

# **Global Ethanol Market Outlook to 2027**

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## **Abstracts**

Ethanol, also known as ethyl alcohol or grain alcohol, is a chemical produced by the fermentation of sugars from grains and various other biomass materials. Ethanol is used in various applications as fuel/gasoline additive, solvent, disinfectant, etc. in end-user industries such as automotive, pharmaceutical, food & beverage, cosmetics, and personal care industry among others. According to BlueQuark Research & Consulting, the global ethanol market is expected to witness considerable growth throughout the forecast due to the increasing adoption of biofuels in order to reduce greenhouse emissions and the eco-friendly nature of ethanol. In 2019, the global production of ethanol stood at 126.3 million liters led by the United States, Brazil, China, India, Thailand, Canada, and Argentina among others.

First-generation biofuels are made from feedstocks including sugar crops, starch crops, oilseed crops, and animal fats. These crops are converted into bio-alcohols (ethanol, butanol, propanol, etc.) through the fermentation process. Among these bio-alcohols, ethanol is the widely used biofuel. More than 98% of gasoline in the United States contains ethanol, typically E10 (10% ethanol, 90% gasoline) to oxygenate the fuel and reduce air pollution. Ethanol and gasoline blends are available in various compositions including E15 (15% ethanol, 85% gasoline) and E85 (85% ethanol, 15% gasoline). E85 blend can be used in flexible fuel vehicles (designed to operate on any blend of gasoline and ethanol up to 83%). Currently, in the United States, there are over 3500 public E85 stations in 42 states offering high-level ethanol blends to nearly 21 million flexible-fuel vehicles. E15 is approved for the model year 2001 and newer light-duty vehicles. The carbon dioxide that is emitted from the vehicles using blends of gasoline and ethanol is offset by the carbon dioxide captured when feedstock crops are grown for the production of ethanol. Adoption of ethanol as a biofuel has increased with the increasing focus of many countries to bring down the carbon emissions. Brazil has launched a longterm policy for ethanol, called RenovaBio to achieve the environmental commitments of the Paris Agreement. To achieve that goal, Brazil has to increase the production of



ethanol from the current 33 billion liters to around 50 billion liters by 2030. Across the globe, there are over 60 countries with ethanol blend policies. Markets in the United States and China are working to achieve their goals. In India (one of the major consumers of gasoline in the world), the government has signed an MoU for cooperation in biofuels with the Brazilian government. The major advantage of ethanol blend is an instant CO2 reduction without demanding costly changes in the infrastructure and it also secures jobs and incomes in rural areas that are dependent on the cultivation of crops. In the past, the consumption of biofuels could be witnessed only in passenger vehicles and road freight. Currently, it is consumed in passenger vehicles, road freight, and shipping. According to IEA (International Energy Agency), in the next 5 years, the aviation industry is also likely to start the consumption of biofuels.

On 07 January 2020, Clariant signed a license agreement on its sunliquid cellulosic ethanol technology. That license has been granted to a JV (joint venture) between Anhui Guozhen and Chemtex which is planning to realize a full-scale commercial cellulosic ethanol plant. The operation will be executed by the JV at a greenfield site in Fuyang city in the Anhui province, in the Yangtze-Huai River region in East China. Currently, the contribution of biofuels to the transportation fuel supply is around 10%. Renewable Fuels Association President and Chief Executive Officer Geoff Cooper said in a statement 'Today's grain-based ethanol reduces greenhouse gas emissions by 35% to 50% compared to gasoline, and USDA reports that emerging technologies promise to boost that reduction to around 70% in just the next few years"

The global ethanol market is segmented based on grade, application, technology, and end-use. The grade segment is further segmented as Industrial Grade, Pharmaceutical Grade, Food Grade, and others. The application segment is further segmented as Fuel/Gasoline Additive, Solvent, Disinfectant, Essences and Flavorings, and others. The technology segment is further segmented as Dry Mill and Wet Mill. The end-user segment is a further segment as Automotive, Pharmaceutical, Personal Care and Cosmetics, and others.

In the pharmaceutical industry, ethanol is used in the manufacturing of various products including antiseptics, drugs, anesthetics, liniments, lotions. Ethanol used in pharmaceutical applications must be of high purity and should be compliant with bodies such as FDA, European Pharmacopoeia, ISO 9001:2008. Ethanol is found as an active ingredient in several oral, prescription, and nonprescription drugs. It is used due to its solvent properties to solubilize drugs. Ethanol concentrations above 40% can also be found in some oral preparations. In 2019, global medicine spending valued at USD 1,257.4 billion, an increase of about 4% compared to the previous year. Global sales



from exported drugs and medicines in 2019 are valued at USD 392.9 billion, an increase of 3.2% compared to 2018. Europe accounted for about 80% of the total global exports with shipments valued at USD 317.1 billion. Major countries in the export of drugs and medicines include Germany, Switzerland, the Netherlands, Belgium, France, Italy, the United States, United Kingdom, Ireland, and Denmark among others. The top 10 countries account for about 75% of total exports. All these countries are dependent on the supply of ethanol imports to smoothly operate the production of drugs. The outbreak of the Covid-19 pandemic did not have much impact on the supply of key ingredients and chemicals to the drug producers. However, with the restriction on the movements of goods and public coupled with the halted operations of the chemical manufacturing facilities, the pharmaceutical industry is expected to face a low/sluggish supply issue (the majority of pharmaceutical industry key ingredients are supplied by China). This trend of inconsistent supply is also expected to promote the domestic production of key ingredients for several countries with abundant raw materials.

Based on geography, the global ethanol market is segmented into North America, Europe, Asia-Pacific, South America, and Middle East & Africa. The North American region is expected to continue to dominate the market followed by South America and Asia-Pacific in the forecast period. The United States is expected to maintain its dominance in terms of both production and consumption during the forecast period.

With the ongoing Covid-19 pandemic in the United States, the GDP growth rate for the first guarter of 2020 was -4.8% compared to the growth rate of 2.1% in the fourth quarter of 2019. The ethanol industry has a high impact on the country's economy through forward and backward linkages to other industries. Backward linkage is to agriculture. In the year 2019, the ethanol industry contributed about USD 43 billion to the country's GDP and supported nearly 350,000 jobs. That contribution to the GDP is expected to come down in 2020. As of January 2019, the ethanol production capacity in the country stood at 16.5 billion gallons per year. Brazil and Canada are the major ethanol trade partners for the United States. The production of ethanol in the country declined for the months of March and April impacted by the Covid-19 pandemic. However, there has been a hike in the production of ethanol in the last two weeks. U.S. ethanol plants are concentrated in the Midwest due to the availability of corn production. Plants that are located away from Midwest typically procure corn by rail or use other feedstocks and are located near large population centers. In 2018, U.S. highway gasoline consumption increased to approximately 135 billion gallons. The consumption of ethanol in the country has been severely affected by the declined consumption of gasoline. About 98% of the gasoline sold in the country contains ethanol to support the complete combustion of the gasoline inside the engine and reduce the emissions. As of



20 April 2020, approximately 70 ethanol facilities with an annual production capacity of 6.2 billion gallons have been fully idled and around 70 more plants reduced their operating rates. The short-term outlook for ethanol in the United States looks negative with the idled/delayed operations. However, the market for ethanol in the United States is likely to improve from the beginning of 2021 with the increasing consumption of gasoline and from other end-user industries including pharmaceutical and food & beverage among others.

Some of the key players in the market are POET LLC, Archer Daniels Midland Company (ADM), Green Plains Inc., BP Bunge Bioenergia, and Flint Hills Resources among others. The companies in the market are focusing on utilizing the full capacity of the existing facilities to meet the increasing demand for ethanol across the globe.

Green Plains announced the successful start-up of its high protein ingredient production facility and the first shipment of the product from its biorefinery in Shenandoah, Iowa.

Green Plains supplied FDA-approved, FCC-grade alcohol to Xerox Holdings Corporation as both companies work to curb the spread of Covid-19 nationally.

In January 2020, Reports circulated that Archer Daniels Midland (ADM) is currently in negotiations with five parties to execute the company's possible partial or full exit of the ethanol industry. ADM's total ethanol production capacity is 1.7 billion gallons per year.

In January 2020, POET has been awarded as 'Ethanol Producer of the Year' by Corporate Vision Magazine. POET is recognized for its innovative work to develop efficiency in ethanol production.

Our Global Ethanol Market report provides deep insight into the current and future state of the Ethanol Markets across various regions. The study comprehensively analyzes the Ethanol Market by segments based on Grade (Industrial Grade, Pharmaceutical Grade, Food Grade, and Other Grades), by Application (Fuel/Gasoline Additive, Solvent, Disinfectant, Essences and Flavorings, and Others), by Technology (Dry Mill, Wet Mill), by end-user (Automotive, Pharmaceutical, Food & Beverage, Personal Careand Cosmetics, and other end-users), and by Geography (Asia Pacific, North America, Europe, South America, and Middle-East and Africa). The report examines the market drivers and restraints, along with the impact of Covid-19 are influencing the market growth in detail. The study covers & includes emerging market trends, market developments, market opportunities, market size, market price, market analysis, market dynamics, and challenges in the industry. This report also covers extensively



researched competitive landscape sections with profiles of major companies including their market share and projects.



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Ethanol - Market Share of Key Companies in 2019

Global Pharmaceuticals Revenue trend

Global Chemical Production trend



Global Gasoline Consumption



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