

# **Biomass Pyrolysis Oil Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Fast Pyrolysis Oil, Slow Pyrolysis Oil, Hydrotreated Pyrolysis Oil), By Application (Fuel, Chemicals, Power Generation), By Region, By Competition, 2020-2030F**

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## **Abstracts**

### **Market Overview**

The Global Biomass Pyrolysis Oil Market, valued at USD 0.6 billion in 2024, is projected to reach USD 1.8 billion by 2030, growing at a CAGR of 20.1%. This surge is driven by the increasing demand for renewable energy alternatives amid escalating environmental concerns and climate action initiatives. Biomass pyrolysis oil, produced from organic waste such as agricultural residues and forestry by-products, offers a carbon-neutral energy option that aligns with circular economy principles. Technological improvements in pyrolysis systems—featuring advanced reactor configurations and greater feedstock adaptability—are enhancing efficiency and cost-effectiveness, accelerating commercialization. The oil's expanding application in transportation, power generation, and industrial heating also contributes to market growth. Moreover, supportive government policies, including tax incentives and emissions regulations, are encouraging broader adoption. With abundant biomass resources available, especially in agriculture-dependent regions, and a growing global focus on clean energy diversification, biomass pyrolysis oil is emerging as a strategic component in the global renewable energy mix.

### **Key Market Drivers**

## Rising Demand for Renewable and Sustainable Energy Alternatives

The global shift toward sustainability and reduced carbon emissions is significantly propelling the demand for biomass pyrolysis oil. As an alternative to fossil fuels, this bio-oil—produced through thermal decomposition of organic matter in oxygen-limited environments—offers a carbon-neutral energy source. It plays a critical role in helping countries meet climate commitments like the Paris Agreement by supporting the transition to low-emission energy systems. Regulatory frameworks such as the EU's Renewable Energy Directive and the U.S. Renewable Fuel Standard are bolstering bio-oil adoption by mandating increased use of renewable fuels. These policies, combined with the global momentum for decarbonization, are fostering favorable conditions for the biomass pyrolysis oil market to expand rapidly across multiple energy-intensive sectors.

### Key Market Challenges

#### Technical Limitations and Quality Issues of Pyrolysis Oil

Despite its potential, biomass pyrolysis oil faces significant technical barriers related to its quality and usability. The oil is a complex blend characterized by high water content, low energy density, acidity, chemical instability, and viscosity, all of which limit its compatibility with standard fuel systems. These attributes can cause corrosion, reduce combustion efficiency, and present storage challenges, hindering its use in transportation and conventional power applications. Upgrading processes such as hydrodeoxygenation or catalytic treatment are necessary to improve its properties but come with high operational and capital costs. These processes also require specialized infrastructure, making them less viable in remote or decentralized regions, thereby restricting broader market penetration.

### Key Market Trends

#### Increasing Integration of Pyrolysis Oil into Industrial Heat and Power Applications

An emerging trend in the biomass pyrolysis oil market is its growing deployment in industrial heat and power sectors. Industries seeking to decarbonize their operations are turning to pyrolysis oil as a renewable substitute for heavy fuel oil and coal, especially in thermal-intensive sectors like cement, steel, and pulp & paper. Adoption is facilitated by retrofitting capabilities and government incentives such as carbon taxes and biofuel subsidies. Notably, European countries are leading this integration through policy support and funding. The co-firing of pyrolysis oil with traditional fuels is gaining

popularity as a transitional strategy toward full decarbonization, especially in regions like Asia and Latin America that benefit from ample biomass feedstock and growing energy needs.

### **Key Market Players**

Alterra Energy, LLC

Bioenergy Ae Cote-Nord

Green Fuel Nordic Oy

Mk Aromatics Limited

New Energy Kft.

New Hope Energy

Nexus Circular

Plastic Advanced Recycling Corp.

### **Report Scope:**

In this report, the Global Biomass Pyrolysis Oil Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Biomass Pyrolysis Oil Market, By Type:

Fast Pyrolysis Oil

Slow Pyrolysis Oil

Hydrotreated Pyrolysis Oil

Biomass Pyrolysis Oil Market, By Application:

Fuel

Chemicals

Power Generation

Biomass Pyrolysis Oil Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

Asia Pacific

China

India

Japan

South Korea

Australia

South America

Brazil

Colombia

Argentina

Middle East & Africa

Saudi Arabia

UAE

South Africa

## **Competitive Landscape**

Company Profiles: Detailed analysis of the major companies present in the Global Biomass Pyrolysis Oil Market.

## **Available Customizations:**

Global Biomass Pyrolysis Oil Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

## **Company Information**

Detailed analysis and profiling of additional market players (up to five).

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