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Bio-naphtha Market Forecasts to 2032 – Global Analysis By Type (Light Bio-naphtha, Heavy Bio-naphtha, and Other Types), Feedstock, Production Process, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Bio-naphtha Market is accounted for $1042.38 million in 2025 and is expected to reach $2858.26 billion by 2032 growing at a CAGR of 15.5% during the forecast period. Bio-naphtha is an eco-friendly substitute for fossil-based naphtha, created from renewable feedstocks like vegetable oils, used cooking oil, and other biomass materials through advanced refining or conversion methods. It is primarily utilized in petrochemical industries for producing plastics, fuels, and solvents. By replacing petroleum-derived inputs, bio-naphtha contributes to cutting carbon emissions and promoting a circular, sustainable industrial ecosystem that supports global efforts toward cleaner energy and reduced environmental impact.

According to Ministry of Petroleum and Natural Gas Indian chemicals and petrochemicals market size is estimated to grow to around USD 300 billion by the end of 2025 up from its current market size USD 220 Billion.

Market Dynamics:

Driver:

Rising demand for renewable and sustainable fuels

Global efforts to decarbonize energy systems are intensifying demand for bio-based alternatives like bio-naphtha. Industries are transitioning away from fossil-derived feedstocks to meet climate targets and regulatory mandates. Bio-naphtha, derived from

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renewable sources, is gaining traction as a drop-in substitute for petrochemical applications. Its compatibility with existing infrastructure makes it a preferred choice for refiners and polymer manufacturers. The push for circular economies and low-carbon supply chains is accelerating adoption across sectors. As governments incentivize green fuel production, bio-naphtha is emerging as a strategic enabler of sustainable transformation. This momentum is expected to drive robust market expansion over the coming years.

Restraint:

Limited availability of biomass feedstock

Agricultural residues, forestry byproducts, and organic waste streams are not uniformly available across regions. Seasonal variability and logistical challenges hinder consistent biomass collection and processing. Competition from other biofuel segments further strains supply chains, limiting scalability. Regulatory restrictions on land use and deforestation also impact feedstock sourcing. These limitations increase procurement costs and reduce operational efficiency for producers. As a result, supply-side bottlenecks may temper short-term growth despite rising demand.

Opportunity:

Advancements in biomass conversion technologies

Breakthroughs in thermochemical and biochemical conversion methods are unlocking new potential for bio-naphtha production. Technologies like pyrolysis, gasification, and hydrothermal liquefaction are improving yield and feedstock flexibility. Enhanced catalysts and process optimization are reducing energy input and emissions during conversion. Integration with biorefineries enables co-production of multiple value-added outputs, boosting economic viability. R&D investments are driving innovation in scalable, modular systems suited for decentralized operations. These advancements are making bio-naphtha more competitive with fossil-based alternatives. As technology matures, it will catalyze market growth and attract new entrants.

Threat:

Volatility in raw material supply and prices

Weather disruptions, crop failures, and geopolitical tensions can destabilize supply

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chains. Price spikes in agricultural commodities or waste management services directly impact production costs. Dependence on region-specific feedstocks introduces risk for global producers. Unpredictable policy shifts and trade barriers may further complicate sourcing strategies. Volatility undermines long-term planning and deters investment in large-scale facilities. Without robust supply chain resilience, market growth could be uneven and exposed to external shocks.

Covid-19 Impact:

The COVID-19 pandemic disrupted bio-naphtha supply chains, delaying infrastructure upgrades and feedstock logistics. Lockdowns affected biomass collection, transportation, and processing operations across key regions. Demand from downstream sectors like automotive and packaging temporarily declined due to economic slowdown. However, the crisis also accelerated interest in sustainable and resilient fuel alternatives. Governments began prioritizing green recovery strategies, including bio-based energy investments. Remote operations and digital monitoring tools gained prominence in biofuel production facilities. Post-pandemic, the market is expected to rebound with renewed focus on climate resilience and energy diversification.

The light bio-naphtha segment is expected to be the largest during the forecast period

The light bio-naphtha segment is expected to account for the largest market share during the forecast period, due to its versatility and high demand in petrochemical applications. It serves as a key feedstock for ethylene and propylene production, essential for plastics and synthetic materials. Its favorable boiling range and chemical properties make it suitable for steam cracking processes. Refineries and chemical plants can integrate light bio-naphtha with minimal retrofitting, enhancing adoption. Regulatory support for low-carbon inputs in polymer manufacturing is boosting its uptake. As industries seek greener alternatives without compromising performance, light bio-naphtha stands out.

The plastics & polymers segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the plastics & polymers segment is predicted to witness the highest growth rate, due to driven by rising demand for sustainable materials. Bio-naphtha is increasingly used as a renewable feedstock in polymer synthesis, replacing fossil-derived inputs. Consumer awareness and regulatory pressure are pushing brands

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toward bio-based packaging and products. Innovations in bioplastics and circular economy models are expanding application scope. Major FMCG and automotive players are committing to carbon-neutral supply chains, fueling demand. The segment benefits from both environmental mandates and commercial incentives.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, supported by rapid industrialization and policy-driven sustainability goals. Countries like China, India, and Japan are investing heavily in bio-refining infrastructure and renewable fuel programs. The region's large petrochemical base creates strong demand for bio-naphtha as a drop-in feedstock. Government subsidies and carbon reduction targets are encouraging domestic production. Urbanization and population growth are driving consumption of plastics and fuels, amplifying market potential. Strategic partnerships and technology transfers are enhancing regional capabilities.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, propelled by innovation and supportive regulatory frameworks. The U.S. and Canada are advancing biofuel mandates and investing in next-gen conversion technologies. Federal funding and tax incentives are accelerating commercialization of bio-naphtha projects. Strong presence of chemical and automotive industries creates a ready market for renewable feedstocks. Collaboration between academia, startups, and industry is fostering rapid R&D progress. Climate commitments and ESG goals are driving corporate adoption of bio-based inputs.

Key players in the market

Some of the key players in Bio-naphtha Market include Neste Oyj, Borealis AG, UPM Corporation, Kaidi Finland, Eni S.p.A., Petronas, Repsol S.A., Phillips 66, Preem AB, World Energy, Shell plc, Renewable Energy Group (REG), TotalEnergies SE, Diamond Green Diesel, and OMV Group.

Key Developments:

In September 2025, UPM and Versowood have agreed on a long-term partnership that will enable UPM to strengthen its cost-effective wood sourcing in Finland. Under the agreement signed by the two companies, UPM will receive high-quality pulpwood and

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sawmill by-products from Versowood, allowing UPM to thus strengthen the supply of wood for its pulp mills in the tight Finnish wood market. UPM will in turn supply Versowood's sawmills with logs acquired through UPM’s own wood sourcing operations.

In September 2025, PETRONAS announced that it has entered into a long-term strategic partnership with MidOcean Energy (“MidOcean”), a liquefied natural gas (LNG) company formed and managed by EIG, a leading institutional investor in the global energy and infrastructure sectors, through a 20 per cent strategic equity participation in its subsidiaries in Canada.

Types Covered:

- Light Bio-naphtha
- Heavy Bio-naphtha
- Other Types

Feedstocks Covered:

- Biomass
- Algae
- Vegetable Oils
- Waste Oils and Residues
- Animal Fats

Production Processes Covered:

- Hydrocracking of Renewable Feedstocks
- Gasification and Fischer

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Pyrolysis Process

Applications Covered:

Fuel Blending

Plastic Production

Chemical Production

Bio-based Petrochemicals

Other Applications

End Users Covered:

Automotive

Plastics & Polymers

Energy & Power

Chemicals & Petrochemicals

Other End Users

Regions Covered:

North America

US

Canada

Mexico

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  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific
- South America
  - Argentina
  - Brazil
  - Chile
  - Rest of South America

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- Middle East & Africa
  - Saudi Arabia
  - UAE
  - Qatar
  - South Africa
  - Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation

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Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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