

# The Global Market for Lignin 2023-2033

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## Abstracts

The increasing concerns of environmental pollution and shortage of petroleum resources have fuelled substantial research towards valorization of bio-based polymers. Lignin is the second most abundant renewable biopolymer on Earth and the largest natural source of aromatic monomers. Its industrial use has attracted considerable attention because of its advantages of high carbon content, low cost and bio-renewability. Lignin is an important precursor for sustainable synthesis of chemicals, polymers, and materials to replace or augment current petroleum-based counterparts.

Wood pulping and other biorefinery industries extract more than 50 million tonnes of lignin annually, but only ~2% is recovered for utilization in applications. However, its use as a 'green' feedstock for fuels, chemicals, and materials is growing through the commercialization of extraction technologies coupled with transitioning towards biorefinery processes.

Lignin has mainly been produced as an industrial residue of pulp and paper factories (e.g. a by-product of the Kraft process), and the majority of the several millions tons of lignin produced annually are utilized as a low-cost fuel for power and heat generation. Due to continued greening (i.e. renewable feedstock) of the global economy, new applications are being commercialized. For example, lignin-based renewable functional fillers are used in different rubber applications as a sustainable alternative to carbon black and silica. Recent developments include use of lignin as a carbon additive in li-ion batteries., due to increased demand for sustainable and environmentally friendly energy storage.

The Global Market for Lignin 2023-2033 includes:

Market description and future outlook.

Analysis of processes used to extract and refine lignin

Production capacities of lignin producers.

In depth analysis of biorefinery lignin production.

Markets and applications for lignin. Markets covered include aromatic compounds (e.g. Benzene, toluene and xylene; Vanillin; Phenol and Phenolic resins); Plastics and polymers; Hydrogels; Concrete; Rubber; Bitumen and Asphalt; Biofuels; Energy storage; Binders, emulsifiers and dispersants; Chelating agents; Ceramics; Automotive; Fire retardants; Antioxidants; Lubricants; Dust Control.

Market demand for lignin in metric tonnes, forecast to 2033.

Industry developments 2020-2023.

Profiles of 79 lignin producers. Profiles include company description, products, processes and capacities. Companies profiled include Bloom Biorenewables SA, Clariant, FP Innovations, Klabin SA, Lignin Industries, Lignolix, Inc., Lignopure, Lignovations GmbH, MetGen Oy, Praj Industries Ltd., Spero Renewables, Stora Enso, Sumitomo Bakelite Co. Ltd., UPM, Versalis SpA and RenCom AB.

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