United States Fiber-Reinforced Plastic (Frp) Recycling Market Forecast 2024-2032

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Report description:

KEY FINDINGS
The United States fiber-reinforced plastic (FRP) recycling market is anticipated to develop at a CAGR of 8.40% during the forecasting period of 2024-2032, capturing a revenue of $263.19 million by 2032. In terms of volume, the market is set to record a CAGR of 8.05% during the forecast years, reaching 35041.90 tons by 2032.
MARKET INSIGHTS
Over recent years, the United States has experienced a notable expansion in the recycling market for fiber-reinforced plastics (FRP), driven by a convergence of critical factors. The construction industry, in particular, has become a strong advocate for recycled glass-fiber-reinforced plastic (GFRP) composites, due to their superior mechanical strength and durability in challenging conditions.
Sustainability is a cornerstone of contemporary construction practices, with green building initiatives gaining traction since their introduction in 1990. The Greenroads Foundation emphasizes the importance of integrating sustainable materials into infrastructure projects, such as roads and bridges. With the US encompassing over 4 million miles of roads and 600,000 bridges, the environmental impact of traditional construction materials is significant. For instance, constructing a one-mile stretch of road consumes as much energy as powering 50 American households for a year, highlighting the urgent need for more sustainable alternatives.
The corrosion of steel reinforcement has long been a challenge for infrastructure maintenance, prompting a shift towards FRP composites as a more durable solution. Additionally, the wind energy sector is expected to play a major role in increasing GFRP waste, with decommissioned wind blade materials set to enhance the recycling pool. As the country invests substantially in expanding its wind power capacity, the demand for sustainable materials in this sector is anticipated to rise.
Moreover, the stabilization of manufacturing activities following trade tensions has further accelerated the growth of FRP recycling. As of 2023, plastic recycling volumes in the US saw an increase of 280.3 million pounds compared to 2020 rates, with recyclers processing over 5 billion pounds of post-consumer plastic. This shift reflects a significant movement towards a circular economy mindset, thereby influencing the FRP recycling market growth in the United States.
SEGMENTATION ANALYSIS
The United States fiber-reinforced plastic (FRP) recycling market segmentation includes product type, recycling technique, and end-user. The end-user segment is further categorized into industrial, transportation, building and construction, sports, and other end-users.

The industrial sector is a significant end-user of recycled fiber-reinforced plastics (FRPs), which find applications across a broad spectrum of industries, including oil and gas, petrochemicals, tooling, and mechanical engineering. Recycled FRPs offer numerous benefits, such as lightweight construction, thermal and electrical insulation, corrosion resistance, and exceptional durability, making them invaluable for various industrial operations.

Additionally, within the oil and gas industry, recycled FRPs are employed in pipeline coatings to protect against corrosion and abrasion, and in the construction of storage tanks for oil, gas, and other petrochemical products. Their lightweight and durable properties also make them well-suited for producing tool handles, enhancing both worker efficiency and safety.

In mechanical industries, recycled FRPs are used to manufacture crucial components such as gears, bearings, and pressure vessels. These components are essential for the effective operation of machinery and equipment, thereby boosting overall productivity and reliability in industrial settings.

Recycled FRPs are also instrumental in structural applications, where they are utilized to create beams, columns, and other structural elements. These materials provide robust support and stability in demanding environments. Further, their versatility makes them suitable for a wide array of industrial uses, including pipes and tanks for chemical and water treatment facilities, as well as for recreational equipment.

COMPETITIVE INSIGHTS

Leading enterprises operating in the United States fiber-reinforced plastic (FRP) recycling market are Carbon Conversions, Carbon Fiber Recycle Industry Co Ltd, Global Fiberglass Solutions, etc.

Carbon Conversions, headquartered in the United States, specializes in the recycling and manufacturing of reclaimed carbon fibers, transforming these materials into advanced components with high-performance capabilities. The company's product portfolio includes chopped fiber and non-woven materials, available under the reEvo brand. Produced at their manufacturing plant in Lake City, South Carolina, Carbon Conversions operates with an annual production capacity of 1,800 metric tons. The company is committed to advancing the utilization of reclaimed carbon fibers through innovative recycling processes and high-quality manufacturing standards.

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