

Thermoplastic Composite for the Industrial Market Report: Trends, forecast and Competitive Analysis to 2030

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Abstracts

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Thermoplastic Composite for Industrial Application Trends and forecast

The future of global thermoplastic composite for the industrial market looks promising with opportunities in the pump component, plate and tube stock, enclosure, shipping pallet, and machinery shielding markets. The global thermoplastic composite for the industrial market is expected to grow with a CAGR of 4.1% from 2024 to 2030. The major drivers for this market are the increasing demand for lightweight and high-performance materials in industrial sectors, the growing focus on sustainability and recyclability, and advancements in manufacturing technologies that enhance efficiency and reduce production costs.

Lucintel forecasts that, within the fiber type category, glass fiber is expected to witness the highest growth over the forecast period.

Within the application category, the pump component will remain the largest segment.

In terms of regions, APAC is expected to witness the highest growth over the forecast period.

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Emerging Trends in the Thermoplastic Composite for Industrial Application Trends and forecast Market

Several key trends are currently being observed in the industrial thermoplastic composite for industrial application market which is wider than that of recent years. The changes are due to the increasing needs of industries for lightweight, strong, and environmentally-amphetamine materials that are as economically efficient as cost-effective in the industries.

Sustainable Development and Circular Economies: It is commendable that global thermoplastic composites' structural industrial applications are gaining traction as a result of the thrust toward the sustainability agenda. More and more manufacturers are incorporating recycled and bio-based materials into their products to minimize ecological influence. The practices of the manufacturers are also changing to accommodate the recycling and reusing of products which leads to lower consumption of resources and generation of wastes.

Optimizing Energy Efficiency via Lightweighting: Industrial equipment thermoplastic composites are now gaining use in the aerospace, automotive, and construction sectors, where such materials are incorporated in components to make them lighter, resulting in energy efficiency. Manufacturer's trepidation to outdated energy efficiency norms is causing shifts as lightweight materials decrease fuel heat and improve overall system energy efficiency thus a market in industries looking for ways to mitigate environmental damage.

3D Printing and Additive Manufacturing: Creating complex and unique thermoplastic composite pieces for industrial use will be much less of a challenge due to numerous additive construction technologies such as 3D printing. Such technologies help to shorten the time by which a new product reaches the market, reduce the amount of waste generated, and enable more room for creativity in design especially in the aerospace and automotive industries where design and accuracy are very critical.

Advantages in Fiber Reinforcement: There is an increasing interest in applying advanced fiber reinforcement in thermoplastic composites, particularly in sectors characterized by high strength and high durability requirements. Fiber-reinforced polymeric materials (FRP) give way to strong, light, and durable structural components for aerospace, automotive, and renewable energy applications.

Integration of Smart Materials: There is a growing trend in the use of smart materials, such as thermoplastic materials with embedded sensors, in the industrial field. Such materials make possible the continuous characterization of a product's performance and they also have the potential to enhance predictive maintenance in industries such as automotive and aerospace that depend on high levels of system reliability.

These emerging trends are revolutionizing the thermoplastic composite for industrial application space by increasing the adoption of lighter, more eco-friendly, and innovative materials. The picture is changing in the manufacturing industries and the adoption of smart technologies along with advanced manufacturing will increase the use of these composites in diverse applications.

Recent Developments in the Thermoplastic Composite for Industrial Application Trends and forecast Market

Several key developments are changing the thermoplastic composite for the industrial market industry which is also fostering the change in the outlook towards thermoplastic composites in the market driven by technological evolution and changing market requirements of lightweight and sustainable materials at competitive prices.

Thermoplastic Biomaterials Adoption: The focus on sustainable materials has resulted in the increased development and utilization of bio-based thermoplastics for practical industrial purposes. This is especially true for the automotive and construction industries where more environmentally friendly materials are not optional but a requirement.

Evolution of 3D Printing and Additive Manufacturing: 3D printers are revolutionizing the manufacturing of thermoplastic composites by making it possible to incorporate complicated shapes and parts on demand. This innovation leads to considerable savings on materials used, while also enhancing the degree of efficiency at which manufacturing is done, in particular, the Aerospace and automotive industry.

Greater Applications in Aerospace for Weight Saving Opportunities: More thermoplastic composite materials are being used Structural Components by Aerospace Companies such as Boeing and Airbus for weight saving Duct and

fuselage while improving fuel efficiency. This is driven by the demand for materials that are stronger and lighter which contributes to saving energy and strict regulations.

Smart Films or Composites: The interest in the combination of sensor technologies with thermoplastic composites is at an all-time high. These composite materials that have senses are designed to be used in predictive maintenance and monitoring the performance of systems in critical applications such as automotive and energy where there is a need for integrity of the systems.

Sustainable Manufacturing Practices: Thermoplastic composites are quickly gaining ground due to their recyclability triggering a shift towards circular economies. This trend is helping to lessen the ecological impact of the manufacturing processes in the construction, automobile, and electronics sectors.

These developments espouse a broadened horizon of enhanced sustainability, venturing into innovation, and growing thermal performance efficiency in the industrial thermoplastic composite market. The market is expanded by the focus on lightweighting in new industries, and by the introduction of smart materials and advanced technologies in production.

Strategic Growth Opportunities for Thermoplastic Composite for Industrial Application Trends and forecast Market

The thermoplastic composite market for the industrial sector stands to benefit strategically from the overall growth of the thermoplastic composite market. Opportunities such as further transformation, adaptation towards lightweight materials, sustainability, and easy-to-manufacture processes are predicted to be increasingly sought after in the market.

Automotive Industry Lightweighting: The automotive industry's quest for improved fuel economy has opened up significant opportunities for the use of thermoplastic composites in lightweight automotive components. These materials are more often integrated into vehicle components, including bumpers, dashboard panels, and doors, to enhance fuel economy and minimize emissions.

Aerospace and Aircraft Manufacturing: Thermoplastic composites provide both lightweight and high strength, making them viable materials for industries such as aerospace. There are opportunities to diversify into the manufacturing of more aircraft components with cheaper production costs, lower fuel consumption, and adherence to stringent environmental regulations.

Wind Energy Sector: There is an increasing application of thermoplastic composites in the manufacture of wind turbine blades, as these materials are more durable, lightweight, and moisture-resistant. This trend aims to increase efficiency and reduce costs for the renewable energy sector.

Construction and Infrastructure: Thermoplastic composites are being used more in construction, particularly for roofing, cladding, and flooring materials. The building sector's need for lightweight and eco-friendly materials is driving the advent of more creative thermoplastic solutions.

Electrical and Electronics Industry: The use of thermoplastic composites in electronics, especially for housings, connectors, enclosures, and other components, presents a potential market opportunity. In addition, these composites enhance performance in terms of strength, durability, and resistance to heat and electrical interference.

These growth opportunities stem from the increasing recognition of thermoplastic composites across various industries. The trends toward sustainability, lightweighting, and performance optimization are expected to drive adoption, market growth, and penetration in industrial applications.

Thermoplastic Composite for Industrial Application Trends and forecast Market Driver and Challenges

The thermoplastic composite market for the industrial sector is governed by a wide array of technological, economic, and regulatory enablers, as well as challenges that must be resolved for greater market uptake.

The factors responsible for driving the thermoplastic composite market for the industrial sector include:

Technological Advancements in Materials Science: There is a relentless effort to research and develop composite materials, including fiber-reinforced materials and bioplastics, which enhance the versatility of thermoplastics for greater industrial application.

Sustainability and Regulatory Pressure: Manufacturers are facing pressure from governments and the general public in nearly all countries to adopt more sustainable production processes. This is boosting demand for recyclable and green thermoplastic composites, enabling companies to comply with environmental laws and minimize their emissions.

Demand for Lightweighting in Transport: Aerospace and automotive industries are gradually embracing thermoplastic polymers in their composite materials in a bid to reduce weight, which automatically enhances the energy efficiency of aircraft, vehicles, their fuel consumption, and the emissions they produce.

Cost-Effective Manufacturing via 3D Printing: The development of 3D printing technologies and other advanced manufacturing techniques, such as additive manufacturing, is reducing the costs associated with the production of thermoplastic composites, enabling their use in various industries where complex and tailored engineering parts are required.

Increased Focus on Performance and Durability: Industries are increasingly looking for performance-based materials that are also durable. This has made thermoplastic composites popular, as they are tough, lightweight, and capable of withstanding harsh environments.

Challenges in the thermoplastic composite market for the industrial sector include:

High Initial Cost: Due to the characteristics of thermoplastic composites, their application requires significant initial investment, especially when adopting this new material in industries.

Material Supply Constraints: Due to the complex production methods used to fabricate advanced thermoplastic composite materials, their availability can be limited, which hampers scaling up and the cost benefits of these materials.

Lack of Industry Standards: The absence of general metrics for molding

thermoplastic composite polymeric production limits the usability of these materials in production processes within the marketplace.

While there is strong growth potential stemming from ongoing technological advancements and the increased demand for lightweight and environmentally friendly solutions, prohibitive costs, material constraints, and the absence of unified standards remain formidable obstacles preventing the widespread adoption of thermoplastic composites in the industrial sector.

List of Thermoplastic Composite Companies for the Industrial Market

Companies in the market compete on the basis of product quality offered. Major players in this market focus on expanding their manufacturing facilities, R&D investments, infrastructural development, and leverage integration opportunities across the value chain. Through these strategies thermoplastic composite companies for the industrial market cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the thermoplastic composite companies for the industrial market profiled in this report include-

Toray Industries

Solvay

Celanese Corporation

SABIC

BASF

DuPont

LANXESS

Thermoplastic Composite for Industrial Application Trends and Forecast Market by Segment

The study includes a forecast for the global thermoplastic composite for industrial application by fiber type, resin type, material type, application, and region.

Thermoplastic Composite for the Industrial Market by Fiber Type [Analysis by Value from 2018 to 2030]:

Glass Fiber

Carbon Fiber

Others

Thermoplastic Composite for the Industrial Market by Resin Type [Analysis by Value from 2018 to 2030]:

PP

PA

PBT

Others

Thermoplastic Composite for the Industrial Market by Material Type [Analysis by Value from 2018 to 2030]:

SFT

LFT

GMT

CFT

Thermoplastic Composite for the Industrial Market by Application [Analysis by Value from 2018 to 2030]:

Pump Components

Plate and Tube Stock

Enclosures

Shipping Pallets

Machinery Shielding

Others

Thermoplastic Composite for Industrial Application Trends and Forecast Market by Region [Analysis by Value from 2018 to 2030]:

North America

Europe

Asia Pacific

The Rest of the World

Country Wise Outlook for the Thermoplastic Composite for Industrial Application Trends and Forecast Market

The thermoplastic composite market for industrial applications is undergoing a remarkable transition, as industries today are seeking materials that are lightweight, strong, and cost-effective to improve product performance, durability, and efficiency. Thermosetting composites offer significant benefits, such as high impact tolerance, flexible design, and a high potential for recycling. These qualities have garnered attention in the aerospace, construction, energy, and automotive industries. Driven by technological development, sustainability efforts, and the need to comply with strict regulations, regions such as the U.S., China, Germany, India, and Japan are increasing the use of thermoplastic composites for industrial applications. This trend is expected to continue growing, with these countries actively contributing to the development and integration of these materials into industrial applications.

United States: Although the use of thermoplastics in composite form is relatively new in the United States, its industrialization has progressed rapidly in the aerospace, automotive, and construction industries. For example, the B787 is equipped with advanced thermoplastic composites to reduce component weight, which in turn helps reduce fuel consumption. General Electric continues to employ thermoplastic composites in various applications. The U.S. is also known for developing bio-based thermoplastics and those produced from recycled materials, which promote eco-sustainability. Growth in the efficiency of thermoplastic composite parts across industries has been spurred by the use of additive manufacturing and 3D printing technologies, which enhance design flexibility and reduce costs.

China: In terms of industrial application, China has accelerated its adoption of thermoplastic composites, driven by the country's innovation initiatives. In the construction, aviation, and energy sectors, companies such as AVIC and Haier are exploring the use of thermoplastics to improve their capabilities and reduce the energy requirements of their products. Given China's manufacturing strength and the government's promotion of green products, the use of thermoplastic composites in equipment, panels, and turbine blades has become widespread.

Germany: Germany continues to lead in the industrial use of thermoplastic composites, particularly in the automotive, aerospace, and energy sectors. Companies like Airbus and Volkswagen are increasingly turning to thermoplastic composites as structural components for vehicles to save weight, which improves fuel efficiency and reduces emissions. Germany's focus on engineering excellence and sustainability has helped propel the development of advanced thermoplastic composites, such as fiber-reinforced polymers (FRP) and their hybrids, into new applications. Economic policies aimed at carbon emission reduction and promoting a circular economy are further encouraging the use of recyclable and bio-based thermoplastic composites in industries, making Germany a key beneficiary of shifts in the fuel market.

India: India's industrial sector is gradually adopting thermoplastic composites for applications in the automotive, infrastructure, and renewable energy sectors. Manufacturers, including Tata Motors and Larsen & Toubro, have begun incorporating these materials to optimize manufacturing processes and reduce the mass of structural assemblies in vehicles and buildings. There is a growing shift in India toward the use of advanced materials, driven by the increasing need for sustainable solutions and the government's favorable policies.

Japan: Japan is leading the way in the use of thermoplastic composites for high-end industrial applications, particularly in the automotive, electronics, and energy industries. Companies like Toyota and Panasonic are optimizing the use of thermoplastic composites to reduce the weight of vehicles and improve the functionality of electronic parts. Focused research and development efforts have led to significant breakthroughs, including high-performance thermoplastic composites that are both rigid and tough, developed through efforts to recycle composites. Additionally, Japan is leveraging robotics and advanced production methods, such as 3D printing, to manufacture thermoplastic composite parts.

Features of Global Thermoplastic Composite for the Industrial Market

Market Size Estimates: Thermoplastic composite for industrial application market size estimation in terms of value (\$B).

Trend and Forecast Analysis: Market trends (2018 to 2023) and forecast (2024 to 2030) by various segments and regions.

Segmentation Analysis: Thermoplastic composite for industrial application market size by various segments, such as fiber type, resin type, material type, application, and region in terms of value (\$B).

Regional Analysis: Thermoplastic composite for industrial application market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

Growth Opportunities: Analysis of growth opportunities in different fiber types, resin types, material types, applications, and regions for the thermoplastic composite for the industrial market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the thermoplastic composite for the industrial market.

Analysis of competitive intensity of the industry based on Porter's Five Forces model.

If you are looking to expand your business in this or adjacent markets, then contact us. We have done hundreds of strategic consulting projects in market entry, opportunity screening, due diligence, supply chain analysis, M & A, and more.

This report answers following 11 key questions:

Q.1. What are some of the most promising, high-growth opportunities for the thermoplastic composite for the industrial market by fiber type (glass fiber, carbon fiber, and others), resin type (PP, PA,PBT, others, and), material type (SFT, LFT, GMT, and CFT), application (pump components, plate and tube stock, enclosures, shipping pallets, machinery shielding, and others), and region (North America, Europe, Asia Pacific, and the Rest of the World)?

Q.2. Which segments will grow at a faster pace and why?

Q.3. Which region will grow at a faster pace and why?

Q.4. What are the key factors affecting market dynamics? What are the key challenges and business risks in this market?

Q.5. What are the business risks and competitive threats in this market?

Q.6. What are the emerging trends in this market and the reasons behind them?

Q.7. What are some of the changing demands of customers in the market?

Q.8. What are the new developments in the market? Which companies are leading these developments?

Q.9. Who are the major players in this market? What strategic initiatives are key players pursuing for business growth?

Q.10. What are some of the competing products in this market and how big of a threat do they pose for loss of market share by material or product substitution?

Q.11. What M&A activity has occurred in the last 5 years and what has its impact been on the industry?

Contents

1. EXECUTIVE SUMMARY

2. GLOBAL THERMOPLASTIC COMPOSITE FOR THE INDUSTRIAL MARKET : MARKET DYNAMICS

2.1: Introduction, Background, and Classifications

2.2: Supply Chain

2.3: Industry Drivers and Challenges

3. MARKET TRENDS AND FORECAST ANALYSIS FROM 2018 TO 2030

3.1. Macroeconomic Trends (2018-2023) and Forecast (2024-2030)

3.2. Global Thermoplastic Composite for the Industrial Market Trends (2018-2023) and forecast (2024-2030)

3.3: Global Thermoplastic Composite for the Industrial Market by Fiber Type

3.3.1: Glass Fiber

3.3.2: Carbon Fiber

3.3.3: Others

3.4: Global Thermoplastic Composite for the Industrial Market by Resin Type

3.4.1: PP

3.4.2: PA

3.4.3: PBT

3.4.4: Others

3.5: Global Thermoplastic Composite for the Industrial Market by Material Type

3.5.1: SFT

3.5.2: LFT

3.5.3: GMT

3.5.4: CFT

3.6: Global Thermoplastic Composite for the Industrial Market by Application

3.6.1: Pump Components

3.6.2: Plate and Tube Stock

3.6.3: Enclosures

3.6.4: Shipping Pallets

3.6.5: Machinery Shielding

3.6.6: Others

4. MARKET TRENDS AND FORECAST ANALYSIS BY REGION FROM 2018 TO

2030

- 4.1: Global Thermoplastic Composite for the Industrial Market by Region
- 4.2: North American Thermoplastic Composite for the Industrial Market
 - 4.2.1: North American Market by Fiber Type: Glass Fiber, Carbon Fiber, and Others
 - 4.2.2: North American Market by Application: Pump Components, Plate and Tube Stock, Enclosures, Shipping Pallets, Machinery Shielding, and Others
- 4.3: European Thermoplastic Composite for the Industrial Market
 - 4.3.1: European Market by Fiber Type: Glass Fiber, Carbon Fiber, and Others
 - 4.3.2: European Market by Application: Pump Components, Plate and Tube Stock, Enclosures, Shipping Pallets, Machinery Shielding, and Others
- 4.4: APAC Thermoplastic Composite for the Industrial Market
 - 4.4.1: APAC Market by Fiber Type: Glass Fiber, Carbon Fiber, and Others
 - 4.4.2: APAC Market by Application: Pump Components, Plate and Tube Stock, Enclosures, Shipping Pallets, Machinery Shielding, and Others
- 4.5: ROW Thermoplastic Composite for the Industrial Market
 - 4.5.1: ROW Market by Fiber Type: Glass Fiber, Carbon Fiber, and Others
 - 4.5.2: ROW Market by Application: Pump Components, Plate and Tube Stock, Enclosures, Shipping Pallets, Machinery Shielding, and Others

5. COMPETITOR ANALYSIS

- 5.1: Product Portfolio Analysis
- 5.2: Operational Integration
- 5.3: Porter's Five Forces Analysis

6. GROWTH OPPORTUNITIES AND STRATEGIC ANALYSIS

- 6.1: Growth Opportunity Analysis
 - 6.1.1: Growth Opportunities in Global Thermoplastic Composite for the Industrial Market by Fiber Type
 - 6.1.2: Growth Opportunities in Global Thermoplastic Composite for the Industrial Market by Resin Type
 - 6.1.3: Growth Opportunities in Global Thermoplastic Composite for the Industrial Market by Material Type
 - 6.1.4: Growth Opportunities in Global Thermoplastic Composite for the Industrial Market by Application
 - 6.1.5: Growth Opportunities in Global Thermoplastic Composite for the Industrial Market by Region

6.2: Emerging Trends in Global Thermoplastic Composite for the Industrial Market

6.3: Strategic Analysis

6.3.1: New Product Development

6.3.2: Capacity Expansion of the Global Thermoplastic Composite for the Industrial Market

6.3.3: Mergers, Acquisitions, and Joint Ventures in Global Thermoplastic Composite for the Industrial Market

6.3.4: Certification and Licensing

7. COMPANY PROFILES OF LEADING PLAYERS

7.1: Toray Industries

7.2: Solvay

7.3: Celanese Corporation

7.4: SABIC

7.5: BASF

7.6: DuPont

7.7: LANXESS

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