

Carbon Capture Sorbents Market Forecasts to 2034 – Global Analysis By Sorbent Type (Solid Sorbents, Liquid Sorbents, Hybrid Sorbents and Other Sorbent Types), Material, Capture Process, Regeneration Method, End User, and Geography

<https://marketpublishers.com/r/CEF9E65FBE55EN.html>

Date: August 2026

Pages: 0

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

ID: CEF9E65FBE55EN

Abstracts

According to Statistics MRC, the Global Carbon Capture Sorbents Market is accounted for \$2.9 billion in 2026 and is expected to reach \$14.6 billion by 2034 growing at a CAGR of 22.4% during the forecast period. Carbon capture sorbents are specialized materials that selectively absorb or adsorb carbon dioxide from industrial emissions or ambient air for carbon capture, utilization, and storage (CCUS) applications. These sorbents include solid adsorbents, liquid absorbents, metal-organic frameworks (MOFs), activated carbon, zeolites, amine-based materials, and advanced porous materials. They improve carbon capture efficiency, reduce energy consumption, and support industrial decarbonization. Carbon capture sorbents are widely used in power generation, cement, steel, chemical manufacturing, and direct air capture systems. Growing climate mitigation efforts and carbon reduction policies are driving innovation and global adoption of carbon capture sorbents.

Market Dynamics:

Driver:

Increasing carbon capture deployment

Enterprises are investing in sorbent-based systems to reduce emissions and comply with climate regulations. Governments are supporting carbon capture adoption through subsidies, tax incentives, and net-zero commitments. Consumer demand for

sustainable energy solutions reinforces the importance of carbon capture. Large-scale projects in power generation and heavy industries are accelerating the use of sorbents. These deployments also help companies meet ESG targets and improve brand reputation. Collectively, rising carbon capture adoption ensures strong momentum for sorbent technologies.

Restraint:

High sorbent regeneration energy requirements

Sorbents must be regenerated frequently to maintain efficiency, which consumes significant energy. Enterprises face challenges in balancing operational costs with sustainability goals. Smaller firms struggle to adopt sorbent technologies compared to larger competitors with greater resources. Regulatory frameworks often demand efficiency improvements, adding pressure to reduce energy intensity. Consumer demand for cost-effective solutions highlights the need for innovation in regeneration processes. As a result, high energy requirements remain a barrier to widespread adoption.

Opportunity:

Solid sorbent material innovations

Advanced materials such as metal-organic frameworks (MOFs) and zeolites offer higher efficiency and lower regeneration costs. Enterprises benefit from improved scalability and reduced environmental impact. Governments are funding R&D projects to accelerate innovation in sorbent materials. Consumer demand for sustainable and affordable carbon capture solutions reinforces investment in this segment. Innovations also enable integration into diverse industrial applications, from cement to steel production. This opportunity is expected to reshape the competitive landscape of carbon capture sorbents.

Threat:

Uncertain carbon pricing policies

Fluctuations in carbon credit values create instability in project economics. Enterprises struggle to plan long-term investments without predictable pricing frameworks. Smaller firms are particularly vulnerable to policy uncertainty compared to larger competitors.

Regulatory differences across jurisdictions complicate global expansion strategies. Consumer demand for affordable energy adds pressure to maintain cost competitiveness. Unless carbon pricing stabilizes, uncertainty will remain a challenge for sorbent adoption.

Covid-19 Impact:

The Covid-19 pandemic disrupted industrial operations, reducing short-term demand for carbon capture projects. Lockdowns delayed installations and slowed down R&D activities. However, the crisis highlighted the importance of resilient and sustainable energy systems. Governments emphasized green recovery strategies, reinforcing the role of carbon capture technologies. Enterprises renewed focus on sorbent innovations to meet post-pandemic sustainability goals. Consumer awareness of climate change grew significantly during the crisis.

The solid sorbents segment is expected to be the largest during the forecast period

The solid sorbents segment is expected to account for the largest market share during the forecast period as they are widely used in industrial carbon capture. Solid sorbents provide high efficiency and durability compared to liquid alternatives. Enterprises rely heavily on solid sorbents for large-scale projects in power generation and heavy industries. Regulatory support for emission reduction further boosts adoption. Consumer demand for reliable and cost-effective solutions reinforces growth in this segment. Advances in material science enhance performance and scalability. Consequently, solid sorbents remain the cornerstone of the carbon capture sorbents market.

The direct air capture segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the direct air capture segment is predicted to witness the highest growth rate due to rising demand for atmospheric carbon removal. Sorbents play a critical role in capturing CO₂ directly from ambient air. Enterprises are investing in DAC projects to meet net-zero commitments and carbon offset goals. Governments are supporting DAC initiatives through funding and policy frameworks. Consumer demand for climate-positive solutions accelerates adoption in this segment. Advances in sorbent efficiency and scalability further boost growth.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share owing to strong policy support for carbon capture. The U.S. leads in large-scale carbon capture projects and funding initiatives. Enterprises in North America are investing heavily in sorbent technologies to meet regulatory requirements. Consumer demand for sustainable energy solutions is higher compared to other regions. Regulatory frameworks support innovation while ensuring compliance, further boosting adoption. Governments are also funding pilot projects for direct air capture.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR driven by rapid industrialization and clean energy initiatives. Countries such as China, India, and Japan are scaling up carbon capture projects to meet sustainability goals. Rising middle-class populations are fueling demand for eco-friendly energy solutions. Governments are introducing supportive policies to encourage domestic adoption of sorbent technologies. Local companies are expanding innovations to meet both domestic and export requirements. Advances in solid sorbent materials accelerate adoption in this region.

Key players in the market

Some of the key players in Carbon Capture Sorbents Market include BASF SE, Honeywell International Inc., Climeworks AG, Svante Technologies Inc., Carbon Clean Solutions Limited, Mitsubishi Heavy Industries, Ltd., SLB, Clariant AG, Arkema S.A., Air Liquide S.A., Linde plc, Evonik Industries AG, Johnson Matthey Plc, Tosoh Corporation and Shell plc.

Key Developments:

In July 2025, Linde plc entered a strategic engineering alliance to deliver custom compression and cryogenic conditioning hardware for major atmospheric carbon extraction sites. The high-capacity systems are designed to chill and compress incoming low-pressure gaseous streams into highly dense liquid carbon dioxide suitable for immediate deep geological injection.

In June 2025, Evonik Industries AG scaled the mass production of its amine-functionalized solid adsorbent polyimide hollow fiber membranes for direct air capture applications. These structure-engineered fibers offer enhanced chemical resistance

against atmospheric degradation, drastically expanding the functional lifecycle of modular air filtering plants.

Sorbent Types Covered:

Solid Sorbents

Liquid Sorbents

Hybrid Sorbents

Other Sorbent Types

Materials Covered:

Activated Carbon

Zeolites

Metal-Organic Frameworks (MOFs)

Silica-Based Sorbents

Other Materials

Capture Processes Covered:

Post-Combustion Capture

Pre-Combustion Capture

Oxy-Fuel Combustion

Direct Air Capture

Other Capture Processes

Regeneration Methods Covered:

- Thermal Regeneration
- Pressure Swing Regeneration
- Vacuum Swing Regeneration
- Electrochemical Regeneration
- Other Regeneration Methods

End Users Covered:

- Power Generation Companies
- Cement Manufacturers
- Oil & Gas Companies
- Chemical Manufacturers
- Other End Users

Regions Covered:

- North America
 - United States
 - Canada
 - Mexico
- Europe
 - United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of 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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

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

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

2 RESEARCH FRAMEWORK

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
 - 2.4.1 Data Collection (Primary and Secondary)
 - 2.4.2 Data Modeling and Estimation Techniques
 - 2.4.3 Data Validation and Triangulation
 - 2.4.4 Analytical and Forecasting Approach

3 MARKET DYNAMICS AND TREND ANALYSIS

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

4 COMPETITIVE AND STRATEGIC ASSESSMENT

- 4.1 Porter's Five Forces Analysis
 - 4.1.1 Supplier Bargaining Power
 - 4.1.2 Buyer Bargaining Power
 - 4.1.3 Threat of Substitutes
 - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

5 GLOBAL CARBON CAPTURE SORBENTS MARKET, BY SORBENT TYPE

- 5.1 Solid Sorbents
- 5.2 Liquid Sorbents
- 5.3 Hybrid Sorbents
- 5.4 Other Sorbent Types

6 GLOBAL CARBON CAPTURE SORBENTS MARKET, BY MATERIAL

- 6.1 Activated Carbon
- 6.2 Zeolites
- 6.3 Metal-Organic Frameworks (MOFs)
- 6.4 Silica-Based Sorbents
- 6.5 Other Materials

7 GLOBAL CARBON CAPTURE SORBENTS MARKET, BY CAPTURE PROCESS

- 7.1 Post-Combustion Capture
- 7.2 Pre-Combustion Capture
- 7.3 Oxy-Fuel Combustion
- 7.4 Direct Air Capture
- 7.5 Other Capture Processes

8 GLOBAL CARBON CAPTURE SORBENTS MARKET, BY REGENERATION METHOD

- 8.1 Thermal Regeneration
- 8.2 Pressure Swing Regeneration
- 8.3 Vacuum Swing Regeneration
- 8.4 Electrochemical Regeneration
- 8.5 Other Regeneration Methods

9 GLOBAL CARBON CAPTURE SORBENTS MARKET, BY END USER

- 9.1 Power Generation Companies

- 9.2 Cement Manufacturers
- 9.3 Oil & Gas Companies
- 9.4 Chemical Manufacturers
- 9.5 Other End Users

10 GLOBAL CARBON CAPTURE SORBENTS MARKET, BY GEOGRAPHY

- 10.1 North America
 - 10.1.1 United States
 - 10.1.2 Canada
 - 10.1.3 Mexico
- 10.2 Europe
 - 10.2.1 United Kingdom
 - 10.2.2 Germany
 - 10.2.3 France
 - 10.2.4 Italy
 - 10.2.5 Spain
 - 10.2.6 Netherlands
 - 10.2.7 Belgium
 - 10.2.8 Sweden
 - 10.2.9 Switzerland
 - 10.2.10 Poland
 - 10.2.11 Rest of Europe
- 10.3 Asia Pacific
 - 10.3.1 China
 - 10.3.2 Japan
 - 10.3.3 India
 - 10.3.4 South Korea
 - 10.3.5 Australia
 - 10.3.6 Indonesia
 - 10.3.7 Thailand
 - 10.3.8 Malaysia
 - 10.3.9 Singapore
 - 10.3.10 Vietnam
 - 10.3.11 Rest of Asia Pacific
- 10.4 South America
 - 10.4.1 Brazil
 - 10.4.2 Argentina
 - 10.4.3 Colombia

- 10.4.4 Chile
- 10.4.5 Peru
- 10.4.6 Rest of South America
- 10.5 Rest of the World (RoW)
 - 10.5.1 Middle East
 - 10.5.1.1 Saudi Arabia
 - 10.5.1.2 United Arab Emirates
 - 10.5.1.3 Qatar
 - 10.5.1.4 Israel
 - 10.5.1.5 Rest of Middle East
 - 10.5.2 Africa
 - 10.5.2.1 South Africa
 - 10.5.2.2 Egypt
 - 10.5.2.3 Morocco
 - 10.5.2.4 Rest of Africa

11 STRATEGIC MARKET INTELLIGENCE

- 11.1 Industry Value Network and Supply Chain Assessment
- 11.2 White-Space and Opportunity Mapping
- 11.3 Product Evolution and Market Life Cycle Analysis
- 11.4 Channel, Distributor, and Go-to-Market Assessment

12 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

- 12.1 Mergers and Acquisitions
- 12.2 Partnerships, Alliances, and Joint Ventures
- 12.3 New Product Launches and Certifications
- 12.4 Capacity Expansion and Investments
- 12.5 Other Strategic Initiatives

13 COMPANY PROFILES

- 13.1 BASF SE
- 13.2 Honeywell International Inc.
- 13.3 Climeworks AG
- 13.4 Svante Technologies Inc.
- 13.5 Carbon Clean Solutions Limited
- 13.6 Mitsubishi Heavy Industries, Ltd.

- 13.7 SLB
- 13.8 Clariant AG
- 13.9 Arkema S.A.
- 13.10 Air Liquide S.A.
- 13.11 Linde plc
- 13.12 Evonik Industries AG
- 13.13 Johnson Matthey Plc
- 13.14 Tosoh Corporation
- 13.15 Shell plc

List Of Tables

LIST OF TABLES

Table 1 Global Carbon Capture Sorbents Market Outlook, By Region (2023–2034) (\$MN)

Table 2 Global Carbon Capture Sorbents Market, By Sorbent Type (2023–2034) (\$MN)

Table 3 Global Carbon Capture Sorbents Market, By Solid Sorbents (2023–2034) (\$MN)

Table 4 Global Carbon Capture Sorbents Market, By Liquid Sorbents (2023–2034) (\$MN)

Table 5 Global Carbon Capture Sorbents Market, By Hybrid Sorbents (2023–2034) (\$MN)

Table 6 Global Carbon Capture Sorbents Market, By Other Sorbent Types (2023–2034) (\$MN)

Table 7 Global Carbon Capture Sorbents Market, By Material (2023–2034) (\$MN)

Table 8 Global Carbon Capture Sorbents Market, By Activated Carbon (2023–2034) (\$MN)

Table 9 Global Carbon Capture Sorbents Market, By Zeolites (2023–2034) (\$MN)

Table 10 Global Carbon Capture Sorbents Market, By Metal-Organic Frameworks (MOFs) (2023–2034) (\$MN)

Table 11 Global Carbon Capture Sorbents Market, By Silica-Based Sorbents (2023–2034) (\$MN)

Table 12 Global Carbon Capture Sorbents Market, By Other Materials (2023–2034) (\$MN)

Table 13 Global Carbon Capture Sorbents Market, By Capture Process (2023–2034) (\$MN)

Table 14 Global Carbon Capture Sorbents Market, By Post-Combustion Capture (2023–2034) (\$MN)

Table 15 Global Carbon Capture Sorbents Market, By Pre-Combustion Capture (2023–2034) (\$MN)

Table 16 Global Carbon Capture Sorbents Market, By Oxy-Fuel Combustion (2023–2034) (\$MN)

Table 17 Global Carbon Capture Sorbents Market, By Direct Air Capture (2023–2034) (\$MN)

Table 18 Global Carbon Capture Sorbents Market, By Other Capture Processes (2023–2034) (\$MN)

Table 19 Global Carbon Capture Sorbents Market, By Regeneration Method (2023–2034) (\$MN)

Table 20 Global Carbon Capture Sorbents Market, By Thermal Regeneration

(2023–2034) (\$MN)

Table 21 Global Carbon Capture Sorbents Market, By Pressure Swing Regeneration
(2023–2034) (\$MN)

Table 22 Global Carbon Capture Sorbents Market, By Vacuum Swing Regeneration
(2023–2034) (\$MN)

Table 23 Global Carbon Capture Sorbents Market, By Electrochemical Regeneration
(2023–2034) (\$MN)

Table 24 Global Carbon Capture Sorbents Market, By Other Regeneration Methods
(2023–2034) (\$MN)

Table 25 Global Carbon Capture Sorbents Market, By End User (2023–2034) (\$MN)

Table 26 Global Carbon Capture Sorbents Market, By Power Generation Companies
(2023–2034) (\$MN)

Table 27 Global Carbon Capture Sorbents Market, By Cement Manufacturers
(2023–2034) (\$MN)

Table 28 Global Carbon Capture Sorbents Market, By Oil & Gas Companies
(2023–2034) (\$MN)

Table 29 Global Carbon Capture Sorbents Market, By Chemical Manufacturers
(2023–2034) (\$MN)

Table 30 Global Carbon Capture Sorbents Market, By Other End Users (2023–2034)
(\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) are also represented in the same manner as above.

I would like to order

Product name: Carbon Capture Sorbents Market Forecasts to 2034 – Global Analysis By Sorbent Type (Solid Sorbents, Liquid Sorbents, Hybrid Sorbents and Other Sorbent Types), Material, Capture Process, Regeneration Method, End User, and Geography

Product link: <https://marketpublishers.com/r/CEF9E65FBE55EN.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/CEF9E65FBE55EN.html>