Report: Today's Safer, Smarter and More Efficient Cars & Trucks Growing More Reliant on Plastics

Plastics are increasingly essential to making vehicles safer, lighter and more technologically advanced, and their role will continue to grow with the expansion of autonomous vehicles and propulsion technologies, according to a new report, "Plastics & Chemistry in Automobiles," from the American Chemistry Council (ACC).

The Plastics and Chemistry in Automobiles Report *(August 2026) demonstrates the breadth of plastics used in today's cars and trucks to improve safety, performance and fuel efficiency.*

Plastics Help Improve Vehicle...

Safety

Safety advances in today's vehicles save countless lives and reduce injuries. Plastics enable airbags, seat belts, and safety glass, plus energy-absorbing innovations such as front-end modules, modular seats, and bumpers that protect people's lives every day.

REPORT:

- **Fiber-reinforced polymer composites** can absorb 4x the crush energy of steel while polypropylene and polyurethane foams and other polymer composites provide additional impact protection.
- **The use of seat belts** (lap and shoulder belts) – which are typically made from polyester – reduces the risk of front seat passenger deaths by 45% in passenger cars.
- **Airbags** – which are commonly made from high-strength nylon fabric – are credited with saving more than 50,000 lives.

According to the National Highway Traffic Safety Administration

Performance

The Report identifies multiple components in today's autos that perform better (or even work at all!) because of plastics.

It also notes that autonomous cars and trucks rely on an array of embedded sensors, including cameras, radars and satellite receptors, all of which are made with plastics.

In addition, plastics offer a high strength-to-weight ratio and corrosion resistance that are critical in battery enclosures and other heat-sensitive components in cars and trucks with electric propulsion. Replacing metal components with plastics in these vehicles aids in weight reduction, reduces wear, provides design flexibility, and helps keep batteries safe during collisions.

- **Advanced driver assistance systems (ADAS)**
- **Navigation systems**
- **Adaptive cruise control**
- **Infotainment systems**
- **EV batteries (and conventional ones, too)**
- **Safety glass**
- **Hoses and gaskets**
- **Frames (helping reinforcement)**
- **Noise/vibration components**
- **Dozens more...**

Plastics also allow more intricate shaping of interior components (seats, arm rests, dashboards, air bags, compartments) and exterior components (bumpers, hoods, fenders, sunroofs).

These performance enhancements combine to improve dependability, aerodynamics, comfort and handling — which makes cars more fun to drive.

Fuel-Efficiency

The weight of plastics used per auto increased 18% over a decade – displacing heavier materials with strong yet lightweight plastics helps reduce the weight of autos.

REPORT:

- **Plastics** account for over 50% of a vehicle's volume but less than 10% of its weight. Weight reduction in automotive design is a key driver in boosting fuel efficiency, reducing emissions and lowering operating costs for drivers.
- **Average fuel efficiency** (real-world miles per gallon) reached 26.9 MPG in 2023, more than double the 1975 average.

The average North American vehicle contained 428 pounds of plastics and polymer composites in 2025, up 18% from a decade ago. These materials account for more than half of a vehicle's volume but less than 10% of its weight. This helps improve efficiency and reduces fuel costs at the pump, while also enhancing occupant safety.

TOP 10 STATES FOR AUTO MANUFACTURING JOBS RANKED

1. Michigan 2. Indiana 3. Ohio 4. Kentucky
5. Alabama 6. California 7. Texas
8. Missouri 9. New York 10. Mississippi

America's automakers rely on a robust, reliable supply of plastics.

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