

United States Recycled Waste Carbon Market Assessment, By Source [Municipal Solid Waste, Biosolids, Plastics, Industrial Waste Gases, Others], By Recycling Process [Pyrolysis, Advanced Thermochemical Process, Others), By Application [Chemicals, Fuels, Thermal Energy, Others], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

United States Recycled Waste Carbon Market size was valued at USD 58.2 million in 2022, which is expected to grow to USD 169.5 million in 2030, with a CAGR of 14.3% during the forecast period between, 2023 and 2030. The increasing deployment of recycled waste carbon in fuel manufacturing and the booming chemical industry in the United States are the primary factors spurring the growth of the United States recycled waste carbon market.

The increasing demand for carbon in methanol production and rising deployment of recycled material in biofuel production are among the key trends accelerating the adoption of recycled waste carbon in United States fuel production. In addition, the significant variables, including the development of new chemical manufacturing facilities and prominent export demand, fueling the demand for recycled waste carbon to ensure environmental sustainability in the United States chemical industry. However, the availability of various economical substitutes for recycled waste carbon in the United States poses a major roadblock in market growth in the country.

Increasing Adoption of Recycled Waste Carbon in the United States Fuel Manufacturing Industry

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The recycled waste carbon sourced from municipal solid waste, biosolids, and others is utilized as an efficient catalyst to convert carbon in fuel production. Recycled waste carbon is used in fuel production, including methanol, biodiesel, etc. The increasing research & development activities for the employment of recycled carbon in fuel plants and rising sustainable measures are boosting the development of new recycled carbon for fuel manufacturing plants.

For instance, in March 2021, Celanese Corporation, a United States-based manufacturer of methanol, utilized recycled carbon dioxide as a feedstock for methanol production in the Clear Lake, Texas facility. As a result, the recently developed recycled carbon-to-methanol plant is fostering the demand for recycled waste carbon to ensure superior sustainability in fuel production, thereby propelling the United States recycled waste carbon market growth.

Booming Chemicals Industry is Fostering the Market Growth

Recycled waste carbon has various beneficial properties, including minimized carbon dioxide (CO2) emissions, lower energy use, less water deployment, etc. As a result, recycled waste carbon is employed as a raw material in manufacturing chemicals. The increasing procurement of sustainable materials and rising investment in chemical facility expansion are leading to rising production of chemicals in the United States.

For instance, according to the American Chemistry Council (ACC), in 2022, the chemicals industry in the United States registered an annual growth rate of 3.9%. Therefore, the growth of the chemical sector in the United States is fueling the demand for sustainable and recycled carbon procured from sources such as biocides, industrial waste gases, and others. This, in turn, is driving the United States recycled waste carbon market growth.

The Rising Deployment of Pyrolysis Recycling Process is Accelerating the Market Growth

Pyrolysis is a cost-effective recycling process employed to process a diverse range of feedstocks effectively. The key benefits associated with the pyrolysis recycling process include reduced waste going to landfill. The leading United States-based manufacturer of recycled waste carbon is forming partnerships with international players to develop the pyrolysis recycling process.

For instance, in August 2023, LanzaTech, a recycled waste carbon manufacturer in the



United States formed a strategic collaboration with Sumitomo to develop a pyrolysis recycling process. Thus, the recent innovations in the pyrolysis recycling process for recycled waste carbon in the United States are boosting the recycled waste carbon market growth.

Impact of COVID-19

The imposition of rigorous COVID-19 measures in 2020 significantly impacted the production of non-essential products, including chemicals, fuels, and others in the United States. For instance, according to the American Chemistry Council (ACC), in 2020, the chemical industry in the United States diminished by 3.5% compared to 2019. Thus, the decline in the chemical industry impeded market growth in 2020.

However, the ease of COVID-19-related regulation significantly enhanced the United States recycled waste carbon market growth by the end of 2020. Likewise, the impact of the COVID-19 pandemic was eradicated, boosting the United States recycled waste carbon industry growth outlook during the projected forecast period.

Impact of Russia-Ukraine War

The Russia and Ukraine war resulted in trends such as supply chain disruption and higher oil prices. As a result, the product manufacturing prices increased, and the inflation rate climbed in various countries. Therefore, the demand for recycled waste carbon declined in the first half of 2022 in the United States.

For instance, according to the World Bank, in 2022, due to the Russia-Ukraine war, the price of crude oil soared by USD 100 per barrel, reaching its highest level since 2013. Thus, the higher oil prices due to Russia's invasion of Ukraine impacted the pricing, which created a roadblock for the United States recycled waste carbon in the first half of 2022.

Key Players Landscape and Outlook

The key recycled waste carbon industry players, including Enerkem, Twelve Benefit Corporation, HORIBA, Ltd., Toray Industries Inc., and others have a strong presence in the United States market. The above-listed players have state-of-the-art manufacturing facilities to ensure bulk carbon recycling from waste materials. The major players in manufacturing recycled waste carbon are investing in strategies such as new product innovation, acquisitions, partnerships, mergers, and others to increase their market



share in the United States.

For instance, in December 2021, ArcelorMittal expanded its collaboration with LanzaTech with an investment of USD 30 million. ArcelorMittal has a geographic presence in the United States. The prime focus of the partnership between ArcelorMittal and LanzaTech is to utilize LanzaTech gas fermentation technology to convert waste to recycled carbon, which will further be deployed in bio-ethanol production.



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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

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