

# **Lignin Market Forecast to 2028 - COVID-19 Impact and Analysis by Type (Lignosulfonates, Kraft Lignin, High Purity Lignin, and Others), by Form (Solid and Liquid), by Application (Concrete Additives, Plastics and Polymers, Bitumen, Water Treatment, Dyes and Pigments, Activated Carbon, Carbon Fiber, and Others)**

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## **Abstracts**

The global lignin market is expected to grow from US\$ 500.72 million in 2022 to US\$ 684.68 million by 2028. It is expected to grow at a CAGR of 5.4% from 2022 to 2028.

Lignin in the form of lignosulphonates, kraft lignin, and high purity lignin are widely used for sustainable & biobased products, and other applications, due to their characteristics such as high molecular weight, ideal glass transition temperature, good thermal decomposition, high lignin solubility, biodegradability, and high antioxidant properties. Lignin, a byproduct of paper and bioethanol production is a potential replacement for several products such as phenol in a phenolic adhesive formulation, production of green building materials, and replace petroleum-based materials.

Based on application, the global lignin market is segmented into concrete additives, plastics and polymers, bitumen, water treatment, dyes and pigments, activated carbon, carbon fiber, and others. In 2021, the concrete additives segment held a significant market share, whereas carbon fiber segment is expected to be the fastest growing segment during the forecast period. Lignin is used in concrete additives applications, which helps improve concrete compressive strength, asphalt mixture, and powder-grinding efficiency of cement particles. Using lignin in concrete additives can result in lower water consumption during the mixing of concrete, resulting in a lower water-to-

cement ratio that yields significant strength after hardening. In addition, lignin is also used in plasticizer admixture as it significantly improves the flow property of concrete. Moreover, rising renovation and infrastructure development activities are further contributing to the demand for lignin in concrete additives.

The global lignin market is segmented into Asia Pacific, Europe, Middle East & Africa, North America, and South & Central America. In 2021, Europe held the largest share of the global lignin market and Asia Pacific is expected to grow at the fastest CAGR during the forecast period. Europe lignin market growth is attributed to the growing implementation of climate plans by the European Union. In manufacturing batteries, graphitic carbon – is a strictly layered material that can have slow charging times. Replacing this fossil-based graphite with hard carbon from trees, such as lignin, brings both technical and environmental benefits. Hence, in batteries manufacturing, the use of wood lignin, is expected to create growth opportunities for the lignin market during the forecast period. Germany is a significant market for lignin production due to the presence of well-established and developed pulp & paper industry, concrete admixtures, energy, and agriculture. Lignocellulosic biomass is the most abundantly available raw material in Germany to produce biofuels. Hence, the energy generation sector has been booming across the country owing to the increased production of lignin-based biomass. Therefore, aforementioned factors are expected to positively contribute to the growth of lignin market in Europe.

The COVID-19 pandemic affected economies and industries in various countries across all the continents with lockdowns, travel restrictions, and business shutdowns. These shutdowns disturbed global supply chains, manufacturing activities, delivery schedules, and product sales. Various companies announced possible delays in product deliveries and a slump in future sales of their products in 2020. Lignin is also used as a major raw material in carbon fiber production and related end-use industries. Slowdown in the growth of the end-use industries that use carbon fiber adversely affected lignin market. For instance, according to the US International Trade Commission (USITC), the automotive industry was highly vulnerable, and vehicle sales in the US decreased by 15% from 2019 to 2020. This factor had an adverse impact on the automotive industry in the US, which decreased the demand for lignin. Therefore, slowdown and slump in production activities of end-use industries significantly reduced the demand for lignin.

In 2021, the global lignin market witnessed a positive recovery as governments of various countries announced the relaxation of previously imposed restrictions. The manufacturers were permitted to work at full capacity, thus leveraging their profitability. According to Eurostat, after an unprecedented decline in construction rate from March

to April in 2020(-25.9%), the European Union witnessed an increase of 20.4% in May 2020. The construction industry continued to recover from the losses incurred during the COVID-19, owing to a gradual increase in construction activities.

Nippon Paper Industries Co Ltd, Borregaard ASA, Burgo Group SpA, Domsjo Fabriker AB, Sappi Ltd, Stora Enso Oyj, Suzano SA, The Dallas Group of America Inc, Tokyo Chemical Industry Co Ltd, and West Fraser Timber Co Ltd, are among the leading players in the global lignin market. These companies are adopting strategies such as mergers & acquisitions and product launches to expand their geographic presence and consumer bases.

The overall global lignin market size has been derived using both primary and secondary sources. To begin the research process, exhaustive secondary research has been conducted using internal and external sources to obtain qualitative and quantitative information related to the market. Also, multiple primary interviews have been conducted with industry participants to validate the data and gain more analytical insights. Participants of this process include industry experts such as VPs, business development managers, market intelligence managers, and national sales managers—along with external consultants, including valuation experts, research analysts, and key opinion leaders—specializing in the global lignin market.

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