

High Performance Composites

US Industry Study with Forecasts for 2020 & 2025

Study #3438 | August 2016 | \$4900



The demand landscape for high performance composites will shift yet again over the forecast period. High performance composites are becoming more widespread and attracting new companies, thus becoming less expensive.

Market penetration

High performance composites have continued to penetrate more and more markets, starting off years ago in niche, high-priced outlets such as aerospace and luxury sports cars. Now they are used widely in technologies that are transforming the way people live their lives, such as being included in wind turbines and gas tanks in alternative fuel-powered motor vehicles. In addition, government and industry are partnering to expedite technological advancement and affordability.

Wind energy & pressure vessels support gains

Though the large aerospace market propelled gains in the past, it will be the wind energy and pressure vessel markets that support gains into the forecast period. Without any major new aircraft, demand for high performance composites in the aerospace market will decelerate, though it will be supported by the ramp-up in deliveries of F-35 fighter jets.

The wind market will be supported by a production credit allowing producers and investors to make longer-

term plans and invest with less uncertainty about market subsidies, and pressure vessels will find increased usage as lightweight storage containers for motor vehicles employing alternative fuel systems.

Partnerships driving costs down for motor vehicle composites

Widespread adoption of high performance composites in the motor vehicle segment -- long a primary goal of the carbon fiber industry -- has still not been accomplished. High performance composites are still more expensive and too slow to process to be utilized widely in the mass market models that are manufactured on today's assembly lines. However, government and industry are working together to bring costs down substantially, in part to meet aggressive future fuel efficiency standards.

Study coverage

This study details the US high performance composites market. It presents historical demand data for 2005, 2010 and 2015, plus forecasts for 2020 and 2025 by fiber type (carbon fiber, s-glass, aramid, other), market (aerospace, automotive and industrial, energy, defense and safety, consumer, construction, other) and resin (epoxy, thermoplastic, polyester, phenolic resin, other). The study also considers market environment factors, assesses the industry structure and evaluates company market share.

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High Performance Composite Demand -- Demand for performance per year to \$ growth in w tion tax cred energy from winds in coa increased pe basis, as risir the use of str fiber and oth small portion of the reinforced plastics used in wind turbines due much higher cost compared to conventional composites, and will be specified only for the most demanding applications.

High performance composite demand in the wind energy market rose tremendously during the 2000s, from only \$8 million in 2005 to \$286 million in 2015. However, this belies the tumultuous nature of the market during this decade, as wind energy installations waxed and waned from year to year depending mostly on the level of federal subsidies available. Because subsidy funds were not always renewed before the expiration of the previous subsidy, there were often large gaps in funding. As a result, wind energy installations rose sixfold in 2006, more than doubled in 2007, decreased by over 40 percent in 2010, declined by over 90 percent in 2013, before bouncing back to nearly \$120 million in 2014 and more than doubling in 2015. The extension of the production tax credits at the end of 2015 is seen as a major industry event that will eliminate the volatility of demand present in the market over the past several years, at least until the end of the decade. Stricter renewable energy standards -- some of which are met through wind capacity -- should provide some degree of insulation to the market,

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TABLE IV-3

AEROSPACE HIGH PERFORMANCE COMPOSITE DEMAND (million dollars)

Item	2005	2010	2015	2020	2025
Aerospace Equipment Shipments (bil \$)					
\$ HPC/000\$ aerospace					
Aerospace HPC Demand					
By Sector:					
Commercial Airlines					
Military Aircraft					
Other Aerospace					
By Fiber:					
Carbon Fiber					
S-Glass Fiber					
Aramid Fiber					
Other					
By Resin:					
Epoxy					
Thermoplastics					
Phenolics					
Polyester					
Other					
\$/lb					
Aerospace HPC Demand (mil lb)					

Source: The Freedonia Group

TABLE III-3

CARBON FIBER DEMAND IN HIGH PERFORMANCE COMPOSITES BY SIZE & PROCESS (million pounds)

Item	2005	2010	2015	2020	2025
Fiber Demand in HPCs					
% carbon					
Carbon Fiber Demand in HPCs					
By Size:					
Small Tow					
Large Tow					
By Process:					
PAN-based					
Pitch-based & Other					
\$/lb					
Carbon Fiber Demand in HPCs (mil \$)					
Carbon Fiber HPC Demand (mil \$)					

Source: The Freedonia Group

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

Related Studies

World Thermoplastic Elastomers

World thermoplastic elastomer (TPE) demand will grow 5.2 percent annually to 6.7 million metric tons in 2019. Styrenic block copolymers will remain the largest segment, while thermoplastic vulcanizates and polyolefin elastomers will grow the fastest. China will remain the largest and fastest growing market. This study analyzes the 5.2 million metric ton world TPE industry, with forecasts for 2019 and 2024 by market and product for six world regions and 16 major countries. The study also evaluates company market share and profiles industry players.

#3326..... November 2015 \$6500

Custom Thermoplastic Compounding

US demand for custom compounded thermoplastics will rise 3.2 percent annually to 10.6 billion pounds in 2019, valued at nearly \$19 billion. The construction market will grow the fastest, nearly twice the pace of the next fastest growing market, wire and cable. Compounded thermoplastic PVC will continue to offer the best growth opportunities. This study analyzes the 9.1 billion pound US custom compounded thermoplastic industry, with forecasts for 2019 and 2024 by resin and market. The study also evaluates company market share and profiles industry players.

#3336..... October 2015 \$5300

Electric Motors

US electric motor demand will rise 5.4 percent per year through 2018 to \$16.2 billion. Growth in the dominant AC motors segment will outpace DC types. The motor vehicle market will grow the fastest and remain the largest category, followed by the heating/cooling and machinery markets. IHP electric motors will outpace FHP types in both value and volume terms. This study analyzes the \$12.5 billion US electric motor industry, with forecasts for 2018 and 2023 by type, power rating, and market. The study also evaluates company market share and profiles industry players.

#3238..... December 2014 \$5200

Wind Turbine Systems

US demand for wind turbine systems is forecast to reach \$18.9 billion in 2018, a nearly ninefold increase over severely depressed 2013 levels. The market for wind turbines tends to be highly volatile due to its reliance on government incentives. Feed-in tariff payments and various grants from the Department of Energy will drive gains going forward. This study analyzes the \$2.1 billion US wind turbine system industry, with forecasts for 2018 and 2023 by type, component, application and US region. The study also evaluates company market share and profiles industry players.

#3139..... March 2014 \$5100

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Freedonia's methods

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

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