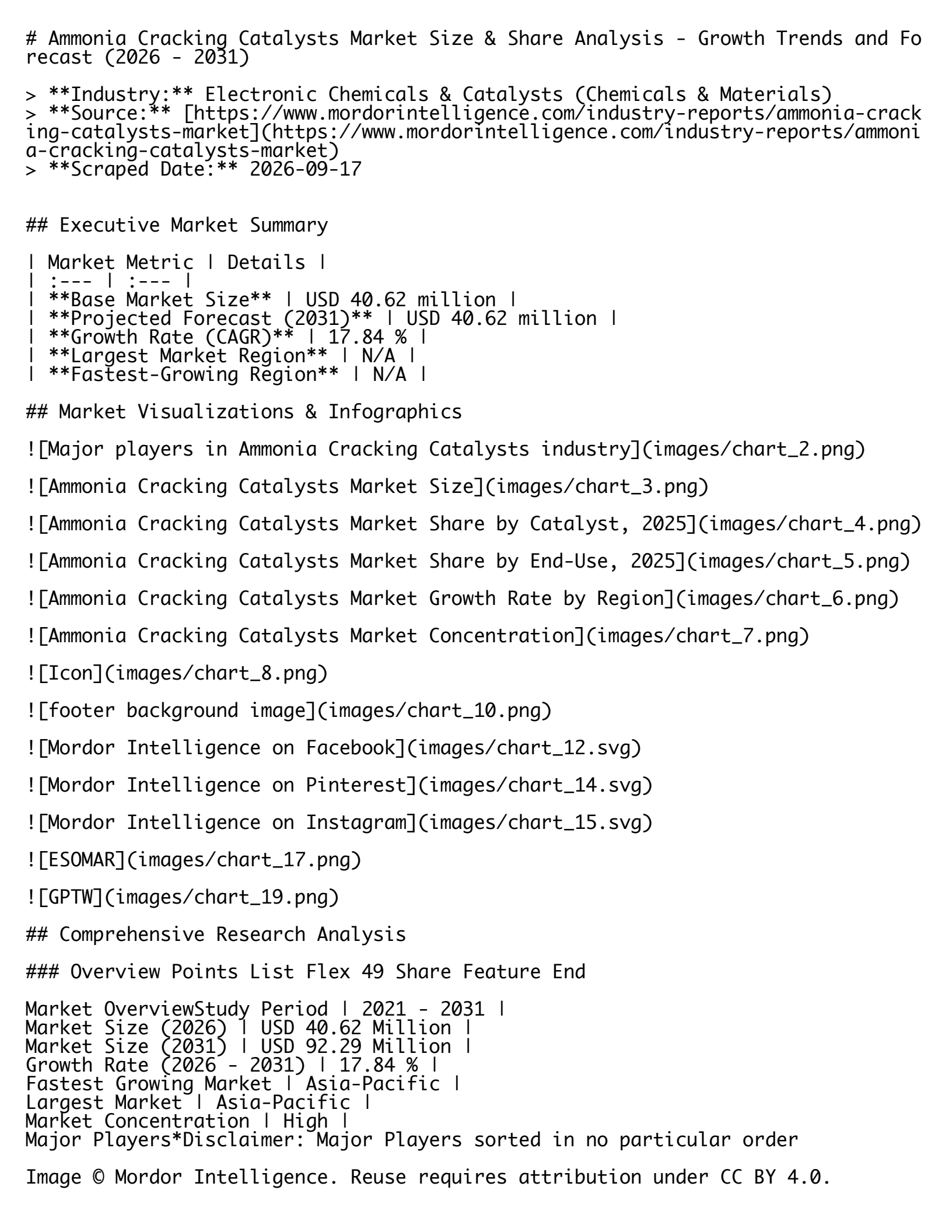
Ammonia Cracking Catalysts Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)

> **Industry:** Electronic Chemicals & Catalysts (Chemicals & Materials)
> **Source:** https://www.mordorintelligence.com/industry-reports/ammonia-cracking-catalysts-market
> **Scraped Date:** 2026-09-17

Executive Market Summary

Market Metric	Details
Base Market Size	USD 40.62 million
Projected Forecast (2031)	USD 40.62 million
Growth Rate (CAGR)	17.84 %
Largest Market Region	N/A
Fastest-Growing Region	N/A

Market Visualizations & Infographics



Comprehensive Research Analysis

Overview Points List Flex 49 Share Feature End

Market OverviewStudy Period | 2021 - 2031 |
Market Size (2026) | USD 40.62 Million |
Market Size (2031) | USD 92.29 Million |
Growth Rate (2026 - 2031) | 17.84 % |
Fastest Growing Market | Asia-Pacific |
Largest Market | Asia-Pacific |
Market Concentration | High |
Major Players*Disclaimer: Major Players sorted in no particular order

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Market Overview

Ammonia Cracking Catalysts Market Analysis by Mordor IntelligenceThe Ammonia Cracking Catalysts Market was valued at USD 34.67 million in 2025 and is estimated to grow from USD 40.62 million in 2026 to reach USD 92.29 million by 2031, at a CAGR of 17.84% during the forecast period (2026–2031). Ammonia is moving beyond its traditional role as a fertilizer feedstock and is becoming a transport medium for hydrogen across long distances. This shift is bringing large cracking projects to import terminals in Europe and Asia, which is advancing catalyst purchasing plans. Air Liquide commissioned a 30-metric-ton-per-day industrial-scale pilot at the Port of Antwerp-Bruges in November 2025, showing that the technology can operate at plant scale. The International Energy Agency expects renewable and low-carbon ammonia production to reach 200 million metric tons per year by 2050, which provides a long-term demand base for catalyst suppliers and process licensors. The ammonia cracking catalysts market is also changing as licensors bundle catalysts with process packages and manufacturers develop lower-cost alternatives to precious-metal systems.

Key Report Takeaways* By catalyst, nickel-based catalysts held 42.67% of the ammonia cracking catalysts market share in 2025, while ruthenium and other Platinum Group Metals (PGM) catalysts are projected to grow at a 19.55% CAGR through 2031.
* By end-use, industrial hydrogen held 44.78% of the ammonia cracking catalysts market share in 2025, while fuel cell and mobility are projected to grow at a 20.43% CAGR through 2031.
* By geography, Asia-Pacific held 36.34% of the ammonia cracking catalysts market share in 2025 and is projected to grow at a 20.80% CAGR through 2031.

Key Market Trends

Market Trends and InsightsDrivers Impact Analysis of Ammonia Cracking Catalysts Market*Driver | (~) % Impact on CAGR Forecast | Geographic Relevance | Impact Timeline |
Hydrogen Import Hubs Requiring Ammonia-to-Hydrogen Conversion | +4.2% | Global, with concentrated early gains in Western Europe (Germany, Belgium, Netherlands) and Northeast Asia | Short term (≤ 2 years) |
Industrial Decarbonization and High-Purity Hydrogen Demand | +3.5% | Global, led by EU carbon-price exposure and East Asia's heavy industrial base | Medium term (2-4 years) |
Existing Ammonia Storage, Shipping and Handling Infrastructure | +1.9% | Global, strategic advantage in South Korea, Japan, Germany, Saudi Arabia | Short term (≤ 2 years) |
Growth of Distributed Power and Fuel-Cell Applications | +2.7% | APAC core (Japan, South Korea, China); spill-over to North America | Medium term (2-4 years) |
Low-Temperature Catalyst and Heat-Integration Innovation | +2.2% | Global R&D-led; early commercial deployments in Japan and South Korea | Medium term (2-4 years) |
Port-Based Hydrogen Demand Creating Cracker Anchor Loads | +1.6% | Europe (Rotterdam, Antwerp, Hamburg, Wilhelmshaven); major APAC ports | Short term (≤ 2 years) |
Source: Mordor Intelligence |

Competitive Landscape

Competitive Landscape

The ammonia cracking catalysts market is consolidated, with the top five players including Johnson Matthey, CLARIANT, Topsoe, Heraeus Precious Metals, and Dorf Ketal. The competitive split is between dedicated catalyst makers and licensors

that include proprietary catalysts in their process packages. This model can secure catalyst supply for the operating life of a plant. Topsoe's H2Retake platform has 4 operational reference plants, more than 300,000 combined service hours, and feed capacities from 100 to 3,100 metric tons per day. These references create an advantage in qualification processes that require long-duration operating evidence.

Johnson Matthey worked with Air Products in early 2025 to supply catalysts for planned ammonia-to-hydrogen plants. This type of partnership helps established suppliers secure positions in large infrastructure projects. AMOGY and JGC Holdings deployed a low-ruthenium catalyst pilot in Japan in April 2025. These moves show that suppliers are competing on process integration, operating evidence, and lower precious-metal use.

Open opportunities include low-ruthenium and non-precious-metal catalysts for distributed and mobility systems. Suppliers can also address ammonia feeds with variable quality from blue ammonia production. Floating terminals need catalysts that can operate under changing loads and vibration. Mitsubishi Heavy Industries demonstrated its HyMACS system in December 2025 and produced 99% purity hydrogen at 450-500 °C using a non-precious-metal catalyst and steam heating. The company is targeting commercialization by 2030 after further work with Hokkaido Electric Power. A 2026 study reported 99.3% ammonia conversion at 450 °C with negligible degradation over 300 hours for a strain-engineered ruthenium catalyst.

Ammonia Cracking Catalysts Industry Leaders* Johnson Matthey

* CLARIANT

* Topsoe

* Heraeus Precious Metals

* Dorf Ketal

* *Disclaimer: Major Players sorted in no particular order

Component Component 3 Scope Of The Report Bottom

Global Ammonia Cracking Catalysts Market Report ScopeAmmonia cracking catalysts are specialized catalytic materials used to decompose ammonia into hydrogen and nitrogen through a high-temperature catalytic process. They enable efficient on-demand hydrogen production and support hydrogen storage, transportation, and utilization across industrial, energy, and mobility applications.

The Ammonia Cracking Catalysts Market is segmented by catalyst, end-use, and geography. By catalyst, the market is segmented into nickel-based catalysts, ruthenium and other PGM catalysts, iron-based catalysts, cobalt- and molybdenum-based catalysts, and other catalysts. By end-use, the market is segmented into industrial hydrogen, fuel cell and mobility, power generation, chemical feedstock, and other end-uses. The report also covers the market size and forecasts for ammonia cracking catalysts in 16 countries across major regions. For each segment, the market sizing and forecasts have been done on the basis of value (USD).

By CatalystNickel-Based Catalysts |
Ruthenium and Other PGM Catalysts |
Iron-Based Catalysts |
Cobalt- and Molybdenum-Based Catalysts |
Other Catalysts |

Segmentation Accordion Item

By GeographyAsia-Pacific | China |
 | India |
 | Japan |
 | South Korea |
 | ASEAN Countries |
 | Rest of Asia-Pacific |
North America | United States |
 | Canada |
 | Mexico |
Europe | Germany |
 | United Kingdom |
 | France |
 | Italy |
 | NORDIC Countries |
 | Russia |
 | Rest of Europe |
South America | Brazil |
 | Argentina |
 | Rest of South America |
Middle-East and Africa | Saudi Arabia |
 | South Africa |
 | Rest of Middle-East and Africa |

Frequently Asked Questions

What is the size of the ammonia cracking catalysts market?

The ammonia cracking catalysts market stands at USD 40.62 million in 2026 and is projected to reach USD 92.29 million by 2031.

Which catalyst led demand in 2025?

Nickel-based catalysts led with 42.67% revenue share in 2025 because they have long operating experience in large industrial crackers.

Which catalyst is expected to grow fastest through 2031?

Ruthenium and other PGM catalysts are forecast to grow at a 19.55% CAGR from 2026 to 2031.

Which end use led the market demand in 2025?

Industrial hydrogen held 44.78% revenue share in 2025. The segment supplies refineries, steel plants, chemical facilities, and gas networks that require dependable volumes and high hydrogen purity.