Fluoropolymers

US demand to rise 4.5% annually through 2013

US demand for fluoropolymers will rise 4.5 percent per year to $1.7 billion in 2013. Gains will represent an acceleration from the 1998-2008 decade, during which the fluoropolymer market was hampered by weakness in the manufacturing sector. Going forward, demand for fluoropolymers will be driven by a turnaround in key markets such as motor vehicles and wire and cable, and the increasing need for high-performance materials in demanding industrial applications. Rising demand in emerging, fast-growth markets such as advanced batteries, fuel cells and photovoltaic modules will also support gains.

Fluoroelastomers, smaller-volume types to lead gains

Polytetrafluoroethylene (PTFE), the first commercial fluoropolymer, will continue to account for the largest portion of demand in 2013. Advances for PTFE will be driven by growing opportunities in applications such as chemical processing and industrial filtration. However, the most rapid gains will be seen for fluoroelastomer products, fueled by a strong rebound in motor vehicle production from a low 2008 base. Demand for fluorinated ethylene propylene (FEP) and polyvinylidene fluoride (PVDF) resins will rise at a more moderate pace, limited by a drop in nonresidential construction activity. Nonetheless, gains for these resins will exceed three percent per year by volume, easily outpacing growth in real manufacturing activity over the same period. Robust gains will be also be found in smaller-volume fluoropolymer products, which include a number of high value materials used in emerging markets. Double-digit growth in solar energy products will fuel gains for polyvinyl fluoride (PVF) films used in the production of photovoltaic modules. Demand for perfluorosulfonic acid polymers will be driven by the rapid rise in fuel cell shipments. Additionally, a strong pharmaceutical market will bolster demand for polychlorotrifuoroethylene (PCTFE) polymers, which are used in drug packaging films.

Transportation equipment markets to grow the fastest

Industrial markets will remain the largest outlet for fluoropolymers in 2013, accounting for about one-third of demand by value. The increasingly aggressive and corrosive processes used in chemical and semiconductor manufacturing will spur growing demand for high-performance fluoropolymer materials. The fastest gains, however, will be in transportation equipment markets, driven by a rebound in motor vehicle output and increased penetration of fluoroelastomer products. Electrical and electronic markets will also see above-average gains in demand, led by the small (but rapidly expanding) fuel cell and photovoltaic segments.

Study coverage

This new Freedonia industry study, Fluoropolymers, is priced at $4600. It presents historical demand data (1998, 2003, 2008) plus forecasts for 2013 and 2018 by product, application and market. The study also considers market environment factors, evaluates company market share and profiles industry competitors.
Fluoropolymers

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Strategic Partnerships
Mergers & Acquisitions
Manufacturing
Marketing & Distribution
Research & Development

Company Profiles
This study can help you:

- Determine your market & sales potential
- Learn more about industry competitors
- Assess new products & technologies
- Identify firms to merge with or acquire
- Complement your research & planning
- Gather data for presentations
- Confirm your own internal data
- Make better business decisions

**PRODUCTS**

**Specialty**

Demand for specialty fluoroelastomers is expected to nearly triple from $58 million in 2013, with volume demand to outpace sales. Specialty fluoroelastomers -- including low-temperature, perfluorosulfonic acid-based, perfluoromethyl vinyl ether (PMVE) and TFE with no VDF content, are among the highest-performance (and most costly) of all fluoroelastomer materials. FFKM elastomers maintain a general operating temperature range of -35 to 500 degrees Fahrenheit. These materials are compatible with and resistant to numerous aggressive chemicals, such as organic and inorganic acids, bases, amines, alcohols, aldehydes, ketones, ethers, esters, and hot water or steam. FFKM elastomers also exhibit excellent high temperature resistance and dielectric properties. In general, FFKM elastomers are used in situations where these materials will be faced with high operating temperatures for long periods of time. In these situations, FFKM elastomers are valued since they maintain a higher operating temperature than standard fluoroelastomers, fluorosilicones, silicones, ethylene propylene diene monomer (EPDM), neoprene and nitrile, among others. As such, FFKM elastomers find the majority of their use as seals or gaskets (e.g., O-rings) in markets where their high cost can be justified, such as aerospace, semiconductor processing and oilfield applications. DuPont has unveiled several new grades of its KALREZ perfluoroelastomers recently, including KALREZ SPECTRUM 6380 for seals in harsh chemical processing applications, as well as KALREZ 8900 and 9100 for sealing in semiconductor manufacturing.

**MARKETS**

Gains for fluoropolymers in the fuel cell market will result from rapidly expanding production of proton-exchange membrane (PEM) and direct methanol fuel cells. Fluoropolymer membranes serve as the electrolyte material in PEM fuel cells as well as in PEM-derivative chemistries. For years, the industry standard has been DuPont's NAFION membrane, which is used in PEM fuel cell vehicles. However, efforts have led to the development of alternative membranes, including Gore Fuel Cell Technologies is focusing on producing composite membranes. Besides electrolyte membranes, FFKM elastomers also exhibit excellent high temperature resistance and dielectric properties. In general, FFKM elastomers are used in situations where these materials will be faced with high operating temperatures for long periods of time. In these situations, FFKM elastomers are valued since they maintain a higher operating temperature than standard fluoroelastomers, fluorosilicones, silicones, ethylene propylene diene monomer (EPDM), neoprene and nitrile, among others. As such, FFKM elastomers find the majority of their use as seals or gaskets (e.g., O-rings) in markets where their high cost can be justified, such as aerospace, semiconductor processing and oilfield applications. DuPont has unveiled several new grades of its KALREZ perfluoroelastomers recently, including KALREZ SPECTRUM 6380 for seals in harsh chemical processing applications, as well as KALREZ 8900 and 9100 for sealing in semiconductor manufacturing.

**COMPANY PROFILES**

Profiles over 30 US industry competitors such as Arkema, Asahi Glass, Daikin, DuPont, Dyneon, Honeywell and Solvay

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- Establishing consistent economic and market forecasts
- Using input/output ratios, flow charts and other economic methods to quantify data
- Employing in-house analysts who meet stringent quality standards
- Interviewing key industry participants, experts and end users
- Researching a proprietary database that includes trade publications, government reports and corporate literature

**SAMPLE TABLE**

Historical data for 1998, 2003 and 2008 as well as Freedonia forecasts for 2013 and 2018

**SAMPLE PAGE**

Explanations that support each table’s data and forecasts

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US demand for reinforced plastics will reach 3.6 billion pounds in 2013. Glass fibers will remain the dominant reinforcement material while carbon fiber and nanomaterial reinforcements grow faster. Reinforced thermosets will remain the largest resin type but will be slightly outpaced by thermoplastics. This study analyzes the 3.2 billion pound US reinforced plastics industry, with forecasts for 2013 and 2018 by reinforcement, resin and market. It also evaluates market share and profiles industry players.

Medical Plastics
US demand for medical plastics will reach $6.55 billion in 2012, based in part on heightened concerns over infection control and increased use of disposable medical products and supplies. Smaller-volume engineering plastics will outpace commodity plastics. Packaging will remain the largest and fastest growing market. This study analyzes the 4.4 billion pound US medical plastics industry, with forecasts for 2012 and 2017 by resin and market. It also evaluates company market share and profiles industry players.

Natural Polymers
US demand for natural polymers will grow 7.1% annually through 2012. Best opportunities are anticipated in packaging uses based on the increased availability and cost competitiveness of novel polymers such as polylactic acid (PLA). Cellulose ether will remain the largest segment while starch and fermentation acids are anticipated in packaging uses based on their tendency to boost the performance of cosmetics and toiletries. The relatively small medical market will outpace all others. Silicone conditioning agents and emollients will be the fastest growing applications. This study analyzes the $3.2 billion US silicone industry, with forecasts for 2012 and 2017 by product, market and application. It also evaluates company market share and profiles major players.

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