

Amine-Based Carbon Capture Market Forecasts to 2032 – Global Analysis By Type (Monoethanolamine (MEA), Diethanolamine (DEA), Methyldiethanolamine (MDEA), Triethanolamine (TEA), Blended Amines, Sterically Hindered Amines, and Other Types), Technology, Deployment Stage, Capacity, End User, and By Geography

<https://marketpublishers.com/r/A80B73CAEC71EN.html>

Date: August 2025

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: A80B73CAEC71EN

Abstracts

According to Statistics MRC, the Global Amine-Based Carbon Capture Market is accounted for \$709.78 million in 2025 and is expected to reach \$1224.35 million by 2032 growing at a CAGR of 8.1% during the forecast period. Amine-based carbon capture is a chemical process used to remove carbon dioxide (CO₂) from gas streams, typically in industrial or power plant emissions. It involves using aqueous solutions of amines—organic compounds containing nitrogen—that react with CO₂ to form a compound that can later be heated to release pure CO₂ for storage or reuse. This method is widely adopted due to its efficiency and adaptability in reducing greenhouse gas emissions.

Market Dynamics:

Driver:

Increased industrial and power plant emissions

Growing global energy demand has led to increased reliance on fossil fuels, resulting in heightened industrial and power plant emissions. These emissions, particularly CO₂, contribute significantly to climate change and environmental degradation. Governments

worldwide are implementing stricter regulations to curb greenhouse gas emissions, boosting the demand for carbon capture technologies. Amine-based solutions, especially using monoethanolamine (MEA), are preferred for their cost-effectiveness and chemical efficiency. Innovation in carbon capture system designs is further promoting their integration into existing infrastructure.

Restraint:

Technological complexity and risk

The corrosive nature of some amines requires robust equipment, increasing capital and maintenance costs. Energy penalties for solvent regeneration reduce the overall efficiency of industrial processes. Operational risks like solvent degradation and formation of harmful by-products complicate long-term system reliability. Limited skilled labor and expertise in advanced chemical processing can hinder project implementation. Companies face difficulty in scaling systems economically across diverse industrial setups. These factors collectively restrain the widespread adoption of amine-based carbon capture technologies.

Opportunity:

Growing interest in carbon utilization (CCU)

Carbon capture and utilization (CCU) is emerging as a promising avenue to repurpose captured CO₂ into valuable products. Amine-based systems facilitate high-purity CO₂ recovery, making it suitable for conversion into fuels, chemicals, and building materials. Industries are exploring ways to monetize captured carbon, turning environmental challenges into revenue streams. Advancements in catalytic conversion and synthetic biology are expanding CCU applications. Government incentives and R&D funding are accelerating innovation in the carbon utilization sector. This growing interest in CCU presents significant growth opportunities for amine-based carbon capture technologies.

Threat:

Competition from alternative carbon capture technologies

Alternatives like membrane separation, cryogenic processes, and solid sorbents are gaining traction for their energy efficiency and lower operational costs. Some new technologies boast simplified design and minimal environmental impact compared to

chemical absorption methods. Startups are entering the market with disruptive innovations, challenging incumbents. Government support for diverse capture methods may dilute funding and attention to amine systems. Intense competition could slow market penetration and pricing stability for traditional amine technologies.

Covid-19 Impact:

The COVID-19 pandemic temporarily slowed the Amine-Based Carbon Capture Market due to project delays, supply chain disruptions, and reduced industrial activity. Construction halts and labor shortages affected deployment timelines for new systems. However, the crisis highlighted the need for sustainable recovery, prompting increased investment in clean technologies. Governments prioritized climate action in post-pandemic stimulus packages, boosting demand. Remote operations and automation trends also gained traction. As industries resumed operations, carbon capture adoption rebounded, positioning amine technologies for long-term growth.

The monoethanolamine (MEA) segment is expected to be the largest during the forecast period

The monoethanolamine (MEA) segment is expected to account for the largest market share during the forecast period, due to its high efficiency in absorbing CO₂. Its popularity is driven by its relatively low cost, effectiveness in capturing large amounts of carbon dioxide, and well-established application in industries like power generation and natural gas processing. Additionally, advancements in MEA regeneration processes and its adaptability to varying CO₂ concentrations contribute to its strong demand in the carbon capture market.

The power generation segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the power generation segment is predicted to witness the highest growth rate, as fossil fuel-based plants are major CO₂ emitters. With increasing pressure to reduce greenhouse gas emissions, power plants are adopting carbon capture technologies to meet regulatory requirements and achieve sustainability goals. Amine-based systems, known for their efficiency in capturing large volumes of CO₂, are integral to these efforts, helping mitigate environmental impact and enabling compliance with stricter emission standards.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share, driven by rapid industrialization, increasing energy demand, and stringent environmental regulations. Countries like China and India, major CO₂ emitters, are under pressure to reduce emissions. The region's investments in cleaner technologies, coupled with government support for carbon capture initiatives and the push for sustainable energy solutions, are accelerating the adoption of amine-based carbon capture technologies for both industrial and power sectors.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, fuelled by strong environmental policies, such as the U.S. Clean Power Plan and Canada's carbon pricing initiatives. The region's commitment to reducing CO₂ emissions, coupled with significant investments in carbon capture and storage (CCS) infrastructure, fuels market growth. Additionally, the growing awareness of climate change, technological advancements in amine solvents, and government incentives for clean energy technologies further support the widespread adoption of amine-based carbon capture solutions.

Key players in the market

Some of the key players in Amine-Based Carbon Capture Market include BASF SE, Global Thermostat, Carbon Clean, Climeworks, Fluor Corporation, Shell CANSOLV, GEA Group, Toshiba Energy Systems & Solutions, Koch-Glitsch, Aker Carbon Capture, Linde PLC, Saipem, Mitsubishi Heavy Industries, Carbon Engineering, and Pentair.

Key Developments:

In July 2025, BASF has finalized the purchase of DOMO Chemicals' 49% share in the Alsachimie joint venture, making the company the sole owner of the production entity for essential polyamide (PA) 6.6 precursors, including KA-oil, adipic acid, and hexamethylenediamine adipate (AH salt) in Chalamp?, France. The parties have agreed to not disclose financial details of the transaction.

In June 2025, Carbon Clean and MODEC have signed a landmark agreement to jointly develop and scale Carbon Clean's CycloneCC carbon capture technology for offshore applications. The collaboration will accelerate progress toward the deployment of a fully commercialised CycloneCC solution on MODEC's industry-leading FPSO designs.

Under the agreement, a pilot plant is targeted for installation on an FPSO.

In October 2024, Climeworks signed a long-term agreement with Morgan Stanley to remove 40,000 tons of CO₂ from the air. The partnership, lasting until 2037, is Climeworks' second-largest contract to date and will accelerate its scale-up in the U.S., where Climeworks is the anchor technology provider for the Direct Air Capture Hub Project Cypress supported by the U.S. Department of Energy.

Types Covered:

Monoethanolamine (MEA)

Diethanolamine (DEA)

Methyldiethanolamine (MDEA)

Triethanolamine (TEA)

Blended Amines

Sterically Hindered Amines

Other Types

Technologies Covered:

Post-Combustion Capture (PCC)

Pre-Combustion Capture

Direct Air Capture (DAC)

Oxy-Fuel Combustion Capture

Other Technologies

Deployment Stages Covered:

Pilot Projects

Demonstration Plants

Commercial-Scale Projects

Planned/Proposed Projects

Capacities Covered:

Small-scale

Medium-scale

Large-scale

End Users Covered:

Power Generation

Cement Industry

Iron & Steel Industry

Oil & Gas

Chemical Manufacturing

Waste Incineration

Others End Users

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

- 2.1 Abstract
- 2.2 Stake Holders
- 2.3 Research Scope
- 2.4 Research Methodology
 - 2.4.1 Data Mining
 - 2.4.2 Data Analysis
 - 2.4.3 Data Validation
 - 2.4.4 Research Approach
- 2.5 Research Sources
 - 2.5.1 Primary Research Sources
 - 2.5.2 Secondary Research Sources
 - 2.5.3 Assumptions

3 MARKET TREND ANALYSIS

- 3.1 Introduction
- 3.2 Drivers
- 3.3 Restraints
- 3.4 Opportunities
- 3.5 Threats
- 3.6 Technology Analysis
- 3.7 End User Analysis
- 3.8 Emerging Markets
- 3.9 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

- 4.1 Bargaining power of suppliers
- 4.2 Bargaining power of buyers
- 4.3 Threat of substitutes
- 4.4 Threat of new entrants
- 4.5 Competitive rivalry

5 GLOBAL AMINE-BASED CARBON CAPTURE MARKET, BY TYPE

- 5.1 Introduction
- 5.2 Monoethanolamine (MEA)
- 5.3 Diethanolamine (DEA)
- 5.4 Methyldiethanolamine (MDEA)
- 5.5 Triethanolamine (TEA)
- 5.6 Blended Amines
- 5.7 Sterically Hindered Amines
- 5.8 Other Types

6 GLOBAL AMINE-BASED CARBON CAPTURE MARKET, BY TECHNOLOGY

- 6.1 Introduction
- 6.2 Post-Combustion Capture (PCC)
- 6.3 Pre-Combustion Capture
- 6.4 Direct Air Capture (DAC)
- 6.5 Oxy-Fuel Combustion Capture
- 6.6 Other Technologies

7 GLOBAL AMINE-BASED CARBON CAPTURE MARKET, BY DEPLOYMENT STAGE

- 7.1 Introduction
- 7.2 Pilot Projects
- 7.3 Demonstration Plants
- 7.4 Commercial-Scale Projects
- 7.5 Planned / Proposed Projects

8 GLOBAL AMINE-BASED CARBON CAPTURE MARKET, BY CAPACITY

- 8.1 Introduction
- 8.2 Small-scale
- 8.3 Medium-scale
- 8.4 Large-scale

9 GLOBAL AMINE-BASED CARBON CAPTURE MARKET, BY END USER

- 9.1 Introduction

- 9.2 Power Generation
- 9.3 Cement Industry
- 9.4 Iron & Steel Industry
- 9.5 Oil & Gas
- 9.6 Chemical Manufacturing
- 9.7 Waste Incineration
- 9.8 Others End Users

10 GLOBAL AMINE-BASED CARBON CAPTURE MARKET, BY GEOGRAPHY

- 10.1 Introduction
- 10.2 North America
 - 10.2.1 US
 - 10.2.2 Canada
 - 10.2.3 Mexico
- 10.3 Europe
 - 10.3.1 Germany
 - 10.3.2 UK
 - 10.3.3 Italy
 - 10.3.4 France
 - 10.3.5 Spain
 - 10.3.6 Rest of Europe
- 10.4 Asia Pacific
 - 10.4.1 Japan
 - 10.4.2 China
 - 10.4.3 India
 - 10.4.4 Australia
 - 10.4.5 New Zealand
 - 10.4.6 South Korea
 - 10.4.7 Rest of Asia Pacific
- 10.5 South America
 - 10.5.1 Argentina
 - 10.5.2 Brazil
 - 10.5.3 Chile
 - 10.5.4 Rest of South America
- 10.6 Middle East & Africa
 - 10.6.1 Saudi Arabia
 - 10.6.2 UAE
 - 10.6.3 Qatar

10.6.4 South Africa

10.6.5 Rest of Middle East & Africa

11 KEY DEVELOPMENTS

11.1 Agreements, Partnerships, Collaborations and Joint Ventures

11.2 Acquisitions & Mergers

11.3 New Product Launch

11.4 Expansions

11.5 Other Key Strategies

12 COMPANY PROFILING

12.1 BASF SE

12.2 Global Thermostat

12.3 Carbon Clean

12.4 Climeworks

12.5 Fluor Corporation

12.6 Shell CANSOLV

12.7 GEA Group

12.8 Toshiba Energy Systems & Solutions

12.9 Koch-Glitsch

12.10 Aker Carbon Capture

12.11 Linde PLC

12.12 Saipem

12.13 Mitsubishi Heavy Industries

12.14 Carbon Engineering

12.15 Pentair

List Of Tables

LIST OF TABLES

Table 1 Global Amine-Based Carbon Capture Market Outlook, By Region (2024-2032) (\$MN)

Table 2 Global Amine-Based Carbon Capture Market Outlook, By Type (2024-2032) (\$MN)

Table 3 Global Amine-Based Carbon Capture Market Outlook, By Monoethanolamine (MEA) (2024-2032) (\$MN)

Table 4 Global Amine-Based Carbon Capture Market Outlook, By Diethanolamine (DEA) (2024-2032) (\$MN)

Table 5 Global Amine-Based Carbon Capture Market Outlook, By Methyldiethanolamine (MDEA) (2024-2032) (\$MN)

Table 6 Global Amine-Based Carbon Capture Market Outlook, By Triethanolamine (TEA) (2024-2032) (\$MN)

Table 7 Global Amine-Based Carbon Capture Market Outlook, By Blended Amines (2024-2032) (\$MN)

Table 8 Global Amine-Based Carbon Capture Market Outlook, By Sterically Hindered Amines (2024-2032) (\$MN)

Table 9 Global Amine-Based Carbon Capture Market Outlook, By Other Types (2024-2032) (\$MN)

Table 10 Global Amine-Based Carbon Capture Market Outlook, By Technology (2024-2032) (\$MN)

Table 11 Global Amine-Based Carbon Capture Market Outlook, By Post-Combustion Capture (PCC) (2024-2032) (\$MN)

Table 12 Global Amine-Based Carbon Capture Market Outlook, By Pre-Combustion Capture (2024-2032) (\$MN)

Table 13 Global Amine-Based Carbon Capture Market Outlook, By Direct Air Capture (DAC) (2024-2032) (\$MN)

Table 14 Global Amine-Based Carbon Capture Market Outlook, By Oxy-Fuel Combustion Capture (2024-2032) (\$MN)

Table 15 Global Amine-Based Carbon Capture Market Outlook, By Other Technologies (2024-2032) (\$MN)

Table 16 Global Amine-Based Carbon Capture Market Outlook, By Deployment Stage (2024-2032) (\$MN)

Table 17 Global Amine-Based Carbon Capture Market Outlook, By Pilot Projects (2024-2032) (\$MN)

Table 18 Global Amine-Based Carbon Capture Market Outlook, By Demonstration

Plants (2024-2032) (\$MN)

Table 19 Global Amine-Based Carbon Capture Market Outlook, By Commercial-Scale Projects (2024-2032) (\$MN)

Table 20 Global Amine-Based Carbon Capture Market Outlook, By Planned / Proposed Projects (2024-2032) (\$MN)

Table 21 Global Amine-Based Carbon Capture Market Outlook, By Capacity (2024-2032) (\$MN)

Table 22 Global Amine-Based Carbon Capture Market Outlook, By Small-scale (2024-2032) (\$MN)

Table 23 Global Amine-Based Carbon Capture Market Outlook, By Medium-scale (2024-2032) (\$MN)

Table 24 Global Amine-Based Carbon Capture Market Outlook, By Large-scale (2024-2032) (\$MN)

Table 25 Global Amine-Based Carbon Capture Market Outlook, By End User (2024-2032) (\$MN)

Table 26 Global Amine-Based Carbon Capture Market Outlook, By Power Generation (2024-2032) (\$MN)

Table 27 Global Amine-Based Carbon Capture Market Outlook, By Cement Industry (2024-2032) (\$MN)

Table 28 Global Amine-Based Carbon Capture Market Outlook, By Iron & Steel Industry (2024-2032) (\$MN)

Table 29 Global Amine-Based Carbon Capture Market Outlook, By Oil & Gas (2024-2032) (\$MN)

Table 30 Global Amine-Based Carbon Capture Market Outlook, By Chemical Manufacturing (2024-2032) (\$MN)

Table 31 Global Amine-Based Carbon Capture Market Outlook, By Waste Incineration (2024-2032) (\$MN)

Table 32 Global Amine-Based Carbon Capture Market Outlook, By Others End Users (2024-2032) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

I would like to order

Product name: Amine-Based Carbon Capture Market Forecasts to 2032 – Global Analysis By Type (Monoethanolamine (MEA), Diethanolamine (DEA), Methyldiethanolamine (MDEA), Triethanolamine (TEA), Blended Amines, Sterically Hindered Amines, and Other Types), Technology, Deployment Stage, Capacity, End User, and By Geography

Product link: <https://marketpublishers.com/r/A80B73CAEC71EN.html>

Price: US\$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/A80B73CAEC71EN.html>