

3-Hydroxypropionic Acid Market Size, Share & Trends Analysis Report By Source (Chemical, Bio-based), By Form (Powder, Liquid), Application (Acrylic Acid Production, 1,3 Propanediol), By Region (North America, Europe), And Segment Forecasts, 2024 - 2030

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Abstracts

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3-Hydroxypropionic Acid Market Growth & Trends

The global 3-hydroxypropionic acid market size is anticipated t%li%reach USD 1.34 billion by 2030, growing at a CAGR of 9.5% from 2024 t%li%2030, according t%li%a new report by Grand View Research, Inc. The growth is majorly attributed t%li%increasing application of 3- HPA in the production of acrylic acid which is further used in the manufacturing process of a wide range of products such as plastics, fibers, paints, and super-absorbent diapers. It is als%li%used in the production of coatings, widely used in the global automotive industry.

The Environmental, Social, and Governance (ESG) aspects of 3-hydroxypropionic acid (3-HP) focus on its potential as a green and sustainable platform chemical. This compound plays a crucial role as part of carbon-neutralization and green chemistry initiatives, in accordance with ESG values, by offering eco-friendly production using microbial pathways.

Furthermore, the biological production of 3-HP from various sources, such as sugars and glycerol, highlights its versatility and eco-friendly nature, further enhancing its ESG



profile. 3-hydroxypropionic acid is a valuable platform chemical that aligns with ESG attributes and good practices in the chemical industry, promoting environmental sustainability and social responsibility.

The production of 3-hydroxypropionic acid is influenced by several factors including the production method, market demand, and supply chain. The chemical synthesis method, which is complex and expensive, contributes t%li%the high cost of 3-hydroxypropionic acid. Bio-based production methods utilizing renewable resources like glycerol or 1,3-propanediol are more cost effective and sustainable.

The production of 3-Hydroxypropionic acid is a complex and expensive process that requires significant energy and resources. The cost of raw materials, such as glycerol, is als%li%increasing globally. Moreover, the cost of producing 3-Hydroxypropionic acid using Coenzyme B12 via the glycerol pathway in E. coli is high because Coenzyme B12 is expensive. In order t%li%produce 3-Hydroxypropionic acid through the glycerol pathway in E. coli, manufacturers must introduce a foreign glycerol dehydratase (GDHt) and add Coenzyme B12 externally. This increases the production cost, which affects the overall economics of the production process.

A significant challenge for industrial-scale production of 3-HP from sugar is the inferior performance of fermentation microbes, which leads t%li%diluted product streams and high separation costs. Few bio-based methods involving lactic acid, yeast, yeast-based ethanol, bacteria-based lactic acid, and coli-based propanediol can compete with petrol-based processes, resulting in higher production costs.

3-Hydroxypropionic Acid Market Report Highlights

Petrochemical based products dominated the market with a revenue share of 82.3% in 2023 owing t%li%reduce the cost of production of 3-HPA using petrochemical source and its easy availability in the market.

Liquid from of the product dominated the market with a revenue share of 65.5% in 2023. The liquid form of 3-HPA is a colorless, odorless, and transparent organic acid. It is soluble in water, ethanol, and ether. It is als%li%used in the food & beverage industry as an acidulant and flavor enhancer.

Acrylic acid production application dominated the market with a revenue share of 82.5% in 2023. 3-Hydroxypropionic acid (3HPA) is a key intermediate in the



production of acrylic acid. The synthesis of acrylic acid is achieved through the process known as microbial fermentation

Asia Pacific dominated the market segment with a revenue share of 39.7% in 2023 owing t%li%the rising construction activities and increasing demand from the automotive sector in emerging countries, such as India, South Korea, Japan, Indonesia, and the Philippines, which are expected t%li%drive the market over the forecast period.



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