Carbon Capture Solvents, Sorbents, and Membranes Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031)

> **Industry:** Battery Materials & Critical Minerals (Chemicals & Materials)
> **Source:** https://www.mordorintelligence.com/industry-reports/carbon-capture-solvents-sorbents-and-membranes-market
> **Scraped Date:** 2026-09-17

Executive Market Summary

Market Metric	Details
Base Market Size	USD 1.04 billion
Projected Forecast (2031)	USD 1.04 billion
Growth Rate (CAGR)	13.16 %
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 1.04 Billion |
Market Size (2031) | USD 1.93 Billion |
Growth Rate (2026 - 2031) | 13.16 % |

Fastest Growing Market | Asia-Pacific |
Largest Market | North America |
Market Concentration | Medium |
Major Players*Disclaimer: Major Players sorted in no particular order

 |

Market Overview

Carbon Capture Solvents, Sorbents, and Membranes Market Analysis by Mordor IntelligenceThe Carbon Capture Solvents, Sorbents, And Membranes Market size is projected to expand from USD 0.92 billion in 2025 and USD 1.04 billion in 2026 to USD 1.93 billion by 2031, a CAGR of 13.16% between 2026 and 2031. Policy support, carbon pricing, and the project pipeline are shaping investment decisions for material capture across industrial facilities. Material selection depends on regeneration energy, site heat availability, and gas stream composition. Suppliers are offering lower-energy solvent formulations, structured sorbents, and membrane systems that integrate with existing assets. Therefore, the carbon capture solvents, sorbents, and membranes market places emphasis on providers that combine material supply with process performance and repeatable project delivery. Project pipelines through 2030 support this requirement, as purchasers need dependable materials, validated integration, and clear operating performance across long-lived industrial assets.

Key Report Takeaways* By material type, solvents held 42.34% of the Carbon capture solvents, sorbents, and membranes market share in 2025, while solid sorbents are forecast to grow at a 15.34% CAGR through 2031.
* By solvent type, amine-based solvents held 70.21% share in 2025, while ionic liquids are forecast to grow at a 14.23% CAGR through 2031.
* By sorbent type, activated carbon held 33.45% share in 2025, while metal-organic frameworks are forecast to grow at a 17.06% CAGR through 2031.
* By membrane type, polymeric membranes held 62.17% share in 2025, while mixed-matrix membranes are forecast to grow at a 13.98% CAGR through 2031.
* By capture route, post-combustion capture held 54.09% share in 2025, while direct air capture is forecast to grow at a 17.67% CAGR through 2031.
* By end-user industry, power generation held 37.78% share in 2025, while cement is forecast to grow at a 16.37% CAGR through 2031.
* By geography, North America held 36.34% share in 2025, while Asia-Pacific is forecast to grow at a 14.94% CAGR through 2031 in the Carbon capture solvents, sorbents, and membranes market.

Key Market Trends

Market Trends and InsightsDrivers Impact Analysis of Carbon Capture Solvents, Sorbents, and Membranes Market*Drivers | (~) % Impact on CAGR Forecast | Geographic Relevance | Impact Timeline |
Industrial Decarbonization Mandates and Carbon Pricing | +3.5% | Global, with concentrated near-term effect in North America and Europe | Short term (≤ 2 years) |
Expansion of Carbon Capture Project Pipelines | +2.8% | Global, led by North America, Europe, and the Asia-Pacific industrial clusters | Medium term (2-4 years) |
Demand for Lower-Regeneration-Energy Materials | +2.4% | Global, with the highest urgency in power-generation-heavy North America and Europe | Medium term (2-4 years) |
Carbon Utilization and Permanent Removal Economics | +1.9% | North America and Europe, with emerging activity in the Middle East through enhanced oil recovery | Medium term (2-4 years) |
Retrofit Demand from Cement, Steel, and Refining Assets | +2.2% | Europe, China, India, and the North American industrial belts | Medium term (2-4 years) |

Waste-Heat and Low-Carbon-Hydrogen Integration | +1.6% | Europe and Japan, with spillover to Asia-Pacific industrial hubs | Long term (≥ 4 years) |
Source: Mordor Intelligence |

Competitive Landscape

Competitive Landscape

The carbon capture solvents, sorbents, and membranes market is moderately fragmented. Air Liquide, Linde, BASF, Air Products, and Dow hold established positions in solvents and conventional sorbents. Their scale supports engineering access, supply networks, and customer relationships. BASF is the exclusive commercial-scale manufacturer of CALF-20 for Svante's solid-sorbent operations. Shell formalized its exclusive global alliance with Technip Energies to deliver CANSOLV in 2025.

Competition in the carbon capture solvents, sorbents, and membranes market increasingly depends on system performance rather than material supply alone. Svante and Climeworks offer integrated contactor or filter systems, which give them control over operating specifications and material replacement cycles. Membrane Technology and Research holds a specialist position in polymeric membrane module design and Polaris membrane materials for natural gas processing. Linde worked with Valmet in 2026 on electrically driven carbon dioxide capture for pulp and paper applications using HISORP adsorption technology. This approach uses electricity rather than steam and addresses the heat constraint that affects many solvent systems. Procurement requirements under EPA Subpart RR and the EU Net-Zero Industry Act also favor suppliers that can demonstrate verified performance.

Smaller modular point-source projects remain a developing competitive area within the carbon capture solvents, sorbents, and membranes market. These projects can suit emitters that fall below the size threshold for large first-of-a-kind facilities. Such customers need compact systems, reliable operations, and manageable upfront costs. The carbon capture solvents, sorbents, and membranes market creates opportunities for specialized providers where major engineering-led offerings may be too complex. At the same time, larger players can use alliances, licensing, and manufacturing scale to maintain their positions. Suppliers that reduce regeneration energy, manage material degradation, and demonstrate repeatable installations can compete for projects. Therefore, the competitive landscape is not fully consolidated, but established companies retain advantages in project execution and customer access. New entrants must demonstrate that their material improvements translate into lower energy use, longer service life, or simpler installation. Incumbents must show that their established delivery models can keep pace with demand for modular systems and specialized performance guarantees.

Carbon Capture Solvents, Sorbents, and Membranes Industry Leaders* BASF

* MITSUBISHI HEAVY INDUSTRIES, LTD.

* Honeywell International Inc

* Dow

* Svante Technologies Inc.

* *Disclaimer: Major Players sorted in no particular order

Component Component 3 Scope Of The Report Bottom

Global Carbon Capture Solvents, Sorbents, and Membranes Market Report ScopeCarbon capture solvents, sorbents, and membranes are chemical and physical media used to separate and capture carbon dioxide emissions from industrial exhaust and ai

r. They support emissions management through liquid absorption, binding to solid surfaces, or selective physical-barrier filtration.

The carbon capture solvents, sorbents, and membranes market is segmented by material type, solvent type, sorbent type, membrane type, capture route, end-user industry, and geography. By material type, the market is segmented into solvents, solid sorbents, membranes, and others. By solvent type, the market is segmented into amine-based solvents, physical solvents, ionic liquids, and others (carbonate and alkaline solvents, deep eutectic solvents). By sorbent type, the market is segmented into activated carbon, zeolites, metal-organic frameworks (MOFs), and others (amine-functionalized silica, metal oxides, activated alumina). By membrane type, the market is segmented into polymeric membranes, mixed-matrix membranes, ceramic membranes, and others (facilitated-transport membranes, hollow-fiber membranes). By capture route, the market is segmented into post-combustion capture, pre-combustion capture, direct air capture, and others (oxy-fuel combustion, industrial process capture). By end-user industry, the market is segmented into power generation, oil and gas, cement, and others (iron and steel, chemicals and petrochemicals, hydrogen and ammonia, waste-to-energy). The report also covers market size and forecasts for carbon capture solvents, sorbents, and membranes across 15 countries in major regions. The market sizes and forecasts are provided in terms of value (USD).

By Material TypeSolvents |
Solid Sorbents |
Membranes |
Others |

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 |
 | 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 current market size of Carbon Capture Solvents, Sorbents, and Membranes Market?

The Carbon Capture Solvents, Sorbents, And Membranes Market size is projected to expand from USD 0.92 billion in 2025 and USD 1.04 billion in 2026 to USD 1.93 billion by 2031, a CAGR of 13.16% between 2026 and 2031.

Which material type leads to carbon capture applications?

Solvents led material types with 42.34% share in 2025 because liquid amine systems have the largest installed operating base.

Which capture material is growing fastest?

Solid sorbents are projected to expand at a 15.34% CAGR through 2031, supported by investment in structured filter and metal-organic framework production.

Why are low-energy capture materials important?

Monoethanolamine regeneration can require 3.2-4.2 GJ per tonne of CO_2, so lower-energy alternatives can improve project economics.