

Green Chemistry Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

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Abstracts

The Global Green Chemistry Market was valued at USD 113.1 billion in 2024 and is estimated to grow at a CAGR of 10.9% to reach USD 292.3 billion by 2034.

Green chemistry, often called sustainable chemistry, focuses on designing chemical products and processes that minimize or eliminate the use and generation of hazardous substances. It drives advancements in chemical synthesis, waste reduction, renewable feedstocks, and energy-efficient manufacturing. The industry plays a vital role in reducing environmental harm and promoting cleaner production aligned with global sustainability goals. The increasing enforcement of environmental regulations, heightened consumer preference for eco-friendly products, and a growing emphasis on corporate sustainability are fueling this market's expansion. International initiatives supporting decarbonization are accelerating the transition toward greener production practices. At the same time, rapid developments in bio-based materials and green solvents are transforming industrial operations across sectors. The reach of green chemistry extends well beyond pharmaceuticals to industries such as agriculture, automotive, packaging, and personal care, where companies are adopting eco-friendly catalysts, renewable materials, solvent alternatives. Governments across major economies are reinforcing this shift through incentives and compliance frameworks designed to promote responsible manufacturing and sustainable industrial growth.

The bio-based chemicals segment generated USD 39.5 billion in 2024. The rising adoption of bio-based chemicals is driven by the global need to replace petroleum-derived compounds with renewable and sustainable alternatives. Produced from biomass, these chemicals carry a significantly smaller carbon footprint and are increasingly used in pharmaceuticals, consumer goods, and agricultural products. Green solvents are also becoming more popular for their low toxicity and reduced

environmental impact, making them attractive to industries seeking safer formulations and production processes. Their growing role in minimizing waste and improving recyclability continues to strengthen their market presence across applications.

The pharmaceutical segment reached USD 28.2 billion in 2024. Green chemistry in pharmaceuticals enables cleaner and safer manufacturing processes, while biodegradable and bio-based packaging materials are increasingly replacing traditional plastics. Automotive and construction industries are also embracing sustainable materials and greener production practices to lower emissions, reduce waste, and enhance energy efficiency throughout their supply chains. These sectors are transitioning toward environmentally responsible manufacturing models that meet both regulatory requirements and consumer expectations for sustainability.

U.S. Green Chemistry Market was valued at USD 27 billion in 2024. Growth across North America is being driven by robust regulatory frameworks, abundant renewable resources, and strong demand for sustainable alternatives across various industries. The region's green transition is further accelerated by active policy support for the replacement of hazardous substances and the integration of eco-friendly inputs into manufacturing systems. Canada's forestry and agricultural resources are contributing to bio-based chemical production, while Mexico's industrial landscape is increasingly aligned with global sustainability standards. These developments reflect North America's broader movement toward environmentally conscious production aligned with international ESG objectives.

Prominent companies operating in the Global Green Chemistry Market include BASF SE, Dow Inc., DuPont de Nemours, Cargill Inc., Mitsubishi Chemical Group, Air Liquide, ExxonMobil Chemical, Corbion N.V., Evonik Industries, Novozymes A/S, Braskem S.A., Genomatica Inc., Solugen Inc., Gevo Inc., Amyris Inc., and Modern Meadow. To strengthen their position in the global green chemistry market, leading companies are focusing on expanding their bio-based product portfolios, developing low-carbon manufacturing processes, and forming strategic collaborations with technology innovators. Many firms are investing heavily in research and development to improve yield efficiency and reduce production costs of sustainable materials. Partnerships with agricultural producers and renewable energy suppliers help secure reliable feedstock sources while ensuring environmental compliance.

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