

India Ethanol Market, By Type (Bio Ethanol, Synthetic Ethanol), By Raw Material (Sugar & Molasses Based, Grain Based, Lignocellulosic Biomass, Algal Biomass), By Purity (Denatured, Undenatured), By Application (Fuel & Fuel Additives, Industrial Solvents, Disinfectant, Personal Care, Beverage), By Region, Competition, Forecast and Opportunities, 2029

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Abstracts

The India Ethanol Market attained a valuation of USD 6512.27 Million in 2023 and is poised for robust growth in the forecast period, projected to achieve a Compound Annual Growth Rate (CAGR) of 8.84% through 2029 and is anticipated to reach at USD 10456.98 million by 2029. Ethanol, a renewable fuel derived from various plant materials collectively referred to as 'biomass,' is driving this growth. Ethanol's lower carbon intensity compared to conventional fuels has resulted in reduced carbon emissions, aligning with India's climate goals. The Indian government's determined push for ethanol blending in petrol has been a transformative factor. The Ethanol Blended Petrol (EBP) program, initiated in 2003, mandates blending ethanol with petrol to decrease greenhouse gas emissions and promote cleaner fuels. The government's commitment to achieve 20% ethanol blending in petrol by 2025 has significantly boosted ethanol production. Furthermore, government support in terms of incentives, subsidies, and grants has incentivized investment in ethanol production infrastructure. These incentives have attracted both public and private sector interest, driving increased capacity and output. Additionally, ethanol production provides an extra revenue source for farmers, contributing to rural economic growth. The promotion of ethanol bridges agriculture and energy sectors, benefiting farmers while bolstering

energy security. These factors collectively contribute to the expansion of the India Ethanol Market in the forecast period.

Key Market Drivers

Increasing Demand for Biofuels for Sustainable Development

In recent years, there has been a growing global awareness of the necessity to transition towards sustainable energy sources due to concerns regarding climate change, depleting fossil fuel reserves, and the urgency to mitigate environmental degradation. India has emerged as a leader in adopting alternative energy solutions, with a strong emphasis on biofuels as a vital component of its sustainable development strategy. Ethanol, among the biofuels, has gained prominence as a cleaner and greener substitute for traditional fossil fuels. The escalating demand for biofuels, specifically ethanol, aligns with India's pursuit of sustainable development, representing a fundamental shift in the country's energy landscape. Additionally, India's growing population, rapid industrialization, and urbanization have led to a significant rise in energy consumption. To meet this demand, India heavily relies on imported fossil fuels, leaving it exposed to global price fluctuations and geopolitical uncertainties. Moreover, fossil fuel combustion contributes substantially to greenhouse gas emissions, exacerbating climate change and air pollution issues. In response, India has committed to ambitious targets under the Paris Agreement, including significant carbon emission reductions and an increased share of renewable energy in its energy mix. To achieve these goals, the focus on energy sources generated from renewable feedstocks, such as ethanol derived from organic sources like sugarcane, corn, and various cellulosic materials, has gained traction. Ethanol emits fewer greenhouse gases compared to traditional gasoline, making it a compelling solution to mitigate the adverse environmental impact of conventional fuels. Thus, the rising demand for biofuels for sustainable development is a driving force behind the expansion of the India Ethanol Market.

Supportive Government Policies

In light of global calls for sustainable and environmentally friendly energy practices, the Indian government has implemented significant measures to promote the production and usage of ethanol as an alternative fuel. With a strategic focus on reducing carbon emissions, minimizing dependence on fossil fuels, and ensuring energy security, India has introduced a series of favorable policies. These policies have not only spurred the growth of the ethanol industry but have also positioned India as a pioneer in sustainable

energy adoption. A pivotal aspect of India's ethanol initiative is the Ethanol Blended Petrol (EBP) program, a progressive policy that mandates blending ethanol with petrol to lower the carbon footprint of the transportation sector and encourage cleaner energy consumption. Since its inception in 2003, the program has undergone notable enhancements, culminating in the ambitious target of achieving 20% ethanol blending in petrol by 2025. Moreover, the government has actively promoted the production and utilization of Flexible Fuel Vehicles capable of running on various ethanol and petrol blends. This not only increases ethanol demand but also offers consumers greater fuel options. Additionally, government subsidies and incentives provided to sugarcane producers have contributed to the growth of the ethanol market. The combined impact of these government initiatives is expected to drive demand for ethanol during the forecast period.

Increasing Automotive Sector Demand

The automotive sector, a major contributor to carbon emissions, is undergoing a significant transformation as global efforts intensify to combat climate change and reduce environmental impact. This shift has propelled the demand for cleaner and more sustainable fuel alternatives, with ethanol emerging as a frontrunner in reshaping the automotive industry. The growing demand for ethanol from the automotive sector is not only revolutionizing the fuel landscape but also steering the industry towards a more environmentally conscious and sustainable future. Historically reliant on fossil fuels like gasoline and diesel, the automotive sector is increasingly acknowledging the drawbacks of these conventional fuels, including air pollution and emissions linked to climate change. Ethanol, a biofuel derived from renewable sources, presents an appealing alternative due to its potential to substantially lower greenhouse gas emissions and enhance energy security. The Indian government has also introduced initiatives and policies to promote ethanol use in the automotive industry, further propelling ethanol demand. For instance, the introduction of fuel blended with 20% ethanol (E20) in phases from April 2023 onwards aims to ensure E20 availability by 2025. Ethanol is commonly used as a fuel additive to improve fuel efficiency, reduce emissions, and enhance engine performance. These factors collectively underscore the increasing demand from the automotive sector, thereby driving the India Ethanol Market's growth during the forecast period.

Key Market Challenges

Limited Awareness

A lack of awareness and understanding about ethanol among consumers and industries could impede its adoption as a fuel source. This lack of knowledge may slow down the transition from traditional fossil fuels to more sustainable alternatives like ethanol. Additionally, misconceptions about the environmental benefits of ethanol-blended gasoline and unfounded concerns about its impact on vehicle engines may negatively influence the sales of blended petrol.

Feedstock Availability Constraints

Fluctuations in agricultural production, weather conditions, and seasonal variations can impact the availability and pricing of feedstocks like broken rice and maize. Moreover, the significant water requirements of the sugarcane industry can contribute to feedstock availability challenges. These factors may hinder the consistent supply of feedstocks, potentially affecting the market's growth trajectory.

Key Market Trends

Capacity Expansion

India has been actively expanding its ethanol production capacity in recent years. Most of the country's ethanol is currently derived from sugarcane molasses and cassava, which are locally cultivated crops. Investments in new ethanol plants, both from domestic and foreign investors, have been pouring in, highlighting the market's potential. By December 2023, the ethanol production capacity for blending and other uses is expected to reach 12,440 million liters. The launch of major new ethanol projects in line with a new interest subvention scheme, approved by the Food Ministry in January 2023, is anticipated to add around 470 million liters of ethanol. Notably, these projects include grain-based and dual feedstock-based facilities.

Shift Towards Green Fuels

The focus on green fuels, including ethanol, has significantly influenced the India Ethanol Market. The emphasis on green fuels has generated higher demand for ethanol as a renewable fuel source. Ethanol is viewed as a cleaner and more sustainable alternative to fossil fuels, with government policies and incentives driving the adoption of biofuels in transportation. This shift towards green fuels has also led to the diversification of feedstocks utilized in ethanol production. In addition to traditional sources like sugarcane and grains, the industry is exploring non-food feedstocks such as algal biomass for ethanol production. The adoption of green fuels offers

environmental advantages, including reduced greenhouse gas emissions and air pollution.

Segmental Insights

Type Analysis

The bio ethanol segment is projected to witness the highest growth rate of 15.84% during the forecast period from 2025 to 2029. This growth can be attributed to the environmental benefits of bio ethanol, which is derived from various cellulose-rich plants like sugarcane, sugar beet, and grains such as corn. Bio ethanol's capacity to reduce CO₂ emissions, minimize waste generation, and decrease dependence on crude oil bolsters its appeal. This trend contributes to the expansion of the India Ethanol Market during the forecast period.

Application Analysis

Within the application segment, the fuel & fuel additives category is anticipated to exhibit the highest growth rate of 16.66% during the forecast period (2025-2029). This growth is driven by the wide-ranging use of fuel and fuel additives across applications such as fuel tanks, fuselage components, wings, and engine parts. These additives offer high resistance to temperature, pressure, and chemical exposure, coupled with strong bonding strength and durability. Ethanol-based fuel and additives present a cleaner and more sustainable fuel option, gaining traction among both consumers and governments. This factor contributes to the growth of the India Ethanol Market during the projected period.

Regional Analysis

The North Region is poised to witness the fastest growth rate of 16.65% during the forecast period (2025-2029). This region boasts a high ethanol production capacity compared to others. The forecast period is also expected to witness the opening of a greater number of production plants, further augmenting ethanol production capacity. Additionally, states in the North Region such as Uttar Pradesh, Haryana, and Punjab have abundant feedstock availability, encouraging the installation of numerous ethanol production plants. These factors together contribute to the expansion of the India Ethanol Market in the North Region.

Key Market Players

India Glycol Limited

Triveni Engineering & Industries Ltd.

Shree Renuka Sugars Limited

Balrampur Chini Mills Limited

Dhampur Sugar Mills Ltd

Bajaj Hindusthan Sugar Ltd.

Dalmia Bharat Sugar and Industries Limited

E.I.D.-Parry (India) Limited

Simbhaoli Sugars Ltd.

Mawana Sugars Limited

Report Scope:

In this report, the India Ethanol Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Ethanol Market, By Type:

Bio Ethanol

Synthetic Ethanol

Ethanol Market, By Purity

Denatured

Undenatured

Ethanol Market, By Raw Material:

Sugar & Molasses Based

Grain Based

Lignocellulosic Biomass

Algal Biomass

Ethanol Market, By Application:

Fuel & Fuel Additives

Industrial Solvents

Disinfectant

Personal Care

Beverage

Ethanol Market, By Region:

North

West

South

East

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India Ethanol Market.

Available Customizations:

India Ethanol Market report with the given market data, Tech Sci 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).

Contents

1. Product Overview

2. RESEARCH METHODOLOGY

3. IMPACT OF COVID-19 ON INDIA ETHANOL MARKET

4. EXECUTIVE SUMMARY

5. INDIA ETHANOL MARKET OUTLOOK, 2019-2029F

5.1. Market Size & Forecast

5.1.1. By Value & Volume

5.2. Market Share & Forecast

5.2.1. By Type (Bio Ethanol, Synthetic Ethanol)

5.2.2. By Raw Material (Sugar & Molasses Based, Grain based, Lignocellulosic Biomass, Algal Biomass)

5.2.3. By Purity (Denatured, Undenatured)

5.2.4. By Application (Fuel & Fuel Additives, Industrial Solvents, Disinfectant, Personal Care, Beverage, Others)

5.2.5. By Region (North, West, South, East)

5.2.6. By Company (2023)

5.3. Market Map

5.3.1. By Type

5.3.2. By Raw Material

5.3.3. By Purity

5.3.4. By Application

5.3.5. By Region

6. NORTH INDIA ETHANOL MARKET OUTLOOK, 2019-2029F

6.1. Market Size & Forecast

6.1.1. By Volume

6.2. Market Share & Forecast

6.2.1. By Type

6.2.2. By Raw Material

6.2.3. By Purity

6.2.4. By Application

6.2.5. By Region

6.2.5.1. By Top 3 States

7. WEST INDIA ETHANOL MARKET OUTLOOK, 2019-2029F

7.1. Market Size & Forecast

7.1.1. By Volume

7.2. Market Share & Forecast

7.2.1. By Type

7.2.2. By Raw Material

7.2.3. By Purity

7.2.4. By Application

7.2.5. By Region

7.2.5.1. By Top 3 States

8. SOUTH INDIA ETHANOL MARKET OUTLOOK, 2019-2029F

8.1. Market Size & Forecast

8.1.1. By Volume

8.2. Market Share & Forecast

8.2.1. By Type

8.2.2. By Raw Material

8.2.3. By Purity

8.2.4. By Application

8.2.5. By Region

8.2.5.1. By Top 3 States

9. EAST INDIA ETHANOL MARKET OUTLOOK, 2018-2028F

9.1. Market Size & Forecast

9.1.1. By Volume

9.2. Market Share & Forecast

9.2.1. By Type

9.2.2. By Raw Material

9.2.3. By Purity

9.2.4. By Application

9.2.5. By Region

9.2.5.1. By Top 3 States

10. MARKET DYNAMICS

10.1. Drivers

10.2. Challenges

11. MARKET TRENDS & DEVELOPMENTS

12. PORTER'S FIVE FORCES ANALYSIS

13. INDIA ECONOMIC PROFILE

14. COMPETITIVE LANDSCAPE

14.1. Business Overview

14.2. Product Offerings

14.3. Recent Developments

14.4. Financials (In Case of Listed Companies)

14.5. Key Personnel

14.5.1. India Glycol Limited

14.5.2. Triveni Engineering & Industries Ltd.

14.5.3. Shree Renuka Sugars Limited

14.5.4. Balrampur Chini Mills Limited

14.5.5. Dhampur Sugar Mills Ltd

14.5.6. Bajaj Hindusthan Sugar Ltd.

14.5.7. Dalmia Bharat Sugar and Industries Limited

14.5.8. E.I.D. - Parry (India) Limited

14.5.9. Simbhaoli Sugars Ltd.

14.5.10. Mawana Sugars Limited

15. STRATEGIC RECOMMENDATIONS

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