

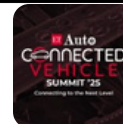
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# Car buyers beware! Is your car body corrosion-free?

As a vehicle is typically expected to run for at least 10 to 15 years, it is essential for buyers to choose a car that not only incorporates high-end features but also offers a rust-free, secure car body. A car is not just a material purchase but probably the second-largest investment that consumers will make, after a home. Ensuring the car's durability is essential for the consumer, one that can withstand regular wear and tear as well as the weather conditions encountered in India, like high humidity, warm temperatures, coastal sea salt, and long periods of rain & slush.





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As India accelerates its manufacturing base to become one of the world's fastest-growing automotive markets, Indian consumers are increasingly aspiring to own car models that compete with those available internationally. Today, a car is a reflection of one's lifestyle rather than just a medium of transportation, making consumers demand trendy designs, the latest technologies, top-notch features and the best music systems. They are willing to pay a premium for top-end variants that come loaded with features like sunroofs and connected technologies. However, these added features and aesthetics mean nothing if the car body rusts and develops ugly perforations within a short span of time.

As a vehicle is typically expected to run for at least 10 to 15 years, it is essential for buyers to choose a car that not only incorporates high-end features but also offers a rust free, safe and secure car body. A car is not just a material purchase but probably the second-largest investment that consumers will make, after a home. Ensuring the car's durability is essential for the consumer, one that can withstand regular wear and tear as well as the weather conditions encountered in India, like high humidity, warm temperatures, coastal sea salt and long periods of rain & slush.

Indian cars are mostly parked outdoors and are exposed to extreme weather conditions. In recent years, new vehicles have been reported to experience visible rusting within just 2 years of purchase. It is a common sight to see car submerged on waterlogged roads during heavy rains. Indian consumers need to actively seek 'corrosion-free' warranties from automotive manufacturers which covers anti-perforation, cosmetic paint fading and peeling. Cosmetic and anti-perforation warranties are offered by carmakers in other parts of the world for five and ten years respectively. These warranties are possible only when the car body parts are made from galvanised (zinc-coated) steel.

A 2015 corrosion survey of over 500 cars in the Powai, Juhu regions of Mumbai by IIT Bombay on 5-year-old automobiles parked in parking lots revealed that 65% of non-galvanised vehicles experienced corrosion within five years, whereas no corrosion was noted on 5-year-old vehicles made from galvanised steel. A similar car corrosion survey conducted in 2017 by the same IIT Bombay team in the Chennai area confirmed the Mumbai results and showed a more serious corrosion problem exists in the Chennai area.

Steel, which constitutes over 95% of most vehicle bodies, is highly susceptible to corrosion unless it is protected. Zinc is the single most effective material to protect steel from corrosion. The zinc coating acts as a barrier between the harsh environment and the steel body of the car, sacrificing itself in preference to the underlying steel and powerfully shielding it from rust. As a steel-intensive industry, Indian automakers are now prioritizing zinc coatings in the body-in-white (BIW), the skeleton of the car body, along with various vehicle components added to the body-in-white.

When steel sheet is galvanised, it creates a metallurgical bond that provides worry-free corrosion protection. In harsh environments, car models utilising galvanised steel can stand the test of time as zinc extends the lifespan, safety, durability, and resale value of steel car bodies while reducing recurring repair and maintenance costs.

Zinc galvanisation offers superior protection over painted non-galvanised steel, as painted surfaces tend to chip and peel, leaving the underlying steel vulnerable to corrosion. Zinc's sacrificial protection ensures the steel remains protected even if the coating is scratched or damaged.

In international markets like North America, Europe, China and Japan, over 90% of vehicles use zinc-coated bodies. In stark contrast, India lags, with currently only about 0 to 25% of vehicles utilising zinc-coated bodies. Interestingly, vehicles exported from India boast nearly 70% zinc-coated bodies, highlighting the disparity that domestic consumers have yet to fully benefit from. India produced over 4.7 million cars and SUVs in 2023-24, and as India strives to become an even larger manufacturer, domestic car bodies need to be made from zinc coated steel to compete internationally.

Indian consumers need to recognise that while galvanised car bodies have an initial cost equivalent to less than 0.1% of the selling price, this cost is recovered within 1 year through savings on inspections, repairs and maintenance. So, the question Indian consumer need to ask car dealers or manufacturers is whether the car they are planning to purchase is zinc galvanised or not. Once this thought seeps in the consumers' minds, they can remain confident of the corrosion problem as zinc galvanised automobiles keeps corrosion at bay and ensures no perforation for upto 10 years.

*(Disclaimer: The author is Kenneth M. de Souza, Technical Director and Corrosion Specialist, International Zinc Association. Views are personal.)*

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