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Global Steel Slag Carbon Sequestration Device Market 2026 by Company, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Steel Slag Carbon Sequestration Device market size was valued at US$ 129 million in 2025 and is forecast to a readjusted size of US$ 336 million by 2032 with a CAGR of 14.6% during review period.

A Steel Slag Carbon Sequestration Device (SSC) is an equipment and process system that utilizes the large amount of waste steel slag generated during steel production to convert carbon dioxide (CO?) into stable carbonate minerals through a carbonation mineralization reaction, thereby achieving the capture, fixation, and resource utilization of CO?. Steel slag is rich in alkaline components such as CaO and MgO, which can undergo carbonation reactions with CO?. CO? can be fixed in the steel slag through direct gas/solid or gas/liquid carbonation processes to form mineral products such as calcium carbonate, reducing atmospheric emissions and enhancing the resource value of steel slag. This device typically includes a steel slag pretreatment unit, a reactor, a CO? supply and distribution system, and a carbonation control and dehydration treatment system. It is one of the important technological pathways for carbon emission reduction and solid waste resource utilization in the steel industry. Currently, this technology is still in the transition stage from laboratory/demonstration to industrialization, and overall large-scale commercial deployment is limited. The global gross profit margin for Steel Slag Carbon Sequestration Devices is projected to be approximately 15%-30% in 2025.

Under global net?zero ambitions, the steel industry faces mounting pressure to mitigate its significant greenhouse gas emissions. Steel slag, a large volume by?product of steelmaking, contains high levels of CaO and MgO, which are reactive with CO? and

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make it a promising feedstock for mineral carbonation. Policy mechanisms such as carbon pricing, circular economy mandates, and green procurement are encouraging adoption of innovative CO? sequestration technologies. Mineral carbonation of steel slag offers the dual benefit of CO? reduction and converting waste into stable carbonate materials that can serve as construction inputs or other industrial uses, aligning decarbonization with resource valorization in integrated steel ecosystems. These trends position steel slag carbon capture technologies as a differentiated decarbonization pathway for the sector.

Despite clear environmental advantages, commercial scale?up of steel slag carbonation equipment faces technical and economic hurdles. Many processes remain at pilot or demonstration scale, with challenges in controlling reaction kinetics, ensuring process stability at scale, and optimizing reactor designs for variable slag compositions. Markets for carbonate products are still immature, leading to limited revenue streams outside of carbon credits or regulatory compliance. High capital and operational costs, coupled with the absence of robust carbon pricing incentives in some regions, extend investment payback periods. Variability in steel slag chemistry also demands flexible process configurations, raising equipment customization costs and complexity.

Demand for steel slag carbonation systems is emerging from steel producers seeking compliance with emissions targets, as well as from building material manufacturers pursuing greener product portfolios. Carbonated steel slag has potential applications as a supplementary cementitious material, aggregate, or functional filler, enhancing its market value beyond carbon mitigation. As carbon markets evolve and regulatory frameworks reward verified CO? sequestration, steel slag carbonation could transition from niche technology to a component of sustainable materials infrastructure. With increasing preference for green construction materials and improved economic incentives, downstream uptake of mineral carbonation technologies is expected to strengthen, fostering integrated growth between decarbonization and circular economy sectors.

This report is a detailed and comprehensive analysis for global Steel Slag Carbon Sequestration Device market. Both quantitative and qualitative analyses are presented by company, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

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Key Features:

Global Steel Slag Carbon Sequestration Device market size and forecasts, in consumption value ($ Million), 2021-2032

Global Steel Slag Carbon Sequestration Device market size and forecasts by region and country, in consumption value ($ Million), 2021-2032

Global Steel Slag Carbon Sequestration Device market size and forecasts, by Type and by Application, in consumption value ($ Million), 2021-2032

Global Steel Slag Carbon Sequestration Device market shares of main players, in revenue ($ Million), 2021-2026

The Primary Objectives in This Report Are:
To determine the size of the total market opportunity of global and key countries
To assess the growth potential for Steel Slag Carbon Sequestration Device
To forecast future growth in each product and end-use market
To assess competitive factors affecting the marketplace

This report profiles key players in the global Steel Slag Carbon Sequestration Device market based on the following parameters - company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include CarbonCure Technologies, Solidia Technologies, Blue Planet Ltd., Mineral Carbonation International, Carbfix, Carbon Upcycling Technologies, SANTACC, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market segmentation

Steel Slag Carbon Sequestration Device market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for Consumption Value by Type and by Application. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

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Direct Carbonation

Indirect Carbonation

Aqueous Carbonation

Pressure?Swing Carbonation

Market segment by Sales

Direct Equipment Sales

EPC / Turnkey Projects

Market segment by Integrated

Standalone System

Integrated with Steel Mill

Combined with CCUS

Market segment by Application

Steel & Iron

Construction Materials

Cement & Concrete

Waste Valorization

Market segment by players, this report covers

CarbonCure Technologies

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Solidia Technologies

Blue Planet Ltd.

Mineral Carbonation International

Carbfix

Carbon Upcycling Technologies

SANTACC

Market segment by regions, regional analysis covers

North America (United States, Canada and Mexico)

Europe (Germany, France, UK, Russia, Italy and Rest of Europe)

Asia-Pacific (China, Japan, South Korea, India, Southeast Asia and Rest of Asia-Pacific)

South America (Brazil, Rest of South America)

Middle East & Africa (Turkey, Saudi Arabia, UAE, Rest of Middle East & Africa)

The content of the study subjects, includes a total of 13 chapters:

Chapter 1, to describe Steel Slag Carbon Sequestration Device product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top players of Steel Slag Carbon Sequestration Device, with revenue, gross margin, and global market share of Steel Slag Carbon Sequestration Device from 2021 to 2026.

Chapter 3, the Steel Slag Carbon Sequestration Device competitive situation, revenue, and global market share of top players are analyzed emphatically by landscape

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contrast.

Chapter 4 and 5, to segment the market size by Type and by Application, with consumption value and growth rate by Type, by Application, from 2021 to 2032.

Chapter 6, 7, 8, 9, and 10, to break the market size data at the country level, with revenue and market share for key countries in the world, from 2021 to 2026.and Steel Slag Carbon Sequestration Device market forecast, by regions, by Type and by Application, with consumption value, from 2027 to 2032.

Chapter 11, market dynamics, drivers, restraints, trends, Porters Five Forces analysis.

Chapter 12, the key raw materials and key suppliers, and industry chain of Steel Slag Carbon Sequestration Device.

Chapter 13, to describe Steel Slag Carbon Sequestration Device research findings and conclusion.

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