

Thermoset Resin for Automotive Market Report: Trends, Forecast and Competitive Analysis to 2030

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Abstracts

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Thermoset Resin for Automotive Trends and Forecast

The future of the global thermoset resin for the automotive market looks promising with opportunities in the interior, exterior, and under the hood markets. The global thermoset resin for the automotive market is expected to grow with a CAGR of 3.1% from 2024 to 2030. The major drivers for this market are the increasing demand for lightweight materials, stringent regulations on vehicle emissions and safety standards, and the growing preference for thermoset composites in automotive manufacturing.

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

Within the application category, the interior is expected to witness the highest growth.

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

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Emerging Trends in the Thermoset Resin for Automotive Market

Thermoset Resin for Automotive Market Report: Trends, Forecast and Competitive Analysis to 2030



The demand for thermoset resins in the automotive market is growing faster than ever due to the development of new materials, legislation, and the need for ecofriendly solutions. Underneath there are five noteworthy emerging trends that are presented into focus.

Light Weight Material for Fuel Efficiency: To achieve enhanced vehicle fuel economy, manufacturers are employing thermoset resins in vehicle construction to offer reduced weight. Demand for lightweight materials to be applied into thermoset composites which are used for structural and exterior and under bonnet components parts has increased tremendously. These resins carry high endurance and toughness as well as considerable weight loading which helps in improving fuel efficiency and reducing the cost in emissions features of the vehicles.

Accessibility to and Integration with Electric Vehicles (EVs): The full-scale shift towards electric vehicles is boosting the usage of certain thermoset resins. These resins are critical for designing lightweight battery enclosures and electric motor housings, among other components. Electric Vehicles (EVs) call for materials that can endure elevated temperatures, possess good mechanical properties, and meet specific safety requirements; thermoset resins satisfy these conditions.

Sustainable and Bio-Based Resins: Because of environmental worries, there is a search for bio-based and thermoset resins that are eco-friendly. Corporations are currently developing resins that are made from renewable resources, particularly plant materials and are relatively carbon-efficient compared to resins based on oil. These materials enable automotive manufacturers to comply with strict pollution control norms and provide eco-friendly products to customers.

Increased Use of Recycled Thermoset Resins: The recycling of thermoset resin is a novel practice that is becoming common in the automotive sector due to the need to manage the waste from composites. Development in recycling technologies is turning thermoset resins into reusable materials thus adding to the circular economy. This trend is pushing producers to use recycled resins in making automotive parts which helps in the management of wastage and cuts down on the carbon footprint in the manufacture of motor vehicles.

Smart Composite Materials: The emergence of smart materials in the production of vehicles is denting the thermoset resins industry. Self-healing, stress or



temperature-responsive, and real-time data interaction smart composite materials enhance vehicles in operation. This makes it possible to improve advanced safety systems as well as facilitate the evolution of interlinked and selfdriving vehicles.

These emerging trends suggest that the thermoset resins market for the automotive market is approaching new, lightweight, greener, and more advanced solutions that are in line with the electric and smart vehicles of the future.

Recent Developments in the Thermoset Resin for Automotive Market

The emerging trends in thermoset resins for the automotive market focus on performance, sustainability, and cost control. Such advances are influencing the development of the market.

Bio-Based and Sustainable Resins: The thermoset resins for many automotive applications, especially end-of-life automotive parts which are often replaced with biobased resins, are being researched for replacement by automotive manufacturers. These materials provide a viable alternative to manufacturers which will in turn help in saving the environment. More of these resins are essential in easing some pollution effects due to manufacturing capacity in automobile companies.

Advanced High-Performance Epoxy Resins: Several systems for integrating a polymer with superior mechanical, physical, and thermal properties into structural elements and battery housings have recently become available. These advanced resins are very important in enhancing the safety and overall endurance of electric cars (EC) and other high-end vehicles. They are fast gaining popularity for use in critical areas of automobile applications owing to their remarkable impact and heat resistance.

Recyclable Thermoset Composites: To that effect, the development of recycled thermoset composites has advanced over the years. New processes are being developed to help with the recycling of these materials which were otherwise deemed non-recyclable. This is helping decrease the negative environmental effects of automotive industry production as well as making room for new circular economies within the industry.



Resin Infusion and Automation: The enhancement of the efficiency of automotive parts manufacture through the combination of resin infusion processes and automated manufacturing is increasing production efficiency. This involves the accurate application of thermoset resins thanks to using mold-making techniques such as stereolithography. Still, there is also a trend of manufacturing with automation that is diminishing the costs of labor and rapid progression of the manufacturing schedule thus allowing these materials within more many automakers.

Smart Thermosetting Resins for Advanced Vehicles: The smart thermosetting resin development process with incorporated sensors is bringing about improvements in vehicle performance. The resins can be helpful in several ways that change the future by including supplying information on the condition of the vehicle which is more useful for maintenance predicting and timely usage of automated driving systems. This particular failure may become more significant as current automotive producers start urging closer vehicle smartening progress.

The greatest attention is paid to performance, sustainability, and smart technologies in these changes in the automotive sector. As the appetite for EVs and advanced materials increases, these innovations foresee the sources of thermoset resins as one of the components within the scope of automotive manufacturing.

Strategic Growth Opportunities for Thermoset Resin for Automotive Market

There are many emerging opportunities in the thermoset resins market for the automotive sector, particularly in electric vehicles, lightweighting, and sustainable materials, which are key drivers of the expansion.

Electric Vehicle (EV) Components: The EV market is experiencing rapid growth. The need for thermoset resins in battery enclosures, structural parts, and motor housings, which require lightweight and durable components, is increasing. This opens up numerous opportunities for thermoset resin manufacturers to produce more products for the high-performance EV market, which demands hightemperature-resistant materials.

Lightweight Materials for Fuel Efficiency: Fuel efficiency and emission standards are compelling automobile manufacturers to embrace lightweight materials. Thermoset resins have the right balance of weight and strength to replace heavy



metal parts in the automotive sector. The shift toward lightweight vehicles is already a trend and will continue to drive demand for these resins.

Eco-Friendly and Renewable Materials: With growing urgency from consumers and regulatory bodies regarding the protection of the ecosystem, it is clear that sustainable thermoset resins will attract significant interest. This presents a business opportunity for manufacturers to produce bio-resins with low emissions that will meet the automotive industry's need for green materials.

Recycling and Circular Economy: As the recycling of thermoset resins improves, there is potential for the circular economy to benefit. Manufacturers can tap into the market for recyclable thermoset materials to help automakers minimize waste and reduce operational costs, while also addressing environmental concerns.

Smart Materials for Advanced Automotive Applications: The use of smart materials in the automotive industry, such as thermoset resins integrated with sensors, is set to drive substantial growth. These materials can be used in systems that aid safe driving, vehicle safety systems, and autonomous driving, creating a market for new composite materials.

These opportunities indicate that the future growth of thermoset resins in the automotive market will be driven by the rise of EVs, lightweighting, sustainability, smart materials, and the recycling of thermosetting resins.

Thermoset Resin for Automotive Market Driver and Challenges

The thermosetting resin market for the automotive industry has various drivers and challenges, including technological improvements as well as legislative factors and regulations.

The factors responsible for driving the thermoset resin market for automotive applications include:

Demand for Lightweight Materials: Lightweight automobile thermosetting composites are pivotal in achieving weight reduction and improving fuel economy, thus helping automobile manufacturers comply with strict emission regulations.



Growth of Electric Vehicles (EVs): The demand for such materials is fueled by the needs of EV producers, who require high-performance thermoset resins for battery covers, structural parts, and thermal management of the battery pack.

Sustainability and Eco-Friendly Products: Rising concerns about environmental sustainability have increased the demand for bio-based and recyclable thermoset resins, which aligns with the global trend of developing green automobiles.

Technological Innovation in Composite Materials: Ongoing technological advancements in synthesizing different resin compositions have resulted in improved features such as heat tolerance, strength, and recycling efficiency, thus encouraging their use in automobiles.

Automation and Advanced Manufacturing: There is a shift from conventional to more automated processes, which reduces production costs and enhances the productivity of thermoset resins for automotive parts.

Challenges in the thermoset resin market for automotive applications include:

High Production Costs: Advanced thermoset resins, especially those that are biobased and eco-friendly, are characterized by high production costs, which can inhibit their widespread adoption.

Recycling and Waste Management: Another challenge with thermoset resins is recycling due to the thermosetting nature of the composites. This makes it difficult to reduce waste produced by the automobile industry, complicating sustainability efforts.

Supply Chain Disruptions: Disruptions in the availability of raw materials worldwide can inhibit the production and delivery of thermosetting resins in the automotive market.

In addition to lightweighting, EV adoption, and sustainability as drivers of market growth, other factors such as cost mitigation, recycling challenges, and unstable supply chains must be addressed for the automotive thermoset resin market to expand.



List of Thermoset Resin for Automotive Companies

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 thermoset resin for automotive companies cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the thermoset resin for automotive companies profiled in this report include-

NEOS Composites BASF Covestro Huntsman Corporation Polynt Group AOC Swancor Hexion Resonac

Thermoset Resin for Automotive by Segment

The study includes a forecast for the global thermoset resin for automotive by resin type, manufacturing process, application, and region.

Thermoset Resin for Automotive Market by Resin Type [Analysis by Value from 2018 to 2030]:



Polyester

Vinyl Ester

Ероху

Phenolic

Polyurethane

Thermoset Resin for Automotive Market by Manufacturing Process [Analysis by Value from 2018 to 2030]:

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Resin Infusion

Filament Winding

Pultrusion

Injection Molding

Compressing Molding

Prepreg Lay-Up

Thermoset Resin for Automotive Market by Application [Analysis by Value from 2018 to 2030]:

Interior

Exterior

Under The Hood



Thermoset Resin for Automotive 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 Thermoset Resin for Automotive Market

The thermoset resins market in automotive applications has been changing decisively and markedly in recent years, due to the need for lightweight, tougher, and more economical materials. With good mechanical properties and high-temperature tolerance, thermoset resins such as epoxy, polyester, and vinyl ester are used for structural, internal, and electrical components. These resins improve fuel economy and safety parameters, as well as help producers comply with the strict standards of the automotive industry. Research and development of new resins, along with improvements in thermoset resin processing and recycling, have been core factors in the growth of thermoset resins in key auto markets such as the U.S., China, Germany, India, and Japan.

United States: In the United States, the automotive industry has been heavily investing in the application of thermoset resins, particularly for structural and interior components. In a nutshell, the improvement in resin formulations aims at making cars more lightweight to enhance fuel economy and minimize emissions. Companies are also working on biopolymer-based resins, such as low-VOC and other types of resins that have little to no impact on the environment. This, in turn, is driving the production of advanced thermoset composites required for battery enclosures and other critical parts due to the increase in electric vehicle production.

China: Thermoset resins have been gaining rapid acceptance in China's automobile industry, including for structural and exterior automotive parts. The government's policies encouraging the introduction of electric vehicles, along with concerns about reducing harmful emissions, have led manufacturers to



adopt new composites, including thermoset resins. This is supported by provisions for EV production and Clean Energy programs. Additionally, thermosetting resins in the country's automotive industry are being developed to improve properties such as durability, weight reduction, and vehicle safety.

Germany: Germany, as a heavyweight in the automotive market, has seen a growing demand for thermoset resins in lightweight polymer composite construction. In developing these capabilities, German automobile manufacturers focus their efforts on enhancing the properties of thermoset composites, including structural components such as chassis and body panels, as well as their recyclability. Moreover, there is a global shift toward environmentally friendly materials such as bio-based thermoset resins and resource-conserving methods like recycling.

India: The automotive market in India is now focusing on lightweight and economical materials, including thermoset resins. Fuel efficiency and manufacturing restrictions have driven Indian automotive industries to incorporate these resins into the structural and interior parts of vehicles. Given the growth of the automotive industry in India, with increasing production levels from both local and foreign manufacturers, thermosetting resins serve as lightweight materials to improve fuel economy and safety.

Japan: The Japanese automotive industry is focused on innovations and tackling sustainability challenges, and thermoset resins play an important role in this effort. Japan is seeing greater use of advanced materials, particularly advanced composites, in vehicles, especially for structural, thermal, and electrical applications, as automakers seek to achieve efficient, lightweight designs. Japan has also led advancements in bio-based and recyclable thermoset resins as part of its efforts to reduce carbon emissions.

Features of the Global Thermoset Resin for Automotive Market

Market Size Estimates: Thermoset resin for automotive 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: Thermoset resin for automotive market size by resin type, manufacturing process, application, and region in terms of value (\$B).

Regional Analysis: Thermoset resin for automotive market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

Growth Opportunities: Analysis of growth opportunities in different resin type, manufacturing process, application, and regions for the thermoset resin for automotive market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the thermoset resin for automotive 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 thermoset resin for automotive market by resin type (polyester, vinyl ester, epoxy, phenolic, and polyurethane), manufacturing process (hand lay-up/ spray up, resin infusion, filament winding, pultrusion, injection molding, compressing molding, and prepreg lay-up), application (interior, exterior, and under the hood), 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?



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