

# **Green Ammonia Market Assessment, By Application [Fertilizer, Fuel (Marine, Power Generation, Others) Chemical Feedstock, Hydrogen Transportation, Others], By End-use Industry [Agriculture, Transportation, Industrial (Energy, Chemical), Others], By Region, Opportunities and Forecast, 2016-2030F**

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## **Abstracts**

Global green ammonia market size was recorded at 208.1 tons in 2022, which is expected to grow to 4894.9 tons in 2030 with a CAGR of 48.4%, during the forecast period, 2023-2030. Rising demand in various industries, such as chemical and fertilizer manufacturing, drives the demand for green ammonia. The growing emphasis of the agricultural sector on sustainability and environmental issues is one of the main drivers. Green ammonia presents a compelling answer to the farm sector to lower its carbon footprint and implement more environmentally friendly practices. Also, the demand for green ammonia is increasing in agriculture due to the implementation of regulations and policies. Globally, governments are passing laws and providing incentives to encourage sustainable agriculture and lower greenhouse gas emissions, such as the European Green Deal, where several European countries have committed to becoming carbon neutral by 2050, contributing to the green ammonia market's growth.

The high adaptability of green ammonia makes it useful in transportation, agriculture, chemical manufacturing, marine sectors, and other industries, offering market diversification and risk mitigation strengthening the demand for green ammonia. For instance, the ongoing developments in using green ammonia as a marine fuel and green ammonia as the ideal method of transporting green hydrogen further strengthen the market of green ammonia globally.

## Strong Demand from the Agricultural Sector

The demand from the agricultural industry has been a significant driver in the global green ammonia market. The anticipated increase in the need for green ammonia-based fertilizers within the farming sector can be attributed to the escalating awareness surrounding environmental concerns and the imperatives for adopting sustainable practices. Moreover, in tandem with global population growth, the imperative of augmenting agricultural productivity to ensure food security further underscores the likelihood of heightened demand for such fertilizers. Green fertilizers made from ammonia present a chance to increase crop yields while sustaining the food supply and supply chains, leading to a rise in demand for the product globally.

For instance, according to a UNICEF Report, in 2022, the severity of food insecurity globally increased to 22.7% from 21.3% in 2021. To counter this dire situation, the productivity of crops must improve. Green ammonia assists in enhancing the productivity of crops, strengthening the demand for this commodity globally.

## Rising Usage of Green Hydrogen to Drive Green Ammonia Demand

Green ammonia can transport hydrogen for many industrial processes, such as the production of chemicals, methanol synthesis, and hydrocarbon refining. Also, industries can switch to green hydrogen without significantly changing their current operations by using green ammonia as a hydrogen carrier.

Moreover, making green ammonia involves electrolyzing water to produce green hydrogen. Therefore, green ammonia emerges as a desirable option for hydrogen storage and transportation as the demand for green hydrogen increases across numerous industries, including transportation, chemical manufacturing, and power generation.

For instance, according to the International Energy Agency, the global demand for hydrogen increased by 3% during 2022 compared to 2021, which raises the demand for green ammonia as the requirement for storing and transporting increases during the forecast period.

## Impact of COVID-19

Supply chains, including those for construction, manufacturing, and renewable energy projects, experienced disruptions during the pandemic. These disruptions hampered the

prompt completion and commissioning of the green ammonia production facilities. The uncertainties brought by the pandemic caused investors to postpone or rethink their plans for green ammonia projects due to economic uncertainty. Additionally, due to financial risks and market uncertainties, businesses delayed or scaled back their initiatives regarding the green ammonia market. In some areas, the pandemic reduced economic activity and energy demand, impacting the demand for green ammonia and renewable energy projects essential for producing green ammonia.

### Impact of Russia-Ukraine War

Concerns regarding energy security grew in several countries due to the Russia-Ukraine conflict. Disruptions in energy supplies or transit corridors increased interest in alternative and sustainable energy sources like green ammonia, given the importance of the Black Sea region for energy transit routes. The ongoing conflict increased the value of sustainability and resilience in energy systems. A more diversified and sustainable energy landscape is likely a result of this change in energy priorities, and countries increase their investments in renewable energy and green ammonia production. However, market sentiments and investor confidence may be impacted by geopolitical uncertainties. As businesses and investors evaluate the potential risks and opportunities resulting from the conflict, the green ammonia market may see fluctuations in investments and project developments.

### Key Players Landscape and Outlook

The world's growing demand for green solutions is being actively addressed by major market players working together. These leading figures in the industry are joining forces to combine their knowledge, resources, and technologies to meet the urgent need for sustainable energy alternatives as well as the effects of climate change. These market players want to work together to develop and use green solutions, such as green ammonia, by fostering partnerships and alliances.

For instance, Azane Fuel Solutions and Yara International have agreed to work together commercially to build a network of ammonia fuel bunkers in Scandinavia in April 2022. The alliance will aid Azane Fuel Solutions in designing and building the ammonia bunker terminals and delivering them to Yara. Further, Yara International will supply green ammonia through shipping.

The market for green ammonia is expected to increase in the coming years, which creates a positive outlook. The adoption of green ammonia as a carbon-neutral

substitute is sparked by the urgency of combating climate change and the growing global demand for sustainable energy solutions. The growth of green ammonia projects is supported by the increasing capacity of renewable energy sources and encouraging policies and incentives from governments and international organizations. Electrolysis, ammonia synthesis, and carbon capture technologies are improving the productivity and cost-effectiveness of production. Green ammonia's adaptability in various sectors, such as transportation, agriculture, and chemical manufacturing, guarantees strong demand and market diversification.

## Contents

### **1. RESEARCH METHODOLOGY**

### **2. PROJECT SCOPE & DEFINITIONS**

### **3. IMPACT OF COVID-19 ON GREEN AMMONIA MARKET**

### **4. IMPACT OF RUSSIA-UKRAINE WAR**

### **5. EXECUTIVE SUMMARY**

### **6. VOICE OF CUSTOMER**

#### 6.1. Market Awareness and Product Information

#### 6.2. Brand Awareness and Loyalty

#### 6.3. Factors Considered in Purchase Decision

##### 6.3.1. Brand Name

##### 6.3.2. Quality

##### 6.3.3. Quantity

##### 6.3.4. Price

##### 6.3.5. Product Specification

##### 6.3.6. Application Specification

##### 6.3.7. VOC/Toxicity Content

##### 6.3.8. Availability of Product

#### 6.4. Frequency of Purchase

#### 6.5. Medium of Purchase

### **7. GREEN AMMONIA MARKET OUTLOOK, 2016-2030F**

#### 7.1. Market Size & Forecast

##### 7.1.1. By Value

##### 7.1.2. By Volume

#### 7.2. By Application

##### 7.2.1. Fertilizer

##### 7.2.2. Fuel

###### 7.2.2.1. Power Generation

###### 7.2.2.2. Marine Fuel

###### 7.2.2.3. Others

- 7.2.3. Chemical Feedstock
- 7.2.4. Hydrogen Transportation
- 7.2.5. Others
- 7.3. By End-use Industry
  - 7.3.1. Agriculture
  - 7.3.2. Transportation
  - 7.3.3. Industrial
    - 7.3.3.1. Energy
    - 7.3.3.2. Chemical
  - 7.3.4. Others
- 7.4. By Region
  - 7.4.1. North America
  - 7.4.2. Europe
  - 7.4.3. South America
  - 7.4.4. Asia-Pacific
  - 7.4.5. Middle East and Africa

## **8. GREEN AMMONIA MARKET OUTLOOK, BY REGION, 2016-2030F**

- 8.1. North America\*
  - 8.1.1. By Application
    - 8.1.1.1. Fertilizer
    - 8.1.1.2. Fuel
      - 8.1.1.2.1. Power Generation
      - 8.1.1.2.2. Marine Fuel
      - 8.1.1.2.3. Others
    - 8.1.1.3. Chemical Feedstock
    - 8.1.1.4. Hydrogen Transportation
    - 8.1.1.5. Others
  - 8.1.2. By End-use Industry
    - 8.1.2.1. Agriculture
    - 8.1.2.2. Transportation
    - 8.1.2.3. Industrial
      - 8.1.2.3.1. Energy
      - 8.1.2.3.2. Chemical
    - 8.1.2.4. Others
  - 8.1.3. United States\*
    - 8.1.3.1. By Application
      - 8.1.3.1.1. Fertilizer

## 8.1.3.1.2. Fuel

## 8.1.3.1.2.1. Power Generation

## 8.1.3.1.2.2. Marine Fuel

## 8.1.3.1.2.3. Others

## 8.1.3.1.3. Chemical Feedstock

## 8.1.3.1.4. Hydrogen Transportation

## 8.1.3.1.5. Others

## 8.1.3.2. By End-use Industry

## 8.1.3.2.1. Agriculture

## 8.1.3.2.2. Transportation

## 8.1.3.2.3. Industrial

## 8.1.3.2.3.1. Energy

## 8.1.3.2.3.2. Chemical

## 8.1.3.2.4. Others

## 8.1.4. Canada

## 8.1.5. Mexico

\*All segments will be provided for all regions and countries covered

## 8.2. Europe

## 8.2.1. Germany

## 8.2.2. France

## 8.2.3. Italy

## 8.2.4. United Kingdom

## 8.2.5. Russia

## 8.2.6. Netherlands

## 8.2.7. Spain

## 8.2.8. Turkey

## 8.2.9. Poland

## 8.3. South America

## 8.3.1. Brazil

## 8.3.2. Argentina

## 8.4. Asia-Pacific

## 8.4.1. India

## 8.4.2. China

## 8.4.3. Japan

## 8.4.4. Australia

## 8.4.5. Vietnam

## 8.4.6. South Korea

## 8.4.7. Indonesia

## 8.4.8. Philippines

## 8.5. Middle East & Africa

### 8.5.1. Saudi Arabia

### 8.5.2. UAE

### 8.5.3. South Africa

## 9. SUPPLY SIDE ANALYSIS

### 9.1. Capacity, By Company

### 9.2. Production, By Company

### 9.3. Operating Efficiency, By Company

### 9.4. Key Plant Locations (Up to 25)

## 10. MARKET MAPPING, 2022

### 10.1. By Application

### 10.2. By End-use Industry

### 10.3. By Region

## 11. MACRO ENVIRONMENT AND INDUSTRY STRUCTURE

### 11.1. Supply Demand Analysis

### 11.2. Import Export Analysis – Volume and Value

### 11.3. Supply/Value Chain Analysis

### 11.4. PESTEL Analysis

#### 11.4.1. Political Factors

#### 11.4.2. Economic System

#### 11.4.3. Social Implications

#### 11.4.4. Technological Advancements

#### 11.4.5. Environmental Impacts

#### 11.4.6. Legal Compliances and Regulatory Policies (Statutory Bodies Included)

### 11.5. Porter's Five Forces Analysis

#### 11.5.1. Supplier Power

#### 11.5.2. Buyer Power

#### 11.5.3. Substitution Threat

#### 11.5.4. Threat from New Entrant

#### 11.5.5. Competitive Rivalry

## 12. MARKET DYNAMICS



12.1. Growth Drivers

12.2. Growth Inhibitors (Challenges, Restraints)

### **13. KEY PLAYERS LANDSCAPE**

13.1. Competition Matrix of Top Five Market Leaders

13.2. Market Revenue Analysis of Top Five Market Leaders (in %, 2022)

13.3. Mergers and Acquisitions/Joint Ventures (If Applicable)

13.4. SWOT Analysis (For Five Market Players)

13.5. Patent Analysis (If Applicable)

### **14. PRICING ANALYSIS**

### **15. CASE STUDIES**

### **16. KEY PLAYERS OUTLOOK**

16.1. ThyssenKrupp AG

16.1.1. Company Details

16.1.2. Key Management Personnel

16.1.3. Products & Services

16.1.4. Financials (As reported)

16.1.5. Key Market Focus & Geographical Presence

16.1.6. Recent Developments

16.2. Yara International ASA

16.3. Topsoe A/S

16.4. NEL ASA

16.5. ACME CleanTech Ventures (UK) Private Limited

16.6. Siemens Energy AG

16.7. BASF SE

16.8. ITM Power Plc

16.9. Hydrogenics (A Cummins Company)

16.10. Uniper SE

\*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

### **17. STRATEGIC RECOMMENDATIONS**

### **18. ABOUT US & DISCLAIMER**

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