

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market Report: Trends, Forecast and Competitive Analysis to 2031

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Abstracts

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Unsaturated Polyester Resin Composites in the Electrical and Electronics Trends and Forecast

The future of unsaturated polyester resin composites in the global electrical and electronics market looks promising with opportunities in the PCB, circuit breaker housing, and cable tray markets. Unsaturated polyester resin composites in the global electrical and electronics market is expected to grow with a CAGR of 3.3% from 2025 to 2031. The major drivers for this market are the increasing demand for lightweight materials in marine applications, the growing focus on sustainability and eco-friendly alternatives, and the expansion of marine infrastructure and recreational boating activities.

Lucintel forecasts that, within the manufacturing process category, hand layup will remain the largest segment over the forecast period.

Within this application category, cable tray 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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report.

Emerging Trends in Unsaturated Polyester Resin Composites in the Electrical and Electronics Market

The electrical and electronics market for unsaturated polyester resin (UPR) composites is evolving with several emerging trends that are promising due to technology, sustainability, and increasing performance material requirements. These trends are changing the way UPR composites have been used in various applications.

Sustainable Materials Development: The increasing focus on sustainability has resulted in the creation of green UPR composites, which are bio-based. Manufacturers are now more inclined to low-emission and recyclable materials due to the stringing environmental regulations and the growing demand for green consumers. This trend not only mitigates the impact on the environment but also increases the appeal of UPR composites in the market.

Integration of Nano-Technology: The incorporation of nano-additives in UPR composites is being employed to enhance their mechanical properties, electrical insulation, and thermal conductivity. This trend is helpful for industries where high performance in small sizes is a requirement as in the cases of electronic devices and automotive applications. Spinel metal, aside from significant structure-thermal change supper structural technology is displaying a return to form centers of nanostructured composite materials—upper technologies.

Advanced Manufacturing Techniques: Without a doubt, the likes of 3D printing and bundle automation are changing the way UPR composites are fabricated. These techniques enable more flexibility, quicker turnover of samples, and less material wastage, thereby shortening production time and increasing the efficiency levels of the product. These technologies are improving the marketability of UPR composites.

Miniaturization in Electronics: The notable trend of making devices smaller and smaller has led to the increased need for lightweight structural high-performance materials. UPR composites find applications in more and more compact structures where weight and dimension are the utmost concern. This trend is more prevalent in consumer electronic appliances, automotive, and IoT gadgets that demand high efficiency and performance.

Smart Materials Integration: There are also advancements in smart composites whereby the UPR composites are designed to interact with the surrounding environment by responding to changes in temperature or humidity. Such materials can add value to electronic devices as they would make them less cumbersome and more efficient. Smart materials will revolutionize the enhancement of several applications such as electronic systems or packaging processes.

These trends are going to unite to give the electrical and electronic with the UPR composites market a new face, which will favor sustainability, innovation, and more functional capability within applications.

Recent Developments in Unsaturated Polyester Resin Composites in the Electrical and Electronics Market

The unsaturated polyester resin (UPR) composites can be noted in the electrical and electronics market due to changing dynamics with an emphasis on performance and sustainability. Five major developments are worth discussing as shaping this market.

Bio-based UPR Formulations: The introduction of bio-based UPR formulations seeks ways to conserve the environment, which is a major step. Such formulations can fulfill regulatory requirements for low emission levels without compromising performance in electrical applications. Such a development is consistent with the global movement towards sustainability hence creating a market opportunity for the manufacturers.

Nano-additives for Enhanced Performance: The growing popularity of UPR composites has been attributed to the incorporation of nano-additives, improving properties like thermal conductivity and electrical insulation. These developments enable UPR composites to meet the high standards of modern electronics such as use in consumer electronic devices and automotive parts.

3D Printing Capabilities: There has been a change in the mode of manufacture of UPR composites due to the introduction of 3D printing technology. This allows efficient prototyping and customization as manufacturers can manufacture complicated shapes and cut down the time taken to bring a product to the market. Such freedom of 3D printing is useful in the electrical and electronics domains where inventiveness in design is important.

Enhanced Flame Retardancy: Polymers designed for UPR composites have undergone innovations to provide extra protection for electric-related uses. There is a desire by the manufacturers, to produce such types of material which could meet worldwide fire regulations being suited for insulation purposes and indeed casing of electrical appliances.

Sustainability Factors: With the upsurge of the population, the need to recycle and reduce waste is promoting the UPR composites market. Designing used UPR composites to be recycled, and including recycled UPR materials in new products is an issue manufacturers have been looking into. This not only helps with the sustainability problem but also helps in cutting down the cost of raw materials by great margins.

Such enhancements are gradually improving the performance of UPR composites in the electrical and electronics market, shifting the materials to be favorable for use in different applications.

Strategic Growth Opportunities for Unsaturated Polyester Resin Composites in the Electrical and Electronics Market

There are many growth factors as regards unsaturated polyester resin (UPR) composites in the electric and electronics market through various related uses. Capitalizing on such opportunities, and looking into the risks and rewards will act as a guide for the stakeholders who intend to benefit from the new trends and the growing market.

Consumer Electronics: The demand for lightweight yet strong materials continues to expand in the market for consumer electronics which creates a huge potential for UPR compounds. UPR composites thus serve enhanced product performance and efficiency to the manufacturers in need of such mechanical and thermal properties for their devices.

Automotive Industry: The auto industry is increasingly embracing EV trends and engaging in a lightweight design that presents the UPR composites insulation and structural components market too. Because UPR is lightweight and strong, it is especially good for wind turbine manufacturers as fuel consumption and emissions are a problem in vehicles.

Telecommunications Equipment: As the telecommunication infrastructure such as that of 5g networks develops, the adoption of UPR composites is forecasted to increase. The target market includes telecommunications manufacturers designing these materials for use in demanding environments – for the protection housing and circuit boards.

Renewable Energy Applications: UPR composites are quite captivating in their application to renewable energy gadgets such as solar panels and wind turbines. The materials' weights are optimal for houses and turbines owing to their weight reduction and corrosion resistance which fits with the need for alternative energy sources.

Industrial Equipment: The growing need for strong and effective materials in industrial equipment creates possibilities for UPR composites. Industries including manufacturing and automation, for instance, need materials that can endure tough environments hence UPR composites are favorable for machines and equipment.

These strategic growth opportunities in the electrical market also point out the relevance and usefulness of UPR composites in the electronics market making them indispensable for many new applications.

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market Driver and Challenges

UPR composites in the electrical and electronics market encompass several technological, economic, and regulatory drivers and challenges. Understanding these factors is crucial for market players and ecosystem participants operating within this constantly changing environment.

The factors responsible for driving unsaturated polyester resin (UPR) composites in the electrical and electronics market include:

Increasing Need for Lightweight Materials in Various Applications: The increasing demand for lightweight materials in electronics and automotive applications has boosted the use of UPR composites. Lightweight materials enhance performance, fuel economy, and user satisfaction, making UPR

composites the material of choice for manufacturers.

Technological Advancements: Ongoing improvements in the formulation and manufacturing of UPR systems will increase the effectiveness and usefulness of these composites. Advancements such as nanotechnology and smart materials are expanding the scope of applications, allowing manufacturers to meet the growing demands of the electrical and electronics industry.

Sustainability Focus: The growing emphasis on sustainability is a major driving force for the UPR composites market. Suppliers have developed green formulations and recyclable materials to comply with and often exceed the laws set by society, improving the market acceptance of UPR composites.

Expansion of the Electronics Market: One of the key drivers for the rapid growth of UPR composites is the explosive demand in the electronics market, especially in consumer electronics and automobiles. As these industries evolve, the need for performance materials that can withstand extreme conditions grows.

Government Initiatives and Regulations: Government policies that promote the adoption of sustainable materials and technological advancements are expected to drive the growth of the UPR composites market. The benefits of green technology and adherence to safety standards are encouraging the use of UPR composites in various applications.

Challenges in unsaturated polyester resin composites in the electrical and electronics market include:

Price Volatility of Raw Materials: The volatile nature of raw material prices for producing UPR composites can significantly impact production costs and profit margins. Manufacturers need to manage these cost fluctuations effectively to maintain product quality while staying competitive.

Competition from Alternative Materials: The emergence of alternative materials, such as thermoplastics, presents a challenge for UPR composites. As these alternatives gain traction, UPR composite manufacturers must develop new strategies to enhance performance and maintain their market position.

Regulatory Compliance: Manufacturers of UPR composites face challenges

related to meeting complex statutory requirements regarding safety and environmental guidelines. Adhering to these laws requires ongoing investment in research and development, which can constrain the pace of innovation and market entry.

In summary, while the electrical and electronics market for UPR composites has a strong demand base driven by technological innovations, it also faces challenges such as raw material costs and competition. Market players must address these drivers and challenges to optimize growth opportunities in the market.

List of Unsaturated Polyester Resin Composites Companies in the Electrical and Electronics Industry

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 unsaturated polyester resin composites companies in the electrical and electronics industry cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the unsaturated polyester resin composites companies in the electrical and electronics industry profiled in this report include-

Polynt Group

AOC

INEOS Composites

BASF

Covestro

Xinyang Technology Group

Tianhe Resin Company

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market by

Segment

The study includes a forecast for unsaturated polyester resin composites in the electrical and electronics market by product type, manufacturing process, application, and region.

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market by Product Type [Analysis by Value from 2019 to 2031]:

Orthophthalic

Isophthalic

DCPD

Others

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market by Manufacturing Process [Analysis by Value from 2019 to 2031]:

Hand Layup

Spray-Up

Filament Winding

Compression Molding

RTM/Injection Molding

Pultrusion

Others

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market by Application [Analysis by Value from 2019 to 2031]:

PCBs

Circuit Breaker Housings

Cable Trays

Others

Unsaturated Polyester Resin Composites in the Electrical and Electronics Market by Region [Analysis by Value from 2019 to 2031]:

North America

Europe

Asia Pacific

The Rest of the World

Country Wise Outlook for Unsaturated Polyester Resin Composites in the Electrical and Electronics Market

The use of unsaturated polyester resin (UPR) composites in the electrical and electronics industry has been undergoing significant changes due to technological improvements and the growing need for lighter and more robust products. UPR composites are emerging in the market because of their desirable properties, including good mechanical strength, moisture resistance, and electrical insulation. Similar trends are also observed in other economies such as the United States, China, Germany, India, and Japan, where key players are processing UPR for the manufacture of high-performance composites used in insulation, printed circuit boards, and other electronic devices.

United States: In the United States, technological developments in UPR composites have recently focused on improving composite thermal stability and fire resistance for electrical applications. Major players are also engaged in R&D to produce bio-based UPR composites that comply with emission standards. Furthermore, the development of new technological applications, including 3D

printing of UPR materials, enables the rapid creation of special-purpose electronic devices for a market increasingly demanding tailor-made electronic products.

China: China's UPR composites market, particularly in the electrical and electronics industry, is flourishing at a fast pace due to its superior manufacturing infrastructure. Recent molding techniques have included the addition of nano additives to enhance electrical and thermal insulation. In addition, Chinese manufacturers are focusing on green chemistry-based designs to meet international standards. Moreover, the proliferation of the electric vehicle (EV) market is driving the demand for lightweight, high-performance UPR composites for battery cases and insulation materials.

Germany: Germany remains at the forefront of UPR composite technology with a focus on advanced electrical engineering applications. Recent developments include high-performance, corrosion-resistant food-grade coatings that offer better mechanical and environmental protection, which are crucial for the automotive and other industrial sectors. Partnerships between universities and industries are accelerating progress in UPR composites, enabling compliance with stringent EU requirements. There is also a shift toward using recycled UPR due to the growing need for eco-friendly production.

India: India's electrical and electronics industry is characterized by rapid expansion, with the use of UPR composites for insulation and circuit boards emerging as a significant trend. Recent developments have been primarily cost- and performance-driven, with local players creating more affordable UPR formulas without compromising on quality. The increasing emphasis on renewable energy sources is opening the UPR composites market for use in solar panels and wind turbines, contributing to overall market growth. Additionally, government efforts to encourage electronics production are further supporting this trend.

Japan: Japan dominates the UPR composites market for electrical applications, with special attention to high performance and miniaturization. Recent innovations include the incorporation of UPR composite materials into next-generation electronic packaging, which offers improved heat dissipation while reducing weight. Japanese companies are also exploring smart materials that change in response to environmental conditions, enhancing the performance of electronic devices. The growing trend of IoT devices has increased the demand

for lightweight and strong materials in consumer electronic products.

Features of Unsaturated Polyester Resin Composites in the Global Electrical and Electronics Market

Market Size Estimates: Unsaturated polyester resin composites in the electrical and electronics market size estimation in terms of value (\$B).

Trend and Forecast Analysis: Market trends (2019 to 2024) and forecast (2025 to 2031) by various segments and regions.

Segmentation Analysis: Unsaturated polyester resin composites in the electrical and electronics market size by product type, manufacturing process, application, and region in terms of value (\$B).

Regional Analysis: Unsaturated polyester resin composites in the electrical and electronics market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

Growth Opportunities: Analysis of growth opportunities in different product type, manufacturing process, application, and regions for the unsaturated polyester resin composites in the electrical and electronics market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the unsaturated polyester resin composites in the electrical and electronics 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 unsaturated polyester resin composites in the electrical and electronics market by product type (orthophthalic, isophthalic, DCPD, and others), manufacturing process (hand layup,

spray-up, filament winding, compression molding, RTM/injection molding, pultrusion, and others), application (PCBs, circuit breaker housings, cable trays, 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?

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