

Fiber-Reinforced Plastic (Frp) Recycling Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The fiber-reinforced plastic (FRP) recycling market is expected to reach over 95,763 tons by the end of this year and is projected to register a CAGR of around 9% during the forecast period.

The COVID-19 pandemic adversely impacted the market in 2020 due to various trade and operational restrictions. However, after the loosening of restrictions and the retraction of the pandemic in the latter half of 2021, the market recorded a positive growth rate due to the increased use of recycled fiber plastic composites in various end-user industries, such as automotive, building and construction, and others.

Key Highlights

Over the medium term, the growing accumulation of composite waste, stringent regulations on the disposal of composites, and new strategies to promote the reuse of carbon-fiber-reinforced plastic (CFRP) are expected to drive the market's growth. On the flip side, difficulties faced during the recycling process, lack of proper recycling techniques for CFRP, and the long service life of CFRP resulting in the limited composite waste availability, are expected to hinder the growth of the market studied. Continuous developments in the field of recycling composites are likely to act as an opportunity for the studied market. The European region dominated the market. However, the Asia-Pacific region is likely to witness the highest CAGR during the forecast period.

Fiber-reinforced Plastic (FRP) Recycling Market Trends

Incineration and Co-incineration Recycling Technique Dominates the Market

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Incineration and co-incineration is the largest segment in terms of recycling techniques. The co-incineration technique dominated the segment due to its growing usage in glass fiber-reinforced plastic (GFRP) recycling. Incineration is a thermal technique that permits energy to be recovered from waste combustion heat. Heat can be directly utilized or turned into electricity. The air pollution caused by the combustion of FRP scrap is a disadvantage of this technology. Only a 35% efficiency rate is achievable while converting heat to electricity. The fibers are not recovered and have a significant negative impact on the environment as well as a financial loss due to the failure to re-utilize the fibers. In the case of GFRP incineration, about 50-70% of the residue material is mineral and is left as ash, which needs to be landfilled. Co-incineration provides for both material and energy recovery. In the co-incineration technique, cement kilns are used for recycling. It is a better, cost-effective option for GFRP waste and offers combined material and energy recovery. Neocomp GmbH, one of the leading recycler across the world, uses the co-incineration technique to recycle GFRP waste. However, waste disposal firms recently changed to complete fiber recovery methods, such as thermal, chemical, and other processes, considering the problems caused by incineration and co-incineration, such as climate change and global warming. This shift due to the significant contribution of studies that focus on the recycling of CFRP and GFRP trash. Thus, the aforementioned factors are likely to have an impact on the demand for incineration and co-incineration processes in the future.

Europe to Dominate the Market

The European region is expected to dominate the global market due to the increasing demand from major countries like Germany, Italy, and the United Kingdom, among others. In European countries, including Germany, landfilling is prohibited, and hence the adoption of recycled plastics/composites is gaining momentum. The use of recycled FRPs may majorly be found in the construction, aerospace, and wind power industries. Recycled FRPs find applications in windmill blades. Wind power is one of the most important drivers of Germany's transition to renewable energy. The biggest number of decommissioned blades is expected to be found in Germany and Spain, followed by Denmark. Lufthansa permanently decommissioned more than 40 aircraft and axed its Germanwings low-cost arm. Wind Europe has advocated for a waste ban on obsolete wind turbine blades throughout Europe by 2025. The wind business in Europe is aggressively committed to reusing, recycling, or recovering 100% of decommissioned blades. This follows the announcement of ambitious blade recycling and recovery plans by numerous industry-leading companies. A landfill ban may hasten the development of environment-friendly recycling technology. Furthermore, Italy is active in the FRP recycling market, as it has an established pilot plant for the same. Karborek Recycling Carbon Fibers is a pioneer in Italy and specializes in recycling and recovering carbon fibers. The company's recycled products are majorly used in the aerospace, automotive, industrial, military, and sports industries. All the above-mentioned factors are likely to significantly impact the demand in the market in the years to come.

Fiber-reinforced Plastic (FRP) Recycling Market Competitor Analysis

The fiber-reinforced plastic (FRP) recycling market is highly fragmented. Major recycling companies partner with composites and OEM manufacturers to collect the waste and recycle it. Some major recycling companies (not in a particular order) include Toray Industries Inc., Vartega Inc., Gen 2 Carbon Limited, Ucomposites AS, and Carbon Conversions, among others.

Additional Benefits:

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