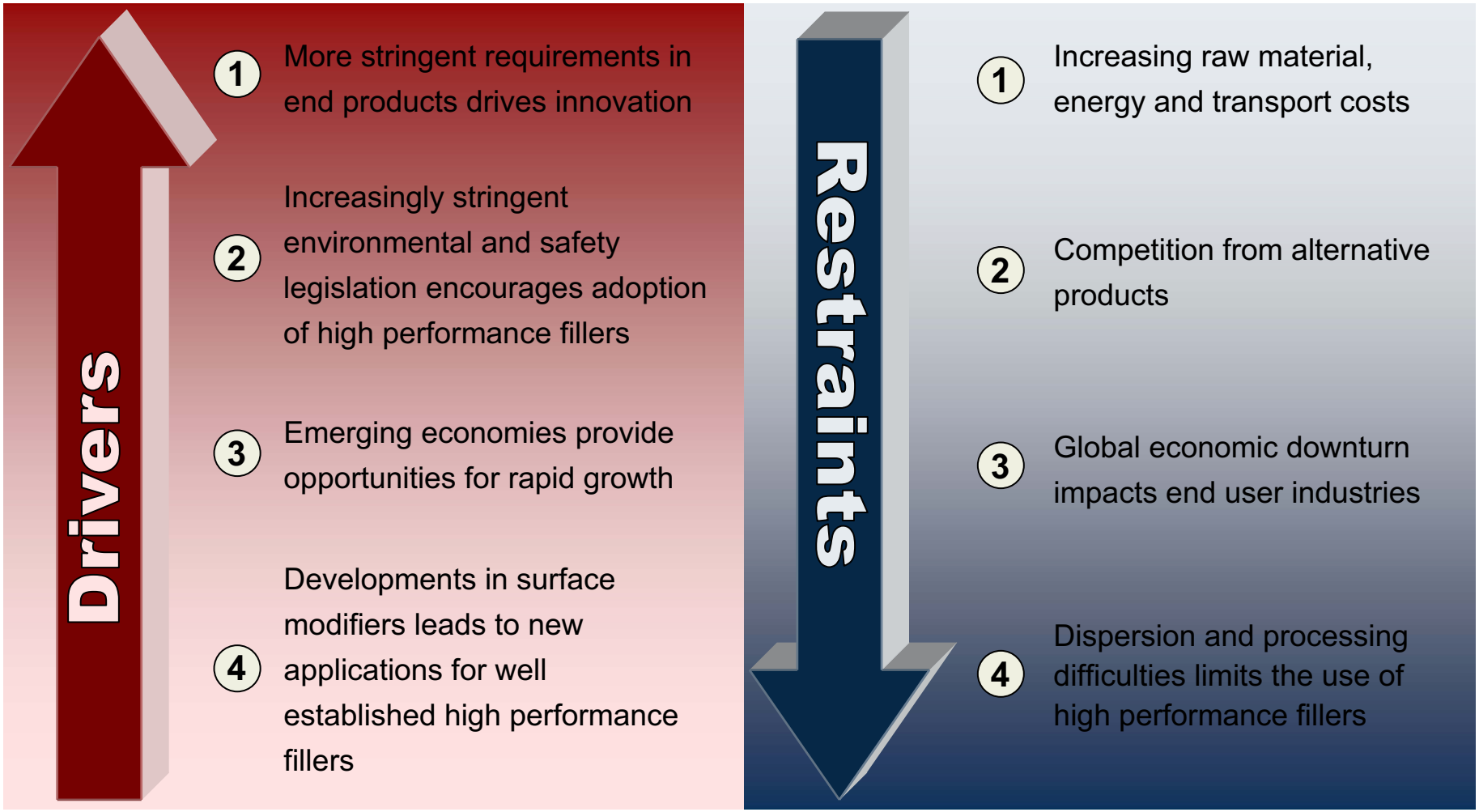
High Performance Fillers Market: Industry Challenges (Global), 2009-2015

- Increasing legislative pressure
- Sustainability and environmental impact of high performance fillers
- Public perception of nanotechnology
- Reduction in the loading of high performance fillers that are required for efficacy
- Property enhancement is dependent on the polymer resin

Source: Frost & Sullivan

Market Dynamics

High Performance Fillers Market: Market Dynamics (Global), 2009-2015

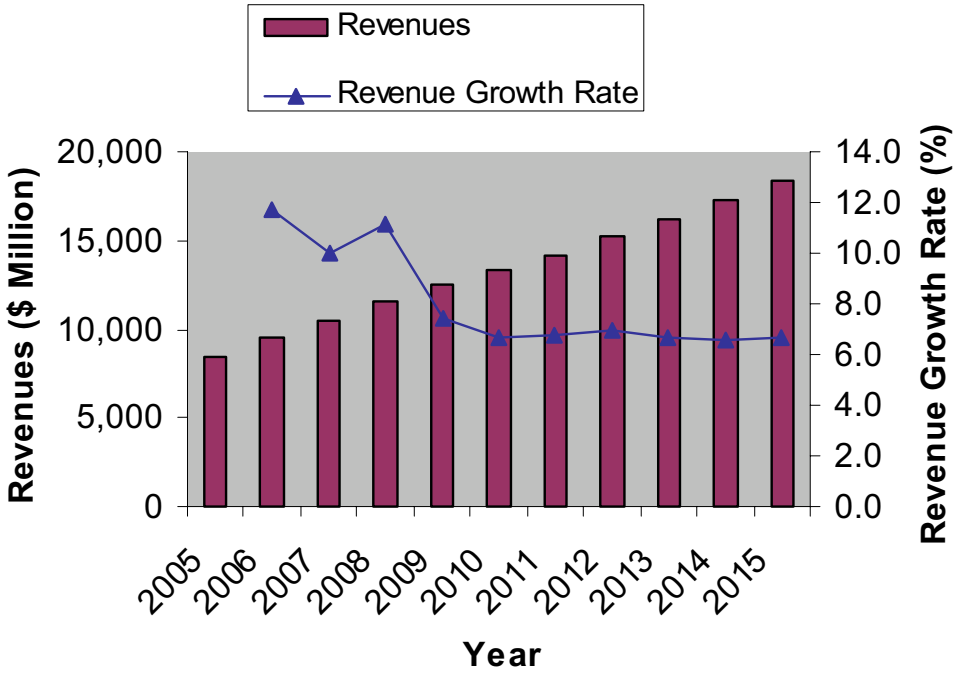


Source: Frost & Sullivan

Revenue Forecasts

High Performance Fillers Market: Revenue Forecasts (Global), 2005-2015

Year	Revenue ($ million)	Revenue Growth Rate (%)
2005	8,488.5	---
2006	9,483.0	11.7
2007	10,434.5	10.0
2008	11,601.3	11.2
2009	12,464.6	7.4
2010	13,298.7	6.7
2011	14,194.2	6.7
2012	15,175.9	6.9
2013	16,182.0	6.6
2014	17,242.9	6.6
2015	18,396.0	6.7



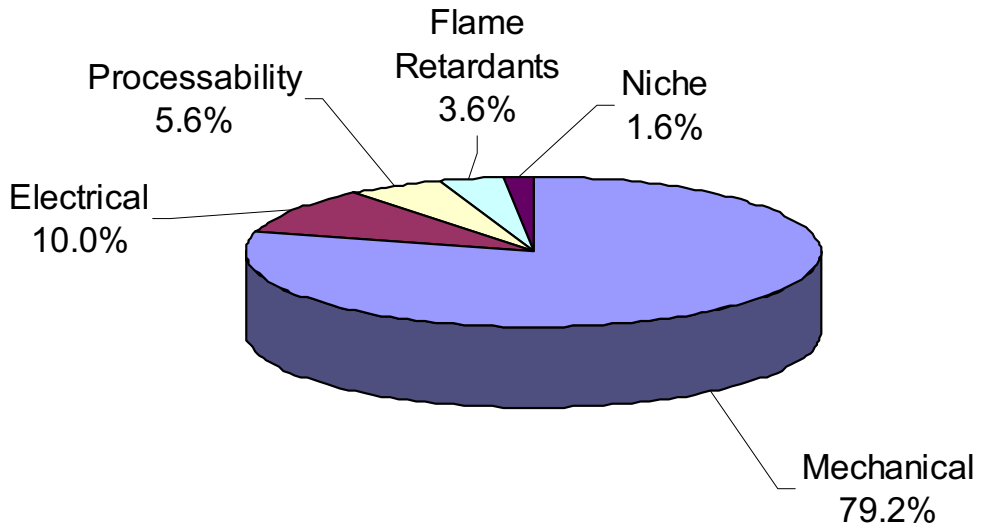
Note: All figures are rounded; the base year is 2008.
Source: Frost & Sullivan

Revenue by Functional Property

- The dominant market segment is mechanical property modifiers, largely due to the large volumes of carbon black that are used in tyre reinforcement.

- Electrical property modifiers command the second greatest market share, with processability modifiers third.

High Performance Fillers Market: Percent of Revenue by Functional Property (Global), 2008



Note: All figures are rounded; the base year is 2008.
Source: Frost & Sullivan

Competitive Structure

- The high performance fillers market consists of over 100 companies. This includes:
  - Carbon black-producing companies such as Birla Carbon, Cabot Corporation, Columbian Chemicals Company and Evonik Industries.
  - Synthetic silica producers including Cabot, Evonik, Wacker, Tokuyama and Elkem.
  - Mineral-producing companies, such as Quarzwerke, Luzenac, Imerys and Omya
  - Nanoclay producers like Akzo Nobel, Elementis Specialties, Laviosa Chimica Mineraria, Southern Clay Products, Natural Nano and Nanocor.
  - Mineral flame retardant-producing companies such as Almatis, J. M. Huber Corporation, Martinswerk and Nabaltec AG.
  - Carbon nanotube producers such as Arkema, Bayer, Hyperion Catalysis and Nanocyl.
  - Around 10 hollow microsphere producers including polymeric (Akzo Nobel, Henkel, Matsumoto) and glass spheres (Potters Group, 3M).
  - Hybrid Plastics, which is the only company commercially producing POSS.

Conclusions

- Critical success factors for the high performance fillers market include:
  - Price versus performance
  - Formation of a partnership with customers
  - Development of strategic alliances
  - Consideration of environmental and health implications
- The high performance fillers market is highly fragmented with over 100 participants active in a wide variety of products. This market is still developing with breakthroughs such as new surface modifiers still able to pose a threat to market leaders.
- The most important factor in choosing a high performance filler is price versus performance. After-sales service helps to ensure retention of customers since dispersion of high performance fillers is not necessarily trivial.
- Mechanical property modifiers dominate the market, due to the large quantities required for rubber reinforcement leading to the consumption of large volumes of carbon black. Precipitated silica is preferred in Europe due to the reduction in rolling resistance leading to improved fuel efficiency and therefore reduced CO_2 emissions.

Research Proposition

- The Strategic Analysis of the Global High Performance Fillers Market research service is part of a larger research programme covering the Specialty Chemicals industry.

- This research programme known as Frost & Sullivan's Growth Partnership Service is an interactive service containing other related topics and deliverables as well as time with the analyst answering your business enquiries regarding the market.

- SpecialtyChemicals@frost.com is an annual service available to the key-players in the specialty chemicals industry.

- Clients will also gain access to all new research services released during the 12 month partnership period. Research services are created from secondary and primary research methodologies and offer Frost & Sullivan's unique TEAM deliverables:
  - Technical - Regular coverage of R&D and emerging trends based on technology that may affect the market
  - Econometric - Providing demographics, statistical, economic, political and regional data
  - Application - Research targeting end users on customer needs, challenges, rankings, purchasing patterns, attitudes, etc
  - Market - Analysis of specific market segments with focus on drivers, restraints, challenges, market sizes, competition and growth forecasts

Research Proposition (Contd…)

- A representative list of related research conducted at Frost & Sullivan and included in our Specialty Chemicals GPS is given below:
  - Indian Polymer Additives Market, 2008
  - European Markets for Carbon Black, 2007
  - Chinese Flame Retardant Chemicals Markets, 2007
  - European Flame Retardant Chemicals Markets, 2006
  - European Plastic Additives Market, 1999