

Automotive Selective Catalytic Reduction Market Assessment, By Application Type [Diesel Powered Vehicles, Gasoline Powered Vehicles], By Vehicle Type [Passenger Car, Commercial Vehicles], By Catalyst Type [Copper Zeolite, Iron Zeolite, Others], By Region, Opportunities and Forecast, 2018-2032F

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Report description:

Global automotive selective catalytic reduction market is projected to witness a CAGR of 7.12% during the forecast period 2025-2032, growing from USD 16.13 billion in 2024 to USD 27.96 billion in 2032F. The global automotive selective catalytic reduction (SCR) market is driven by stringent emissions standards, growing demand for eco-friendly diesel aftertreatment technology, and the auto industry's shift toward cleaner combustion technology. Governments across the globe are implementing stringent nitrogen oxide (NOx) abatement rules, which have led OEMs to implement SCR systems in mass exhaust platforms. Growth in commercial fleets and logistics networks also fuels dependency on SCR to meet operational efficiency while ensuring environmental compliance.

Catalyst formulation and urea injection system technology enhance the effectiveness of SCR, enabling ease of integration in different powertrains, e.g., hybrid and alternative fuel engines. Automakers prefer modular SCR architectures for accommodating shifting emission regulations without hindering space and weight penalties. Technology's pivotal role in achieving carbon neutrality solidifies its dominance, especially in heavy-duty and long-haul transportation applications. In addition, collaborative R&D between automotive engineers and chemical suppliers yields future-generation catalysts that are less prone to poisoning and more thermally robust. Also, as emissions standards tighten, and diesel engines persist in transitional mobility contexts, SCR systems become unavoidable enablers of environmental stewardship and regulatory compliance.

For instance, in May 2024, Rislone launched its new Diesel DEF Treatment (p/n 4780), an addition to its family of products for cleaning, optimizing, and maintaining diesel selective catalytic reduction (SCR) systems. The formula shields SCR and diesel exhaust fluid (DEF) systems from damaging deposits, which can otherwise accumulate and lower engine performance, raise fuel usage, and ultimately prevent the vehicle from operating.

Growing Commercial Vehicle Boost the Global Market Demand

The growing commercial vehicle market, specifically freight and logistics, drives SCR demand as operators focus on emission compliance without sacrificing torque or fuel economy. Trucks and buses, the backbone of global supply chains, need strong SCR systems to support transnational emission standards. Fleet operators prefer SCR's scalability to suit different load capacities and operational landscapes. Compatibility with telematics allows for real-time consumption tracking, maximizing reagent use, and minimizing downtime. Urban delivery networks, progressing to Euro VI and similar standards, further drive adoption. Manufacturers are adjusting compact SCR units for medium-duty vehicles, ensuring compliance on crowded urban routes. This market growth emphasizes SCR's necessity in balancing commercial mobility's economic and environmental needs. Stringent Emissions Drive Market Growth

Global emission standards enforce stringent NOx reduction targets, where selective catalytic reduction (SCR) systems play an essential role by converting harmful nitrogen oxides into harmless nitrogen and water through a urea-based chemical reaction, ensuring compliance with BS-VI and Euro 6 norms while maintaining optimal engine performance and fuel efficiency. Regulatory institutions increasingly penalize non-adherence, further motivating manufacturers to integrate SCR into the next-generation diesel engines. Clean air programs and low-emission zones drive greater adaptation, especially in areas confronting pollution emergencies. SCR's ability to achieve NOx levels below one gram per kilometer makes it indispensable for heavy-duty applications. Simultaneously, advanced test cycles such as Worldwide Harmonised Light Vehicles Test Procedure (WLTP) demand real-world emissions accuracy, which further highlights SCR's consistent performance under dynamic driving conditions. Synergy of the technology with exhaust gas recirculation (EGR) systems further improves its attractiveness, making a multi-layered arsenal of emissions control available. With tightening emission regulations under BS-VI norms, automakers are increasingly adopting advanced aftertreatment technologies to comply with stringent environmental standards while maintaining performance.

For instance, in 2023, Hyundai India Limited launched the Creta. The 2023 Creta features the diesel powertrain, which uses a selective catalytic reduction system (SCR) to ensure that it meets the new, stringent emission norms.

Passenger Cars Dominate the Market

Passenger cars hold the majority market share in the global SCR market, triggered by high emission standards for diesel engines and customers' needs for low-fuel-consumption, environment-compliant mobility. Government regulations such as Euro 6 as well as China VI standards impose SCR embedding in diesel-powered passenger cars and SUVs for the suppression of NOx emissions. Vehicle manufacturers prefer small, lightweight SCR systems that can easily fit with passenger car models without loss of cabin space and performance. Hybrid powertrains further enhance SCR uptake, as manufacturers weigh combustion efficiency against electrification objectives. Urban air quality regulations in high-density cities spur retrofitting of existing diesel models with sophisticated aftertreatment systems. Premium segments use SCR as a sustainability discriminator, while mass-market OEMs develop cost-effective urea dosing technologies. This intersection of regulatory urgency, consumer demand, and engineering innovation ensures that passenger vehicles as the SCR market's growth driver.

For instance, in November 2022, Tenneco's DRiV Motorparts business (DRiV Incorporated) announced the availability of Walker replacement selective catalytic reduction (SCR) systems for more than 1,400,000 passenger vehicles in operation across Europe. Tenneco supplies SCR systems and other 'clean air' technologies to global manufacturers of light- and commercial vehicles as well as equipment used in marine, industrial and rail applications.

Asia-Pacific Leads the Global Market

Asia-Pacific leads the global SCR market, driven by China's aggressive emission regulation overhauls, India's shift to BS-VI, and logistics growth in Southeast Asia. China's auto titans mass-produce SCR systems both for local consumption and exports, taking advantage of cost-effective manufacturing volumes. India's truck and bus market, the largest consumer base, fuels demand for indigenous SCR solutions attuned to tropical operating environments. Japan and South Korea provide cutting-edge catalyst technologies, building up regional R&D capacities. Southeast Asia's motorcycle emission standards and Australia's mining vehicle regulations further strengthen demand. This intersection of regulatory imperative, industrial capacity, and technological agility locates Asia-Pacific at the forefront of SCR innovation and deployment.

For instance, in March 2025, in India, Kolkata achieved a milestone towards purer air, as the number of Bharat Stage VI (BS-VI) vehicles in the city is now more than Bharat Stage IV (BS-IV) vehicles for the first time. Latest automobile statistics indicate that

nearly 0.4 million BS-VI vehicles were registered at the city's four regional transport offices - PVD, Kasba, Behala, and Salt Lake. Kolkata had 0.39 million BS-VI vehicles as of February 2024, out of which there were 0.34 million BS-IV vehicles. For this transition, vehicles were required to be equipped with advanced emissions control technologies in the form of particulate filters, selective catalytic reduction, and advanced engine management systems.

Impact of U.S. Tariffs

U.S. tariffs on imported SCR components, including catalysts and injection systems, disrupt supply chains, escalating costs for domestic OEMs reliant on Asian suppliers. While shielding local manufacturers, tariffs strain price-sensitive segments like commercial fleets, risking delayed emission compliance. Companies respond by relocating production or sourcing tariff-exempt partners in Mexico and Canada. Conversely, tariffs spur innovation in alternative catalyst materials and modular SCR designs to reduce import dependencies. North American suppliers gain traction, offering localized solutions with shorter lead times. However, tariff-induced price hikes may slow SCR retrofitting in older fleets, temporarily impeding market growth. Long-term, the policy accelerates regional self-reliance, fostering advanced manufacturing ecosystems but necessitating interim cost-absorption strategies to maintain adoption momentum.

Key Players Landscape and Outlook

The market consists of various players, including emission control companies and chemical companies, forming a broader competitive landscape. Competitors differentiate through patented catalyst formulations, modular SCR architectures, and IoT-integrated dosing systems. Strategic alliances with OEMs ensure factory-fit dominance, while aftermarket players focus on retrofit solutions. Regional leaders in Asia leverage cost advantages, whereas European firms excel in premium, ultra-low-emission systems. Startups are innovative with Al-driven SCR optimization software, enhancing urea efficiency. Vertical integration, from catalyst production to system assembly, remains a key battleground. Mergers and patent litigations intensify firms' quest for supremacy in next-gen ammonia slip reduction and cold-start technologies, underscoring the sector's R&D-centric rivalry.

Table of Contents:

1. Project Scope and Definitions 2. Research Methodology 3. Impact of U.S. Tariffs 4. Executive Summary 5. Voice of Customers 5.1.
□Respondent Demographics 5.2. □Brand Awareness 5.3. Factors Considered in Purchase Decisions 5.4.⊓Unmet Needs 6. Global Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F 6.1. Market Size Analysis & Forecast 6.1.1. By Value 6.2. Market Share Analysis & Forecast 6.2.1. By Application Type 6.2.1.1. Diesel Powered Vehicles 6.2.1.2. □Gasoline Powered Vehicles 6.2.2. By Vehicle Type 6.2.2.1. Passenger Car 6.2.2.2.
□Commercial Vehicles 6.2.3. □By Catalyst Type 6.2.3.1. Copper Zeolite 6.2.3.2. Iron Zeolite 6.2.3.3. Others

6.2.4. By Region 6.2.4.1. North America 6.2.4.2. [Europe 6.2.4.3. Asia-Pacific 6.2.4.4. South America 6.2.4.5. Middle East and Africa 6.2.5. By Company Market Share Analysis (Top 5 Companies and Others - By Value, 2024) 6.3. Market Map Analysis, 2024 6.3.1. By Application Type 6.3.2. □By Vehicle Type 6.3.3. By Catalyst Type 6.3.4. By Region 7. North America Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F 7.1. Market Size Analysis & Forecast 7.1.1. By Value 7.2. Market Share Analysis & Forecast 7.2.1. By Application Type 7.2.1.1. Diesel Powered Vehicles 7.2.1.2. Gasoline Powered Vehicles 7.2.2. By Vehicle Type 7.2.2.1. Passenger Car 7.2.2.2. Commercial Vehicles 7.2.3. □By Catalyst Type 7.2.3.1. Copper Zeolite 7.2.3.2. Iron Zeolite 7.2.3.3. Others 7.2.4. By Country Share 7.2.4.1. United States 7.2.4.2. Canada 7.2.4.3. []Mexico 7.3. Country Market Assessment 7.3.1. United States Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F* 7.3.1.1. Market Size Analysis & Forecast 7.3.1.1.1.∏By Value 7.3.1.2. Market Share Analysis & Forecast 7.3.1.2.1. By Application Type 7.3.1.2.1.1. Diesel Powered Vehicles 7.3.1.2.1.2. Gasoline Powered Vehicles 7.3.1.2.2. By Vehicle Type 7.3.1.2.2.1. Passenger Car 7.3.1.2.2.2. Commercial Vehicles 7.3.1.2.3. By Catalyst Type 7.3.1.2.3.1. □Copper Zeolite 7.3.1.2.3.2. ∏Iron Zeolite 7.3.1.2.3.3. Others 7.3.2. Canada 7.3.3. Mexico

*All segments will be provided for all regions and countries covered 8. Europe Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F 8.1. [Germany 8.2. France 8.3. [Italy 8.4. United Kingdom 8.5. Russia 8.6. Netherlands 8.7. Spain 8.8.∏Turkey 8.9. **Poland** 9. Asia-Pacific Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F 9.1.∏India 9.2. China 9.3. Japan 9.4. Australia 9.5. Vietnam 9.6. South Korea 9.7. Indonesia 9.8. ||Philippines 10. South America Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F 10.1. Brazil 10.2.∏Argentina 11. Middle East and Africa Automotive Selective Catalytic Reduction Market Outlook, 2018-2032F 11.1. Saudi Arabia 11.2. UAE 11.3. South Africa 12. Porter's Five Forces Analysis 13. PESTLE Analysis 14. Market Dynamics 14.1.
¬Market Drivers 14.2. Market Challenges 15. Market Trends and Developments 16. Case Studies 17. Competitive Landscape 17.1. Competition Matrix of Top 5 Market Leaders 17.2. SWOT Analysis for Top 5 Players 17.3. Key Players Landscape for Top 10 Market Players 17.3.1. BASF SE 17.3.1.1. Company Details 17.3.1.2. Key Management Personnel 17.3.1.3. Products and Services 17.3.1.4. Financials (As Reported) 17.3.1.5.
∏Key Market Focus and Geographical Presence 17.3.1.6. Recent Developments/Collaborations/Partnerships/Mergers and Acquisition 17.3.2. Bosal Emission Control Systems 17.3.3. Continental AG

17.3.4. [ICM Holdco III Corp.
17.3.5. [Cummins Inc
17.3.6. [PHINIA Inc.
17.3.7. [DENSO Corporation
17.3.8. [Eberspacher Gruppe GmbH & Co. KG
17.3.9. [ZF Friedrichshafen AG
17.3.10. [ESW Group
*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.
18. [Strategic Recommendations

19. About Us and Disclaimer



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