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Selective Catalytic Reduction Market - Global Industry Size, Share, Trends Opportunity, and Forecast, Segmented By Application (Diesel Powered Vehicles and Gasoline Powered Vehicles), By Type (Tracking and Optimization), By Vehicle Type (Passenger Cars, Commercial Vehicles), By Region & Competition, 2021-2031F

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Abstracts

The Global Selective Catalytic Reduction Market is projected to expand from USD 20.95 Billion in 2025 to USD 32.79 Billion by 2031, reflecting a CAGR of 7.75%. This active emissions control technology functions by injecting a liquid reductant through a specific catalyst into the diesel engine exhaust stream, effectively converting nitrogen oxides into water and diatomic nitrogen. The market is primarily propelled by strict government mandates requiring lower emission standards for internal combustion engines, alongside a growing need for fuel-efficient power generation in industrial settings, which forces manufacturers to adopt advanced after-treatment systems that ensure compliance without sacrificing engine performance.

However, the market faces hurdles due to inconsistent infrastructure for storing and distributing Diesel Exhaust Fluid (DEF) in developing areas, creating obstacles for widespread adoption. Despite these logistical issues, the heavy transport sector remains heavily dependent on internal combustion engines, maintaining strong demand for SCR solutions. Data from the European Automobile Manufacturers? Association indicates that diesel trucks comprised 95.1% of new European Union registrations in 2024, demonstrating the commercial sector's continued reliance on diesel powertrains and the consequent necessity for SCR technology to adhere to rigorous environmental regulations.

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Market Driver

The enforcement of IMO Tier III standards within the maritime sector serves as a key market catalyst, requiring operators to retrofit current fleets and commission new ships equipped with advanced emissions control systems. As regulations regarding Nitrogen Emission Control Areas (NECAs) tighten, SCR adoption is spreading from cargo carriers to specialized vessel categories to satisfy nitrogen oxide limits, prompting immediate investment in exhaust hardware. For example, Wartsila reported in September 2024 that it received an order to upgrade exhaust treatment systems on four Ro-Pax vessels for Color Line, incorporating closed-loop features to meet these changing environmental requirements.

Simultaneously, rising global production of heavy-duty commercial vehicles drives market growth, especially in industrial regions where infrastructure projects demand extensive logistics fleets. Manufacturers continue to produce large volumes of heavy-duty trucks that require SCR integration to comply with standards equivalent to China VI and Euro VI. ChinaTruck.net reported that heavy-duty truck sales in China totaled roughly 681,200 units during the first three quarters of 2024, highlighting the vast scale of SCR implementation. Further evidence of market breadth is seen in related commercial sectors; the European Automobile Manufacturers? Association noted in January 2025 that new EU van registrations rose by 8.3% over the course of 2024, signaling an expanded scope for emissions control technologies.

Market Challenge

A major obstacle facing the Global Selective Catalytic Reduction Market is the inadequate infrastructure for Diesel Exhaust Fluid (DEF) storage and distribution in developing regions. Since SCR systems rely on a constant supply of DEF to function, any disruption in the supply chain risks engine derating or compliance failures. This uncertainty regarding logistics causes fleet operators in emerging markets to hesitate in upgrading to heavy-duty vehicles equipped with SCR, fearing that fluid will be unavailable on essential long-haul routes.

This lack of infrastructure slows the adoption of modern commercial vehicles, thereby restricting the potential market for SCR systems. The severity of this logistical gap is emphasized by the large number of vehicles entering these markets that require such support. The Society of Indian Automobile Manufacturers reported that domestic commercial vehicle sales hit 951,991 units in the 2024 calendar year. This high volume

of new fleet additions highlights a significant mismatch between vehicle demand and the available support network, effectively limiting the growth potential of the SCR market in these promising regions.

Market Trends

The adoption of SCR systems in Non-Road Mobile Machinery is increasing rapidly as regulators impose stricter emissions targets on agricultural and construction equipment. Unlike the established on-road market, the off-highway sector is currently navigating a pivotal technology shift to meet future standards requiring near-zero nitrogen oxide emissions, prompting manufacturers to redesign after-treatment architectures for heavy machinery. In January 2024, the Association of Equipment Manufacturers noted that proposed California Air Resources Board Tier 5 regulations aim for a 90% reduction in nitrogen oxide emissions for off-road engines between 56 and 560 kW compared to Tier 4 Final standards, necessitating the use of high-performance SCR units with advanced diagnostics.

Simultaneously, the rise of Hydrogen-Based Selective Catalytic Reduction Research marks a significant shift as the industry investigates zero-carbon combustion options. Although hydrogen internal combustion engines eliminate carbon dioxide, they generate thermal nitrogen oxides at high temperatures, requiring specialized SCR solutions, such as zeolite-based catalysts, to manage unique exhaust compositions effectively. In October 2024, researchers at UC Riverside demonstrated that using Y zeolites in platinum-based catalytic converters improved the conversion of nitrogen oxides into nitrogen by four to five times at 250 degrees Celsius compared to standard converters, highlighting the vital role of advanced SCR technology in making hydrogen propulsion viable for heavy-duty use.

Key Market Players

Johnson Matthey Group

Faurecia SE

Cummins Inc.

OPmobility SE

ROchling Group

Tenneco Inc.

Robert Bosch GmbH.

Bosal Emission Control Systems

MANN+HUMMEL GmbH

BENTELER International

Report Scope

In this report, the Global Selective Catalytic Reduction Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Selective Catalytic Reduction Market, By Application

Diesel Powered Vehicles

Gasoline Powered Vehicles

Selective Catalytic Reduction Market, By Type

Tracking

Optimization

Selective Catalytic Reduction Market, By Vehicle Type

Passenger Cars

Commercial Vehicles

Selective Catalytic Reduction Market, By Region

North America

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- United States
- Canada
- Mexico

Europe

- France
- United Kingdom
- Italy
- Germany
- Spain

Asia Pacific

- China
- India
- Japan
- Australia
- South Korea

South America

- Brazil
- Argentina
- Colombia

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Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Selective Catalytic Reduction Market.

Available Customizations:

Global Selective Catalytic Reduction Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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