

North American Lightweight Car - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Report description:

The North American Lightweight Car Market size in terms of Equal-10.27 is expected to grow from USD 34.66 billion in 2024 to USD 56.5 billion by 2029, at a CAGR of 10.27% during the forecast period (2024-2029).

Over the long term, the market for lightweight cars in North America is expected to be driven by regulatory authorities pushing for fuel efficiency. The lightweight car market in North America is becoming stringent to serve the strict fuel economy standards of the United States Corporate Average Fuel Economy (CAFE) requirements, which are also being adopted by Canada and Mexico.

Key Highlights

-According to the Energy Information Administration, the carbon dioxide emissions from energy consumption in the transportation sector in the United States touched 1,836 million metric tons of carbon dioxide in 2022 compared to 1,809 million metric tons in 2021, recording a Y-o-Y growth of 1.4% between 2021 and 2022.

Lightweighting is becoming a major trend in many industrial sectors, including not only transportation but also civil infrastructure, manufacturing, and clean energy technologies. In contrast to popular belief, lightweight components include aspects such as structural efficiency, economic and environmental impact, and other aspects involving structural efficiency. In industry, reducing a product's weight not only consumes fewer resources for manufacturing but also requires less transportation energy, preserving natural resources and reducing harmful pollution.

The ideal materials for lightweight cars in this market include aluminum, high-strength steel, and magnesium. In the luxury segment, carbon fiber cars, like those used in BMW, are no longer expensive and are increasingly being used in mass-market car

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production. North American economies are focusing on reducing the cost of materials through concentrated research to drive the lightweight car market's growth.

With the emergence of electric vehicles and an increasing ban on diesel vehicles' production of gasoline and diesel engines, the fossil fuel-run automotive industry's growth may face negative growth. However, lightweight car materials will remain a driving factor due to their application in an alternative fuel vehicle market.

North American Lightweight Car Market Trends

Composite Material Segment to gain Traction during the Forecast Period

As fuel costs and distance traveled are increasing, consumers want better miles per gallon (mpg) and often consider gas mileage as a key factor while purchasing a vehicle. With stringent emissions regulations due to increased exhaust emissions, automobile manufacturers are focusing on manufacturing lightweight vehicles to reduce CO2 emissions. A 10 kg weight reduction is estimated to save 1 gram of CO2 per kilometer. In the United States, the regulations mandate that, by 2025, the average fuel economy standard must meet 54.5 miles per gallon. As per the US Department of Energy (DOE), the vehicle's weight is being reduced by 10%, which may yield a 6-8% rise in fuel economy.

Thus, to facilitate this change, automobile manufacturers are shifting from steel or aluminum to composite materials essential to achieve the cost efficiency of these highly automated production cycles, which reduce vehicle weight. In a typical automobile, the use of fibers is 50% by volume while adding just 10% of the weight.

As a result, the companies have started using materials such as carbon fiber and titanium alloys to make vehicles lightweight and fuel-efficient, especially in luxury and sports models. Automotive manufacturers, such as Chevrolet, and Lamborghini, are some of the OEMs continually increasing the usage of composites in their vehicles as they aid in reducing the weight of the vehicles.

Furthermore, automotive manufacturers across the North American region such as Ford, Toyota, and Honda, among others are actively investing hefty sums to utilize composite materials for their vehicle components, which in turn, is positively impacting the composite segment of the market.

- In 2022, Ford, Toyota, Chevrolet, and Honda were the top four best-selling brands in the United States. Ford recorded sales of 1.76 million units in the United States in 2022, followed by Toyota with sales of 1.75 million units, and Chevrolet with a sales volume of 1.51 million units during the same period.

As more automakers shift towards the utilization of lightweight materials in their vehicles, the demand for the composite segment is expected to surge during the forecast period.

United States to Dominate the Lightweight Car Market during the Forecast Period

Strict regulations implemented by the government of the United States on emission standards and fuel consumption to curb greenhouse gas emissions are leading to a surging growth of the lightweight car market in the United States. The reduction in weight of the car substantially improves the fuel consumption ratio which in turn, assists in curbing emissions from cars.

- In July 2023, NHTSA proposed new Corporate Average Fuel Economy (CAFE) standards for passenger cars and light trucks built in

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model years 2027-2032. If finalized, the proposal would require an industry fleet-wide average of approximately 58 miles per gallon for passenger cars and light trucks in MY 2032, by increasing fuel economy by 2% year over year for passenger cars and by 4% year over year for light trucks.

Further, manufacturers are also working to reduce overall vehicle weight, which lowers the energy required to operate the vehicle and increases fuel economy. The Body-In-White system is the critical focal point for automakers looking for fuel savings because of its weight reduction potential, importance to crash safety, and impact on compounded weight reduction for other sub-systems, such as the powertrain.

- The light vehicle retail sales in the United States touched 13,754.3 thousand units in 2022 compared to 14,946.9 thousand units in 2021, representing a Y-o-Y decline of 7.9% between 2021 and 2022.

However, even in the United States, with the high cost of materials like carbon fiber and AHSS, and the ongoing research on the material mix, the growth of this industry hasn't reached its full potential. With the rapid enhancement in lightweight material technology and the increasing preference of consumers to avail of eco-friendly cars, the lightweight car market in the United States is expected to showcase surging growth during the forecast period.

North American Lightweight Car Industry Overview

The North American lightweight car market is fragmented and highly competitive, due to the presence of various international and domestic lightweight manufacturing companies operating in the ecosystem. Some of the major players include Ford Motor Company, Honda Motor Co., Ltd., Chevrolet, Nissan Motor Co., Ltd., Toyota Motor Corporation, and Mazda Motor Corporation, among others. As the demand for lightweight cars is growing in the region, automotive manufacturers are trying to edge over their competitors by making joint ventures, partnerships, and launching new products with advanced technology. For instance,

- In August 2023, Porsche introduced a special edition 911 designed for maximum driving enjoyment on its 60th anniversary. Produced in a limited run of 1,963 cars, the Porsche 911 S/T offers a lightweight design and a pure, undiluted driving experience. For the first time, the 911 GT3 RS's 518 hp, high-revving engine is delivered to the road via a manual transmission and lightweight clutch.

The market is expected to witness rapid enhancement in lightweight components technology such as the development in the advanced high-strength steel (AHSS), as these players try to gain a competitive edge in the industry.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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