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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

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Abstracts

According to Stratistics 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 (CO?) from gas streams, typically in industrial or power plant emissions. It involves using aqueous solutions of amines—organic compounds containing nitrogen—that react with CO? to form a compound that can later be heated to release pure CO? 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 CO?, contribute significantly to climate change and environmental degradation. Governments

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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 CO? into valuable products. Amine-based systems facilitate high-purity CO? 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

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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 CO?. 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 CO? 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 CO? 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 CO?, are integral to these efforts, helping mitigate environmental impact and enabling compliance with stricter emission standards.

Region with largest share:

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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 CO? 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 CO? 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.

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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 CO? 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:

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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

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- 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

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- 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

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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

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

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