NexantECA

Markets & Profitability

Market Insights: Biodiesel – 2022

Market Insights: Biodiesel - 2022 is one in a series of reports published as part of NexantECA's Markets & Profitability program.

NexantECA's Market Insights report provides a comprehensive review of the global biodiesel market, including supply by first generation and second generation (advanced), as well as Methyl Ester and Renewable Diesel and regional demand is broken down by country.

The following scope is covered:

- Discussion regarding key market drivers and constraints for each region
- Supply/Demand/Trade for nine regions: North America, South America, Western Europe, Central Europe, Eastern Europe, Middle East, Africa, Asia Pacific, and China
- Competitiveness analysis, including competitive landscape and cost competitiveness
- Price history and forecast with commentary regarding latest trends
- Forecast period: 10 years history and 15 year forecast to 2035

Along with the written report, data is provided in Excel

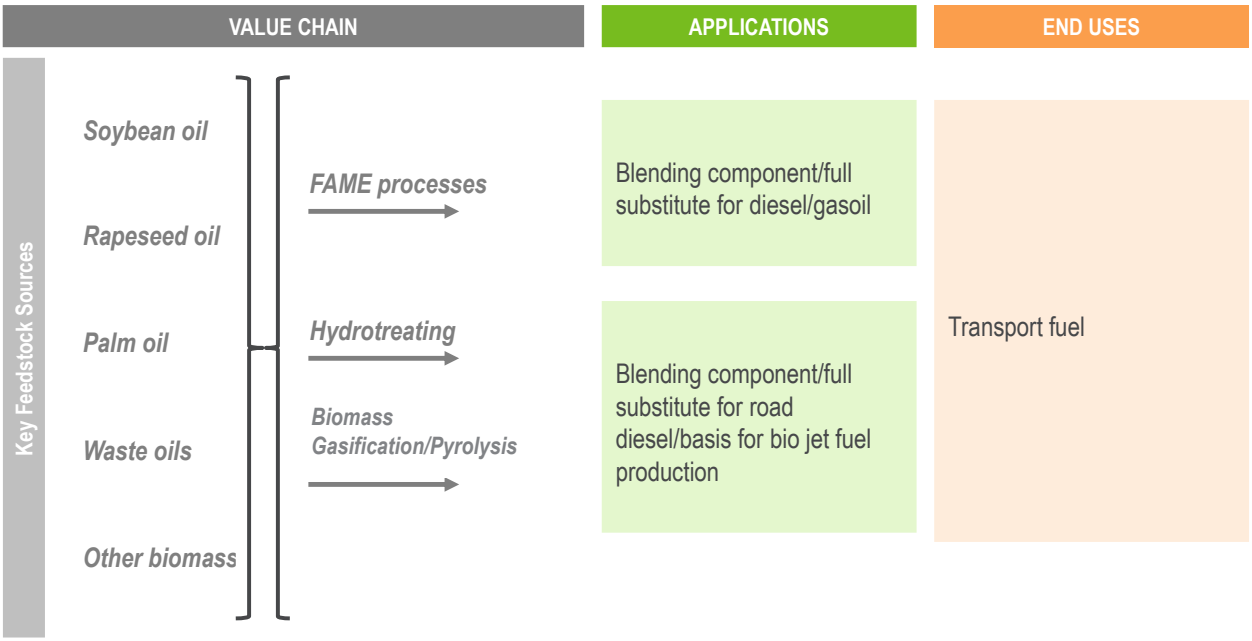
Report Abstract:

The term biodiesel is used to describe any product made from biomass-based feedstocks that is used to substitute conventional, petroleum-derived diesel fuel, mainly in transport applications. Biodiesel is one of the two main classes of biofuels, alongside fuel ethanol, which is used to substitute petroleum-derived gasoline. In common with ethanol, and other biomass-derived fuels, such as biogas, the primary motivation for the consumption of biodiesel is the expectation that the product has a lower overall level of Carbon Dioxide and other Greenhouse Gas (GHG) emissions than its petroleum-derived equivalent. Accordingly, biodiesel use has been increasingly incentivised by governments around the world over the last two decades and demand is projected to continue to grow in the forecast period, despite being generally priced significantly higher than petroleum diesel.

At present, biodiesel is produced in two forms, namely:

- Methyl Ester (ME) biodiesel: ME biodiesels are produced from a range of biomass feedstocks using esterification or transesterification processes. ME biodiesels are often generically termed as Fatty Acid Methyl Esters (FAME). However, they can also be differentiated depending on feedstock, including Soybean Methyl Ester (SME), Rapeseed Methyl Ester (RME), Palm Oil Methyl Ester (PME) and Used Cooking Oil Methyl Ester (UCOME). Although ME biodiesels can be used neat or in high concentrations with petroleum-derived diesel in suitably adapted engines, in non-adapted vehicles they generally face a maximum blending level – referred to as the blend wall – of around seven percent by volume.
- Renewable Diesel (RD): Renewable Diesel, also known as Green Diesel, is a more recently established biomass-derived diesel substitute, that is characterised by a chemical structure almost indistinguishable from petroleum-derived diesel (without a Carbon 14 test). As such, Renewable Diesel can be used neat or in any concentration with conventional diesel, with no need for engine adaptation. Renewable Diesel can be produced via several processes, which are at varying levels of commercialisation, notably:
    - Hydrotreated Vegetable Oil (HVO): Also known as Hydroprocessed Esters and Fatty Acids (HEFA), HVO is the only production process for Renewable Diesel that is established at commercial scale. Although HVO production is currently small relative to ME biodiesel production, it has taken a progressively larger share of the global biodiesel market in recent years, thanks to a range of superior properties. In addition to Renewable Diesel, HVO plants are able to produce bio-based jet fuel (referred to as Sustainable Aviation Fuel, or SAF), propane and naphtha.
    - Biomass Integrated Gasification-Fischer-Tropsch (BG-FT): Entailing the gasification of a range of biomass product followed by conversion to liquid fuels using the Fischer-Tropsch process. Advanced BG-FT Renewable Diesel is currently not at commercial scale, but several projects are in the pipeline which should see it taking an appreciable role in the future, notably due to the process's ability to process a wider range of waste-based feedstocks than HVO.
    - Biomass Pyrolysis: Entailing the production of a pyrolysis oil (sometimes referred to as bio-crude) which can be hydrotreated and used as Renewable Diesel. This process is not yet at a commercial

stage but – like BG-FT – offers advantages in terms of the ability to process a range of as yet relatively un-utilized and sustainable feedstocks.



In addition to being differentiated as above by technological process, biodiesel can be defined depending on the type of feedstock used in its production. While terms vary, NexantECA classifies biodiesel either as “first generation” or “advanced” (otherwise known as “second generation”) product, an approach which is broadly in line with that of authorities in the European Union over the last decade.

Biodiesel produced from food and animal feed crops, led by oilseed crops such as soybean, rapeseed (canola) and palm, as well as crops such as corn, is defined as first generation product, and accounts for the majority of global demand. Biodiesel produced using feedstocks that do not compete with food or feed production is defined as advanced (second generation) product. These feedstocks include Used Cooking Oil (UCO), tallow and other animal fats and greases, agricultural wastes and residues such as Palm Oil Mill Effluent (POME), forestry wastes such as Crude Tall Oil (CTO) and niche alternative oilseed crops, such as camelina and carinata. Both ME biodiesel and Renewable Diesel can be either first generation or advanced, depending on feedstock inputs, although Renewable Diesel has a somewhat wider feedstock slate.

Non-food/feed feedstocks have gained an appreciable share of global production in recent years, estimated at over 20 percent in 2021. This shift is largely the result of concerns over the extent to which first generation biofuels have the potential to disrupt food supply and prices, as well as the extent to which these products can effectively bring about reductions in greenhouse gas (GHG) emissions compared to conventional petroleum-derived transport fuels. First generation and advanced biodiesel are subject to different policy incentives and mandates in many key markets, as discussed in further detail in subsequent sections. Recent years have seen increasing efforts at the policy level to encourage a transition from first generation biofuels towards second generation products. While HVO, and to a lesser extent BG-FT, represent key alternative production processes to ME biodiesel, they are not necessarily defined as advanced biofuels, due to the fact that both can be produced from food or feed crops.

Market Insights: Biodiesel – 2022

Table of Contents

Each region section in Chapter 3 includes:

- Market Overview
- Market Drivers
- Market Constraints
- Competitive Landscape
- Supply and Demand

Report License Details:

Access to **Market Insights: Biodiesel - 2022** is via a report license agreement and includes:

- 12 month access to the PDF report via NexantECA website, with unlimited downloads of PDF reports
- Excel file
- Consultation time with the project team

Contact Us

For more information:

Markets@NexantECA.com

or

www.NexantECA.com

NexantECA Subscriptions & Reports provide clients with comprehensive analytics, forecasts and insights for the chemicals, polymers, energy and cleantech industries. Using a combination of business and technical expertise, with deep and broad understanding of markets, technologies and economics, NexantECA provides solutions that our clients have relied upon for over 50 years.

The **Markets and Profitability** program tracks over 60 feedstocks, petrochemicals, polymers, chemical intermediates and fertilizers on an ongoing basis and provides regularly updated reports covering all commercial aspects of these global industries. The accompanying database provides global analysis and forecasts in two major inter- related areas: **Markets and Profitability**.

NexantECA serves its clients from over 30 offices located throughout the Americas, Europe, the Middle East, Africa and Asia.

Americas
Tel: +1 914 609 0300
44 S Broadway,
4th Floor White Plains
NY 10601-4425
USA

Europe, Middle East & Africa
Tel: +44 20 7950 1600
110 Cannon Street, London
EC4N 6EU
United Kingdom

Asia Pacific
Tel: +662 793 4600
22nd Floor, Rasa Tower I
555 Phahonyothin Road
Kwaeng Chatuchak
Khet Chatuchak
Bangkok 10900
Thailand