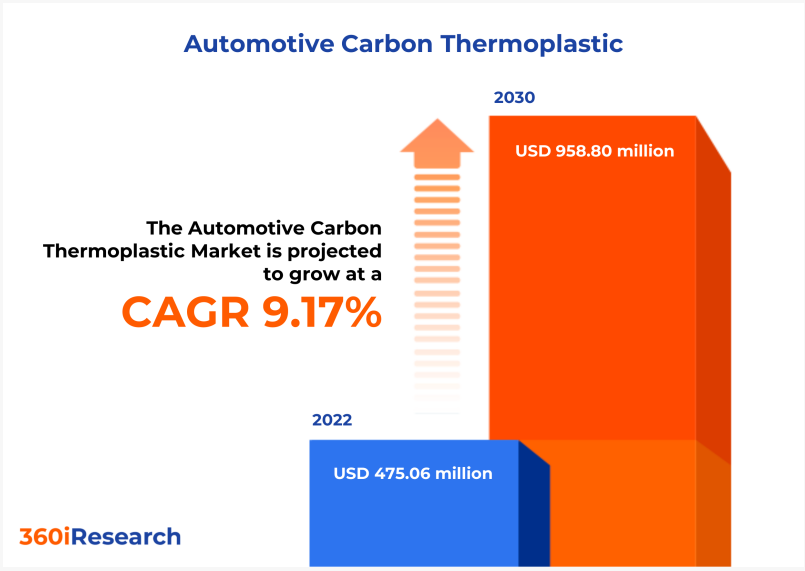
Automotive Carbon Thermoplastic Market worth $958.80 million by 2030 - Exclusive Report by 360iResearch

The Global Automotive Carbon Thermoplastic Market to grow from USD 475.06 million in 2022 to USD 958.80 million by 2030, at a CAGR of 9.17%.



Automotive Carbon Thermoplastic Market - Exclusive Report by 360iResearch

PUNE, MAHARASHTRA, INDIA , December 6, 2023 /EINPresswire.com/ -- The "Automotive Carbon Thermoplastic Market by Resin Type (Polyamide (PA), Polycarbonate (PC), Polyetheretherketone (PEEK)), Raw Material (PAN-based Carbon Fibers, PITCH-based Carbon Fibers), Application - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.

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Automotive carbon thermoplastics, also known as carbon fiber-reinforced thermoplastics (CFRTP), are advanced materials characterized by their lightweight, superior strength, and durability. They are increasingly used in the automotive industry to decrease vehicle weight and enhance fuel efficiency without compromising performance or safety. Integrating carbon thermoplastics aligns with the automotive industry's shift towards sustainable materials and practices. The primary applications of automotive carbon thermoplastics are found in manufacturing interior, exterior, and structural components of vehicles. Major end-use segments include the production of chassis, powertrain systems, wheels, and body panels. A growing demand for lightweight automotive components and advanced composites may offer

cost or performance advantages in certain applications. Rising emphasis on eco-friendly manufacturing practices and materials enhances carbon thermoplastics' performance and reduces cost. Price volatility associated with the production of automotive carbon thermoplastic and certain environmental effects related to automotive carbon thermoplastic are hampering market growth. Increasing the introduction of novel automotive carbon thermoplastics with improved properties represents significant growth opportunities. Moreover, growing potential with an expanding focus on electric vehicles is creating opportunities in the automotive carbon thermoplastic market.

Application: Rising application of carbon thermoplastic in interior components prioritize passenger safety and high-quality finish

In the exterior application, the demand for automotive carbon thermoplastics is spurred by the need for materials that can improve fuel efficiency through weight reduction without compromising durability and design flexibility. Components such as bumpers, fenders, and body panels are now being manufactured with carbon thermoplastics. The interior segment of automotive carbon thermoplastics is driven by the appeal for high-end, aesthetically pleasing, and lightweight components. The goal is to enhance passenger safety, comfort, and the overall driving experience while maintaining recyclability. Powertrain and under-the-hood (UTH) applications necessitate materials that can withstand high temperatures, chemical exposure, and mechanical stress. Carbon thermoplastics are selected for their thermal stability, chemical resistance, and lightweight, critical for overall vehicle efficiency and performance. Each subcategory has distinct requirements, but a common theme across all applications is the push toward lightweight materials that do not compromise performance. Interior components prioritize passenger safety and high-quality finish, and powertrain & UTH fields demand resilience to harsh operational environments. The choice of manufacturer often depends on the application's specific requirements, with collaborations specifically aimed at leveraging synergy in new product development and material innovations.

Resin Type: Growing demand for polyetherimide (PEI) for addressing weight reduction challenges in automotive industry

Polyamide (PA), generally known as nylon, is a highly valued thermoplastic in the automotive industry due to its robust mechanical properties and fatigue resistance. It's often used in under-the-hood components and other areas that require high heat resistance and durability.
Polycarbonate (PC) is known for its high impact resistance and transparency and is ideal for applications such as headlights and other automotive lighting components.
Polyetheretherketone (PEEK) is a semi-crystalline thermoplastic with exceptional thermal stability, chemical resistance, and mechanical properties at high temperatures. It is often utilized in high-performance parts, such as gears and bushings. The high heat and flame resistance of polyetherimide (PEI) make it suitable for under-the-hood applications and interior components.
Polyphenylene Sulfide (PPS) is appreciated for its ability to perform in extreme conditions, including high temperatures and harsh chemical environments. It is particularly suitable for components that must withstand prolonged hot water or coolant exposure. Polypropylene (PP) is one of the most versatile plastic materials, widely used in the automotive sector for parts such

as bumpers, cladding, and interior trims due to its superior chemical resistance and impact absorption capabilities. Polyamide (PA) boasts excellent wear resistance and is often used for parts that require long-term durability and strength. Polycarbonate (PC) offers unmatched transparency and impact resistance, making it the go-to option for lighting applications. Polyetheretherketone (PEEK) provides superior mechanical properties at high temperatures and excels in manufacturing performance-critical components. Polyetherimide (PEI) has a high strength-to-weight ratio, meeting the demand for lightweight parts that can sustain high temperatures. Polyphenylene Sulfide (PPS) stands out in high temperature and chemically aggressive environments, making it ideal for cooling and heating systems. Polypropylene (PP) is valued for its cost-effectiveness and versatility, applicable to various parts, from exterior to interior. Recent collaborations between resin manufacturers and automotive companies have led to advancements in materials technology, improved sustainability practices, and more efficient manufacturing processes, which are critical to the industry's evolution.

Raw Material: Significant usage of PITCH-based carbon fibers to produce high-modulus fibers that meet the specific demands of the automotive industry
Polyacrylonitrile-based (PAN-based) carbon fibers are the most prevalent type of carbon fibers used in automotive carbon thermoplastics. Their widespread use is attributed to their superior strength-to-weight ratio and tensile strength, making them ideal for structural components and body panels in the automotive industry. They are also favorable in applications that demand high durability and fatigue resistance. PITCH-based carbon fibers, on the other hand, are specialized fibers derived from petroleum or coal tar pitch. These fibers are known for their high modulus (stiffness) and are primarily used in applications that require high stiffness-to-weight ratios, such as in the chassis of high-performance vehicles. They are ideal for applications where minimal flex is critical. When comparing PAN-based and PITCH-based carbon fibers, the decision of which to use is highly dependent on the specific needs of the automotive application. PAN-based carbon fibers are preferred when high strength and durability are necessary, while PITCH-based fibers are chosen for their stiffness properties. In conclusion, while PAN-based carbon fibers dominate the market due to their versatility and performance characteristics, PITCH-based fibers fill a vital niche for stiffness-critical applications.

Regional Insights:
The Asia-Pacific region, spearheaded by China, Japan, and India, is a rapidly growing market for automotive carbon thermoplastics owing to the increasing demand for lightweight and fuel-efficient vehicles. Consumers in this region are highly cost-sensitive, yet there is a growing awareness and preference for environmentally friendly vehicles. This dichotomy has spurred manufacturers to invest in innovative materials such as carbon thermoplastics that balance cost with performance and sustainability. In the Americas, specifically the United States and Canada, stringent regulations on vehicle emissions have driven the demand for automotive carbon thermoplastics. The consumer purchasing behavior in this region shows a strong inclination towards vehicles that offer fuel efficiency and reduced carbon footprint without compromising performance. This has necessitated significant investment in research and development of advanced materials. Within the European Union, stringent environmental regulations and high

consumer demand for greener transportation solutions have pressured automotive OEMs to innovate. This has led to a surge in investment for research into lightweight materials, including carbon thermoplastics, and a steady stream of new patents, primarily from Germany, France, and Italy, countries with a strong automotive manufacturing pedigree. As for the Middle East and Africa, while the market is still nascent, there is significant potential for growth due to the increasing automobile sales and a budding recognition of the benefits of weight reduction in vehicles for both performance and environmental reasons.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Automotive Carbon Thermoplastic Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the Automotive Carbon Thermoplastic Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the Automotive Carbon Thermoplastic Market, highlighting leading vendors and their innovative profiles. These include Arkema S.A., Asahi Kasei Corporation, Avient Corporation, BASF SE, Celanese Corporation, CHIMURA SANGYO Co., Ltd., CompLam Material Co., Ltd., CQFD Composites, CTech-LLC, Ensinger Inc., Exxon Mobil Corp., Hexagon AB, Jiangsu Aimi Tech Co., Limited, Kingfa Sci. & Tech. Co. Ltd., LANXESS AG, MaruHachi Group, Mitsubishi Chemical Corporation, Okutani Ltd., RLZ Motorsports, Saudi Arabian Oil Co., SGL Carbon SE, Solvay SA, Sumika Polymer Compounds (Europe) Ltd, Teijin Limited, and TORAY INDUSTRIES, INC..

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Market Segmentation & Coverage:

This research report categorizes the Automotive Carbon Thermoplastic Market in order to

forecast the revenues and analyze trends in each of following sub-markets:

Based on Resin Type, market is studied across Polyamide (PA), Polycarbonate (PC), Polyetheretherketone (PEEK), Polyetherimide (PEI), Polyphenylene Sulfide (PPS), and Polypropylene (PP). The Polycarbonate (PC) is projected to witness significant market share during forecast period.

Based on Raw Material, market is studied across PAN-based Carbon Fibers and PITCH-based Carbon Fibers. The PAN-based Carbon Fibers is projected to witness significant market share during forecast period.

Based on Application, market is studied across Exterior, Interior, and Powertrain & UTH. The Exterior is projected to witness significant market share during forecast period.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, New York, Ohio, Pennsylvania, and Texas. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Europe, Middle East & Africa commanded largest market share of 38.43% in 2022, followed by Asia-Pacific.

Key Topics Covered:

The report provides insights on the following pointers:

1. Market Penetration: Provides comprehensive information on the market offered by the key players
2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets
3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments
4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players
5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:
1. What is the market size and forecast of the Automotive Carbon Thermoplastic Market?
2. Which are the products/segments/applications/areas to invest in over the forecast period in the Automotive Carbon Thermoplastic Market?
3. What is the competitive strategic window for opportunities in the Automotive Carbon Thermoplastic Market?
4. What are the technology trends and regulatory frameworks in the Automotive Carbon Thermoplastic Market?
5. What is the market share of the leading vendors in the Automotive Carbon Thermoplastic Market?
6. What modes and strategic moves are considered suitable for entering the Automotive Carbon Thermoplastic Market?

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