

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

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Abstracts

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Unsaturated Polyester Resin Composites in the Pipe and Tank Trends and Forecast

The future of unsaturated polyester resin composites in the global pipe and tank market looks promising with opportunities in the oil & gas, retail fuel, water/wastewater, sewage, chemical & industrial, and agriculture markets. Unsaturated polyester resin composites in the global pipe and tank market is expected to grow with a CAGR of 2.9% from 2025 to 2031. The major drivers for this market are the increasing demand for corrosion-resistant materials, the growing number of infrastructure projects worldwide, and rising awareness about environmental sustainability.

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

Within this application category, water/wastewater 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 Unsaturated Polyester Resin Composites in the Pipe and Tank Market

Unsaturated polyester resin composites in the pipe and tank market are experiencing rapid growth due to increasing demand for durable, corrosion-resistant, and cost-effective materials across various industries, such as chemical, water treatment, and oil and gas. UPR composites, known for their lightweight and excellent mechanical properties, offer an ideal solution for industries that require both structural integrity and resistance to harsh environments. As technological advancements and sustainability concerns continue to evolve, several emerging trends are reshaping the UPR composites market, driving innovation, and expanding their applications in pipes and tanks. Here are five key trends in this growing sector.

Increased Demand for Corrosion-Resistant Solutions: The growing demand for corrosion-resistant materials is a significant driver in the UPR composites market. UPR composites are increasingly favored in industries like oil and gas, water treatment, and chemical processing due to their superior resistance to aggressive environments. These materials provide a longer lifespan compared to traditional metal pipes and tanks, making them ideal for installations exposed to corrosive substances, moisture, and extreme temperatures. As the need for reliable infrastructure grows, UPR composites are emerging as a cost-effective solution that reduces maintenance costs and downtime while improving safety and operational efficiency.

Focus on Sustainability and Green Manufacturing: Sustainability is becoming a core concern across industries, and the UPR composites market is no exception. Manufacturers are focusing on developing greener, more eco-friendly production methods and formulations that use renewable resources and reduce environmental impact. Bio-based unsaturated polyester resins, which replace traditional petrochemical-based resins, are gaining traction. These eco-friendly alternatives help reduce carbon footprints and align with global sustainability goals. As regulations around environmental protection become stricter, the adoption of sustainable UPR composites is expected to increase, particularly in regions with strong environmental policies like Europe and North America.

Technological Advancements in Resin Formulation: Continuous advancements in resin formulation are improving the performance characteristics of UPR composites. Manufacturers are experimenting with new additives, fillers, and curing agents to enhance properties like fire resistance, impact strength, and UV

stability. For example, the incorporation of nanomaterials or advanced curing techniques is improving the mechanical properties of UPR composites, making them more competitive against alternative materials. This trend is expected to drive the adoption of UPR composites in high-performance applications, where reliability and safety are paramount, such as in chemical storage tanks and pressure vessels.

Expansion in Emerging Markets: Emerging economies, particularly in Asia-Pacific and Latin America, are seeing a surge in infrastructure development, which is fueling the demand for UPR composites in pipes and tanks. Rapid industrialization, urbanization, and the need for reliable water and waste management systems are driving infrastructure projects that require durable and cost-effective piping systems. In countries like India, China, and Brazil, the adoption of UPR composites in water treatment, irrigation systems, and industrial pipelines is increasing. As these regions continue to grow, the UPR composites market is expanding to meet the needs of diverse industries in developing economies.

Integration of Smart Technologies in UPR Composites: The integration of smart technologies into UPR composites is an emerging trend that aims to enhance the functionality of pipes and tanks. Sensors embedded within the composite materials can monitor conditions such as pressure, temperature, and chemical exposure in real-time. This enables predictive maintenance, improving the safety and efficiency of industrial systems. For example, the UPR composite tank used in the chemical industry can alert operators to any potential failures before they occur, reducing the risk of costly downtime or safety incidents. This trend is expected to play a key role in the future of industrial asset management and automation.

These five trends highlight the evolving landscape of unsaturated polyester resin composites in the pipe and tank market. As industries continue to prioritize performance, sustainability, and technological innovation, UPR composites are well-positioned to meet the growing demands of modern infrastructure. The combination of improved material properties, eco-friendly solutions, and cutting-edge technologies will drive future growth in this market.

Recent Developments in Unsaturated Polyester Resin Composites in the Pipe and Tank Market

Unsaturated polyester resin composites in the pipe and tank market are undergoing a phase of transformations and new developments that look into the rising need for materials of high performance across several industries. Such improvements target the advancement of material properties, fabrication methods, and sustainability.

Development of Eco-friendly Formulations: Over the last few years, there has been an increase in stimulative development of so-called “green” UPR composites based on alternative raw materials and recyclable. This change is in tune with the sustainable strategies being encouraged in the world and government policies making these materials attractive to eco-sensitive industries without compromise.

Improved Chemical Resistance: The last few years have seen the formulation of UPRs with better-improved chemical resistance which has entailed to most rise in the application of these UPR formulations in active chemical environments such as chemical plants and oil storage. This development enhances the durability and effectiveness of pipes and tanks, helping to provide solutions to rigorous requirements.

Advanced Manufacturing Techniques: Advanced manufacturing techniques including sectional production systems such as automated filament winding and pultrusion improved the speed and reliability of UPR composite production. These processes allow manufacturers to achieve high-performance, long-lasting products, whilst reducing resource and labor expenditure.

Increased Focus on Recycling: An increasing trend is being registered in today's market about the innovative recycling of UPR composites. Businesses are creating systems that recover and reprocess plastic composite materials to minimize waste in adherence to the tenets of the circular economy. Such orientation is seen as appropriate and progressive considering the need to comply with legislation and consumer expectations for environmentally friendly products.

Smart Composite Technologies: The inclusion of smart technologies like embedded sensors in UPR composites is on the rise. These technologies permit monitoring the structural health of the construction in real-time and hence improve the safety and reliability of the oil and gas applications that demand such performance.

These developments are making changes in the unsaturated polyester resin composites market for pipes and tanks that will accelerate innovation and sustainable development of the material while increasing its performance in various applications.

Strategic Growth Opportunities for Unsaturated Polyester Resin Composites in the Pipe and Tank Market

There are numerous opportunities for growth in unsaturated polyester resin composites in the pipe and tank market spanning several key applications. Almost every industry is looking for strong materials, light in weight, and eco-friendly. The existence of these opportunities is therefore essential for those who want to take advantage of developing markets.

Water Treatment Applications: The growing requirement for effective water treatment solutions is an area that offers UPR composites an opportunity. Due to their ability to withstand corrosion, and their overall composite durability, they are perfect for water storage tanks as well as water piping systems. As issues on water scarcity globally increase, the growing concern for reliable infrastructure will create demand for UPR composite products.

Chemical Processing Industries: The UPR composites are gradually being used in the chemical processing industry on account of their improved chemical resistance properties. This area of growth is most relevant in applications that involve the use of scalding liquids and corrosive substances. This demand can be taken care of by developing formulations that are required for these environments.

Oil and Gas Sector: UPR composites have considerable growth potential in the oil and gas sector from the perspective of tank and piping systems. By aiming at weight-saving and corrosion resistance improvements, UPR composites can increase the safety and efficiency of operations. As the level of exploration and production activities increases, the demand for reliable composite materials will also increase.

Infrastructure Development: Global expenditures on infrastructure development with special emphasis on developing countries call for the development of lightweight and long-lasting piping systems. UPR composites would help deliver

these expectations, notably in construction work where there is a need for basic and durable materials. This trend can be exploited by delivering composite materials targeted at large infrastructure projects.

Uses on a Marine Environment: The marine sector is becoming aware of the positive effects of UPR composites in such areas as the production of boat hulls and offshore structures. The materials are lightweight and resistant to corrosion making them ideal for waterways. With the increasing need for cost-effective and high-performance materials in maritime activities, UPR composites have the potential to play a game-changing role.

These strategic growth opportunities are important in expanding unsaturated polyester resin composites in the pipe and tank market, as this depicts the versatility of the material and its relevance with current industry requirements.

Unsaturated Polyester Resin Composites in the Pipe and Tank Market Driver and Challenges

Unsaturated polyester resin composites in the pipe and tank market are subject to technological, economic, and regulatory diversities, as well as shifts. This is why understanding the associated factors and obstacles is essential for stakeholders to navigate this dynamic market frontier.

The factors responsible for driving unsaturated polyester resin composites in the pipe and tank market include:

Increasing Use of Information and Communication Technologies: The need for markets to avail and sell products through information and communication technologies presents new challenges. UPR composites offer significant benefits in terms of performance and longevity, which makes them suitable for this domain.

Technological Advancements: Advances in conventional composite manufacturing processes, such as innovations in automation and improvements in UPR composite formulations, help increase the quality and efficiency of these materials. With these advancements, manufacturers can increase the supply of their products, ensuring high satisfaction levels while reducing production costs.

Regulatory Support for Sustainability: The increasing number of environmental protection laws is pushing industries to manufacture biodegradable materials, including UPR composites. This supports sustainability trends worldwide and improves the market for UPR composites as companies must comply with changing regulations.

Infrastructure Investments: Rising investments in infrastructure development worldwide present an attractive market for UPR composites in piping and storage applications. With a focus by governments and organizations on sustainable construction materials, the demand for UPR composites is expected to grow significantly.

Focus on Chemical Resistance: UPR formulations are being improved to meet the growing construction materials demand for materials that can resist harmful chemical substances. Increased chemical resistance opens up more opportunities for UPR composites, especially in industries such as chemical processing and oil and gas.

Challenges in unsaturated polyester resin composites in the pipe and tank market include:

Price Fluctuations of Raw Materials: A downside of using UPR composites is the price fluctuations of the raw materials needed for production. As a result, manufacturers may face challenges in maintaining profitability and competitiveness in an already sensitive pricing environment.

Competition from Alternative Materials: The emergence of alternative materials, particularly thermoplastics and metals, poses a challenge to UPR composites. As these materials gain prominence in the market, manufacturers must find ways to retain market share and satisfy the ever-changing demands and expectations of customers.

Technical Challenges in Production: Despite improvements, technical challenges in the production of UPR composites, such as maintaining consistent output quality or managing curing processes, may hinder progress. These challenges need to be addressed to ensure manufacturers can enhance the functionality and reliability of their products.

Unsaturated polyester resin composites market for pipes and tanks is highly responsive to the increasing demand for strong and eco-friendly materials. However, risks related to raw material prices and competition remain. Most industry players are expected to adopt new technologies and address these challenges to grow further in the existing market conditions and seize emerging opportunities.

List of Unsaturated Polyester Resin Composites Companies in the Pipe and Tank 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 pipe and tank 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 pipe and tank 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 Pipe and Tank Market by Segment

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

Unsaturated Polyester Resin Composites in the Pipe and Tank Market by Product Type

[Analysis by Value from 2019 to 2031]:

Orthophthalic

Isophthalic

DCPD

Others

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

Oil & Gas

Retail Fuel

Water/Wastewater

Sewage

Chemical & Industrial

Agriculture

Unsaturated Polyester Resin Composites in the Pipe and Tank 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 Pipe and Tank Market

Unsaturated polyester resin composites in the pipe and tank market, made of unsaturated polyester resin (UPR) composites, is poised to experience several transformations due to the rising interest in reliable, lightweight, and anti-corrosion materials, especially in industries such as water treatment, chemicals, oil, and gas. Advances in composite materials technology and the focus on eco-friendly materials are making UPR composites more functional and versatile. The United States, China, Germany, India, and Japan are leading developments in this direction, indicating progress in manufacturing, legislation, and environmental aspects.

United States: UPR composites are used in applications such as water filtration and storage in the United States. Current trends include the application of new hybrid fabrication solutions, such as pultrusion and filament winding, for pipes and tank localization. Additionally, bio-based UPR composite resins have been developed and marketed in the U.S., complying with low-VOC guidelines. The collaboration between scientific, domestic, and international corporations with research institutes is accelerating innovation in composite materials.

China: China's industrialization and infrastructure expansion have positively

impacted advancements in UPR composites for pipes and tanks. The country aims to improve the chemical resistance and mechanical properties of UPR materials, making them suitable for chemical processing and oil storage. Green technologies promoted by the government have encouraged manufacturers to adopt sustainable practices and develop biocompatible UPRs. Furthermore, increasing capital expenditure on automated production technology is enhancing workflow efficiency and reducing costs.

Germany: Germany offers excellent trade opportunities, with a strong focus on new developments in UPR composite manufacturing, particularly for pipes and tanks used in the chemical and petrochemical industries. Recent innovations include the modification of formulations to improve the heat-resistance performance of UPR composites. The German market is embracing the global trend of sustainability by promoting the recycling and reuse of composite materials. Academic institutions and industry in the UK are collaborating on advanced composite technology research for improved and sustainable production processes.

India: The UPR composites market in India is extremely promising and witnessing rapid development in areas such as water management and chemical storage. A significant amount of recent work has focused on reducing production costs and improving the properties of UPR composites. The Indian government is also encouraging the construction of infrastructure to support the growing number of smart city projects, which is increasing the demand for lightweight and strong composite materials. Manufacturers are looking for UPR resins that are low in toxicity and eco-friendly, meeting market requirements.

Japan: Japan is boosting the UPR composites pipe and tank market by leveraging its technological advancements. Recent developments include investments aimed at improving corrosion resistance and mechanical properties for underwater and marine applications. The Japanese market is also expanding to include the integration of smart devices into composites, such as sensors for fabrication integrity monitoring. Joint research activities within the framework of the UPRATLANTICO project are focused on finding alternatives to destructive technologies and promoting eco-friendly production of UPR.

Features of Unsaturated Polyester Resin Composites in the Global Pipe and Tank Market

Market Size Estimates: Unsaturated polyester resin composites in pipe and tank 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 pipe and tank market size by product type, manufacturing process, application, and region in terms of value (\$B).

Regional Analysis: Unsaturated polyester resin composites in pipe and tank 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 pipe and tank market.

Strategic Analysis: This includes M&A, new product development, and competitive landscape of the unsaturated polyester resin composites in pipe and tank market.

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

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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 pipe and tank 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 (oil & gas, retail fuel, water/wastewater, sewage, chemical & industrial, agriculture, 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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