

# FRP Pipe in Chemical Market Report: Trends, Forecast and Competitive Analysis to 2030

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## Abstracts

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### FRP Pipe in Chemical Trends and Forecast

The future of the global FRP pipe in the chemical market looks promising with opportunities in the petrochemical, polymer, specialty chemical, inorganic chemical, and consumer chemical markets. The global FRP pipe in the chemical market is expected to grow with a CAGR of 3.6% from 2024 to 2030. The major drivers for this market are the increasing demand for corrosion-resistant materials in chemical processing plants and the expansion of chemical manufacturing activities.

Lucintel forecasts that, within the resin type category, epoxy composite will remain the largest segment over the forecast period.

Within the application category, specialty chemicals are 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 FRP Pipe in Chemical Market

The FRP pipe in the chemical market is witnessing radical changes, due to numerous widespread tendencies which define its advancements and proliferation worldwide.

**Sustainability and Eco-Friendly Solutions:** The increased emphasis on sustainability within the chemical sector has spurred the movement of eco-friendly solutions including the usage of FRP pipes. Such pipes which use recyclables and durable materials generate less waste than traditional metals. With the increasing pressure of environmental compliance, industries are shifting to the use of FRP pipes to achieve sustainability objectives and operational efficiency.

**Technological Advancements in Resin Systems:** The performance of FRP pipes has significantly changed due to the innovations in resin systems. Corrosion-resistant and thermally stable new resin formulations are allowing many more FRP pipes to be even used in harsh chemical FRP pipe applications. Some of these improvements also widen the application range of FRP pipes in the oil and chemical industry including offshore and high-temperature applications.

**Increased Emphasis on Security of Supply:** As sectors progressively move towards the 'long-term approach', customer requirements for FRP pipes that are durable and have lower maintenance are on the increase. Reducing downtime in critical chemical processes is what informs this trend, and FRP pipes being highly corrosion and wear-resistant are very much in line with these needs. Piping systems with longer service life will thus also help in reducing lifecycle costs and this appeals to organizations that are looking for cheaper alternatives.

**Customer Shift Toward More Advanced Piping Solutions:** The increasing intricacy of chemical processing plants' operations requires more advanced and flexible piping systems. Customization of piping systems is an added advantage for FRP piping systems such that plant layout can be altered and installation time cut. It also enables ease of modification and upgrading of processes because of modularity hence increasing the market for FRP pipes for chemical industry processes.

**Growth of End Use Areas Beyond Chemical Processing:** Apart from the chemical processing plants, the use of FRP pipes is now moving into water treatment, food and beverage, and pharmaceutical plants. This is because FRP

pipes can be utilized in various fluids and chemicals with enhanced resistance to corrosion and excessive pressure. This penetration constitutes a favorable opportunity for the growth of FRP pipe suppliers.

Such transformations of understanding are reshaping the FRP pipes market in the chemicals market enabling its advancements, integrating its eco-friendliness, and broadening its horizons. This surging demand for functional, diverse, advanced, and greener solutions is creating momentum and flooding FRP pipes into modern industrial structures.

### Recent Developments in the FRP Pipe in Chemical Market

There are developments in the FRP pipe in the chemical market that will be addressed. This and other factors earn the chemical industry FRP pipe market a unique development angle focused on cost-cutting, performance appraisal, and new applications.

**Development of New Resin Processing Techniques:** The manufacturing of FRP pipes concerning resin technology has received significant advances in the recent past. New formulation systems of resin improve structural integrity because of improved thermal, mechanical, and corrosion resistance characteristics. This has led to the application of FRP pipes in more hostile chemical environments such as offshore drilling and chemical processing at elevated temperatures.

**Growth in the Adoption of FRP Pipes in the Oil & Gas Sector:** The oil and gas sector has seen more adoption of FRP pipes in the industries because of their light, safe, and strong structure. Such pipes are now deployed through oil drilling pipelines, refineries, and offshore platforms to convey chemical products and hydrocarbons that have high toxicity. The rise of FRP pipes in this industry reflects the ability of these products to withstand extreme conditions while being cost-effective.

**Reduction of Cost through Innovative Manufacturing Methods:** There has been progress in new patents in manufacturing processes such as automatic winding and pultrusion which has cut down on the costs incurred in the manufacturing process of FRP pipes. Such measures are beneficial as they will ensure the indeed those savings will help raise the competitiveness of FRP pipes against

conventional materials and stimulate more extensive use of FRP products in the chemical industry which will boost the market size.

**Globalization of FRP Pipe Manufacturing Facilities:** To satisfy the increasing needs of the industry's clients in this case the chemical industry, manufacturers are undertaking global expansions in their production. Countries such as Southeast Asia and the Middle East are putting up new land-based manufacturing plants hence allowing the international market to get access to FRP pipes. This expansion complements and promotes the overall expansion of the chemical industry and raises the supply of FRP pipe solutions of the highest quality.

**Regulatory Push: Safer and Eco-Friendly Materials Use:** Amid the development of regulations aimed at strengthening safety and protecting the environment, FRP sheaths have been embraced as a substitute since they are less damaging to the environment than conventional metals. Because FRP pipes are immune to corrosion and have a long lifecycle, companies do not have to deal with frequent maintenance repairs and can comply with tough safety and environmental requirements.

As a consequence of this phenomenon, a solid growth of the FRP pipes demand for the chemical market is being observed. The progress and friendly variations of resin technology and scope of couponing will move FRP pipes into the preferred choice in chemical processing and other related industries.

### Strategic Growth Opportunities for FRP Pipe in Chemical Market

The FRP pipe in the chemical market has several prospects for strategic growth. These are five businesses of FRP pipes that are likely to register considerable growth.

**Water and Wastewater Treatment Plants:** There is a rising demand for sufficient and anti-corrosive pipes for containment in the water and wastewater treatment plants. There are FRP pipes that have a good resistance to corrosion and scaling and therefore can be used in these facilities. Manufacturers can focus on providing advanced performance FRP that delivers operational efficiencies and reduces operational downtimes in water treatment processes.

**Offshore Oil and Gas Platforms:** There is a huge potential for the use of FRP

pipes in the offshore oil and gas industry. The demand for lightweight pipes that can withstand corrosive environments such as the ones used in offshore drilling platforms is increasing. By providing customized FRP pipe systems for these applications, manufacturers can target a fast-growing industry with very high demands for dependable piping systems.

**Chemical Processing Plants:** FRP pipes have found their application mainly in chemical processing plants over the years. These are the plants that deal with corrosive chemicals and as such need piping systems that are durable. With the increase in chemical production across the globe and the requirement for green infrastructure, this is one area in which concrete pipe manufacturers stand to widen their focus on seeking expansion.

**Pharmaceutical Industry:** The pharmaceutical industry has come to use FRP pipes especially when there is a need to move sensitive chemicals and sterile liquids. As the need for accuracy in the manufacture of drugs rises, the use of FRP pipes becomes a better option since the pipes are sturdy and quite free from any contamination. Increased investments into Pharmaceutical grade FRP pipes could yield great growth opportunities.

**Food and Beverage Industry:** Similarly, the food and beverage industry which also calls for the same hygienic and resistant to corrosion pipes, has been an unexplored source of growth for FRP pipes. With companies looking at factors of hygiene and safety in food processing plants, FRP pipes have an advantage in marketing since they are inert and are cleaned easily.

Such growth areas as the demand for FRP pipes in chemicals for different applications explain why FRP exhibits enhanced importance for economic infrastructure development in the modern era. There is a way out of the challenges that manufacturers face as outlined and that is by developing solutions that fit each application with these unique characteristics.

## FRP Pipe in Chemical Market Driver and Challenges

Some of the factors that drive the growth of the FRP pipe chemical market as well as pose significant challenges include technological and economic factors, as well as regulatory issues.

The factors responsible for driving the FRP pipe market in chemicals include:

**Technological Development of Materials:** Upgrades in resin systems and fiber reinforcements have significantly improved the characteristics of FRP pipes. These developments allow pipes to withstand more aggressive chemicals and extreme temperatures, thereby broadening their applicability in critical chemical environments.

**Increasing Need for Anticorrosive Materials:** The increased use of FRP pipes in various applications is linked to their growing adoption in the chemical processing industry. This is due to the superior corrosion resistance of FRP pipes.

**Cost Effectiveness and Reduced Maintenance:** The high durability of FRP pipes reduces the frequency of repairs and maintenance. Cost reduction remains a priority for most management teams. In this context, the long lifespan and low maintenance costs of FRP pipes are particularly appealing to the chemical sector.

**Economic Factors, Environmental Regulations, and Sustainability Objectives:** Stricter environmental regulations and green policies are encouraging industries to shift toward using eco-friendly materials. FRP pipes are gaining widespread usage due to their low carbon emissions and recyclability compared to conventional materials.

**Changing Trends in Emerging Markets:** The rapid industrial growth in the Asia-Pacific, Latin America, and Africa regions is driving the construction of efficient and durable piping systems. As the chemical industry expands globally, the demand for industrial piping fixtures, including FRP pipes, is expected to rise, with new projects and existing structures needing repairs.

Challenges in the FRP pipe chemical market include:

**High Initial Utilization Costs:** The production of FRP pipes involves the use of sophisticated materials and advanced manufacturing processes, leading to higher initial costs compared to traditional metals. This limits adoption to those focused on long-term cost reduction. This can hinder uptake in price-sensitive markets, despite the potential for long-term savings.

**Competition from Substitute Materials:** Steel and titanium, other durable and corrosion-resistant alternatives, present a challenge for FRP pipes in the market. Therefore, manufacturers must emphasize other specific advantages of FRP products, such as their lightweight nature and lower installation costs.

**Low Awareness in Certain Countries:** In some regions, there is limited or no awareness of the advantages of FRP pipes. To penetrate these markets, it is necessary to educate potential customers about the long-term benefits and competitive performance of FRP pipes in the chemical industry.

Within the chemical industry, advances in cost and technology, as well as the need for corrosion resistance, drive the growth of the FRP pipe market. However, issues such as high initial costs and the threat of substitutes need to be addressed to fully exploit the market.

#### List of FRP Pipe in Chemical 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 FRP pipe in chemical companies cater increasing demand, ensure competitive effectiveness, develop innovative products & technologies, reduce production costs, and expand their customer base. Some of the FRP pipe in chemical companies profiled in this report include-

Future Pipe Industries

National Oilwell Varco

Hengrun Group

Amiblu Holding

Amaintit

Farassan



## Kinflare Group

### FRP Pipe in Chemical by Segment

The study includes a forecast for the global FRP pipe in chemical by resin type, diameter, pressure rating, application, and region.

#### FRP Pipe in Chemical Market by Resin Type [Analysis by Value from 2018 to 2030]:

Polyester Composites

Epoxy Composites

Vinyl Ester Composites

#### FRP Pipe in Chemical Market by Diameter [Analysis by Value from 2018 to 2030]:

Small(60")

#### FRP Pipe in Chemical Market by Pressure Rating [Analysis by Value from 2018 to 2030]:

Less than 150 psi

150-300 psi

More than 300 psi

#### FRP Pipe in Chemical Market by Application [Analysis by Value from 2018 to 2030]:

Petrochemicals

Polymers

Specialty Chemicals



Inorganics Chemicals

Consumer Chemicals

Others

## FRP Pipe in Chemical 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 FRP Pipe in Chemical Market

There has been a rapid rise in FRP (fiber-reinforced plastic) pipes in the chemical market due to the growing need for lightweight, durable, and most importantly, corrosion-resistant piping systems. FRP pipes can safely transport corrosive chemicals, which makes them prevalent in chemical processing, oil and gas industries, and water treatment facilities. Marketing and technological factors have also supported the growth of FRP pipes in the United States, China, Germany, India, and Japan.

**United States:** In the U.S., FRP pipes are in demand in the chemical sector because of their durability and resistance to chemicals. The latest advancements aim to develop new resins that not only resist chemicals but also complement the overall performance of the pipe materials. The U.S., being one of the top chemical-producing countries, is using FRP pipes more and more in areas where chemicals are highly aggressive, as there is a need for reliable systems. Moreover, increased environmental concerns and regulations have led to the use of FRP pipes, which are considered greener compared to metal piping systems.

**China:** China is one of the key countries using FRP pipes in the chemical sector

due to the ongoing regulation of infrastructure construction and expansion. Current studies in China seek to increase the strength and durability of various FRP pipes, particularly for offshore oil platforms, chemical plants, and large water treatment plants. Growth is driven mainly by China's development, and the demand for safe and effective systems for conveying dangerous chemicals continues to rise. Additionally, China is exploring new methods for producing pipes that will reduce costs without compromising the quality of the FRP pipes, encouraging more use within the industry.

**Germany:** Germany is well known for its high engineering standards and chemical development and is experiencing growing interest in the use of FRP pipes, especially in industries where aggressive chemicals and high pressures are present. The emphasis in Germany is on replacing or retrofitting portions of existing systems with FRP sections to reduce operational costs while improving productivity. Furthermore, German chemical companies are focusing more on infrastructure risks and are considering FRP pipes as a suitable option due to their lower emissions and melting point.

**India:** Due to the corrosion resistance of FRP pipes, the growth of the chemical market in India has led to an increased uptake of these pipes due to their easy installation and low maintenance. India has recently been using FRP pipes in chemical processing units and large water and wastewater treatment plants. The Indian government's push for environmentally friendly and low-cost options has led to a rise in the use of FRP pipes, which are considered better than conventional materials such as steel and copper.

**Japan:** Due to high-quality engineering and the need for sustainability in the chemical sector, many FRP pipes have been used in Japan's water treatment plants, chemical processing plants, and offshore installations. Recent developments in FRP pipe technology in Japan include the use of advanced polymer resins that can be incorporated into aramid fiber-reinforced plastic pipes to offer enhanced resistance and durability in aggressive chemical environments. Japan is also working to improve FRP pipe systems to comply with strict pollution emission constraints throughout their life cycle, from manufacturing to disposal.

## Features of the Global FRP Pipe in Chemical Market

**Market Size Estimates:** Frp pipe in chemical 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:** Frp pipe in chemical market size by various segments, such as by resin type, diameter, pressure rating, application, and region in terms of value (\$B).

**Regional Analysis:** Frp pipe in chemical market breakdown by North America, Europe, Asia Pacific, and Rest of the World.

**Growth Opportunities:** Analysis of growth opportunities in different resin type, diameter, pressure rating, application, and regions for the FRP pipe in chemical market.

**Strategic Analysis:** This includes M&A, new product development, and competitive landscape of the FRP pipe in chemical 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 the FRP pipe in chemical market by resin type (polyester composites, epoxy composites, and vinyl ester composites), diameter (small(60")), pressure rating (less than 150 psi, 150-300 psi, and more than 300 psi), application (petrochemicals, polymers, specialty chemicals, inorganics chemicals, consumer chemicals, 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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