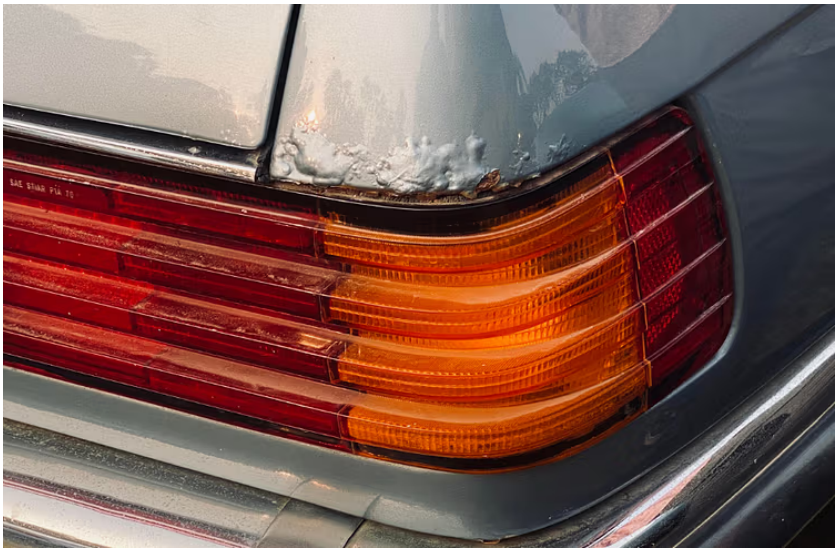
Galvanizing The Drive For Durability

Ensuring durability in India's automobile industry through zinc galvanization to meet new-age consumer expectations

By Kenneth M de Souza, International Zinc Association 13 Feb 2025 509 Views Share -



India's automobile market has grown significantly over the last decade, reflecting a transformation not just in scale but in consumer aspirations. With the country poised as the third-largest automobile market in the world, the industry is witnessing a significant shift in priorities from affordability to premiumisation. Amidst this evolution, the narrative around vehicle safety and durability has matured, sparking a crucial conversation about materials that enhance performance, sustainability and strength of the car bodies.

A generation ago, the quintessential Indian car buyer prioritized practicality and affordability. Durability, while important, often took a back seat to cost. Today, cars are more than transportation, they are lifestyle statements. Lack of features like advanced driver-assistance systems, sunroofs and premium interiors are now deal-breakers for car buyers. However, ensuring that the car body can withstand the test of time and remain rust-free, safe and secure is essential as a car is often the second-largest investment for car buyers, after a home.

Amid this pursuit of aesthetics and innovation, one critical aspect often gets overlooked: the car body's ability to withstand wear and tear over time. In a country with diverse and extreme weather conditions, durability isn't a luxury, it's a necessity. Car manufacturers can easily address this by using zinc galvanized steel for car bodies. Steel constitutes 95% of most vehicle bodies and is highly susceptible to corrosion unless protected. Zinc is the single most effective material to protect steel from corrosion in a way that paints and anti-rust treatments are ill-equipped to do.

India's climate presents a unique challenge to vehicle longevity. Cars in India are predominantly parked outdoors, directly exposed to erratic weather conditions. High humidity, coastal sea salt and extended monsoons create an ideal environment for rust and corrosion. Reports have highlighted instances of new vehicles showing visible rusting within just two years. A 2015 IIT Bombay survey found that 65% of non-galvanized vehicles in Mumbai experienced corrosion within five years, while galvanized vehicles remained unscathed. A similar 2017 study in Chennai painted an even grimmer picture, underscoring the urgent need for robust anti-corrosion measures.

As a steel-intensive industry, car manufacturers must prioritize zinc coating in various vehicle components, such as body-in-white (skeleton of the body), engines, chassis, power steering systems, brake parts, seat belts, windscreen wiper, sunroof, air-conditioning units and fuel systems. Zinc acts as a powerful protector against corrosion and red rust. When steel is galvanized with zinc, it creates a durable, metallurgical bond that shields the body from environmental damage. Unlike paint, which can chip and peel, zinc provides sacrificial protection, ensuring the steel remains intact even when scratched or dented.

Globally, over 90% of vehicles in markets like North America, Europe, and Japan use zinc-coated bodies, a stark contrast to India, where the figure lingers between 0-25%. Ironically, Indian-manufactured cars for export boast up to 70% galvanized bodies, highlighting the disparity domestic consumers face. International cars come with 'corrosion-free' warranties that cover anti-perforation, cosmetic paint fading and peeling.

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to rust and corrosion within 2 years of purchase.

The initial cost of galvanization is negligible, less than 0.1% of a car's selling price and the cost is recovered within a year through reduced inspection, maintenance and repair costs. Galvanized cars not only offer a rust-free lifespan of up to 10 years but also enhance resale value. For Indian consumers, this translates to a lower cost of ownership.

Indian automakers are beginning to recognize the importance of zinc coatings, especially in the body-in-white (BIW) stage of manufacturing. Some forward-thinking manufacturers are already prioritizing galvanized steel for better durability and international competitiveness. With India producing over 4.7 million cars and SUVs in 2023-24, embracing zinc galvanization isn't just about meeting global standards, it's about safeguarding the investments of millions of consumers.

As car buyers, Indians are more informed and discerning than ever. However, the onus also lies on consumers to demand better standards. Asking a simple question, "Is this car galvanized?" can make a world of difference. Such awareness will push car manufacturers to prioritize corrosion resistance and durability as much as they do aesthetics and features.

The true mark of a premium car isn't just its technology or design, it's its ability to perform durably. Durability is the bridge between aspiration and value, and it's time the Indian auto industry and its consumers crossed it together.

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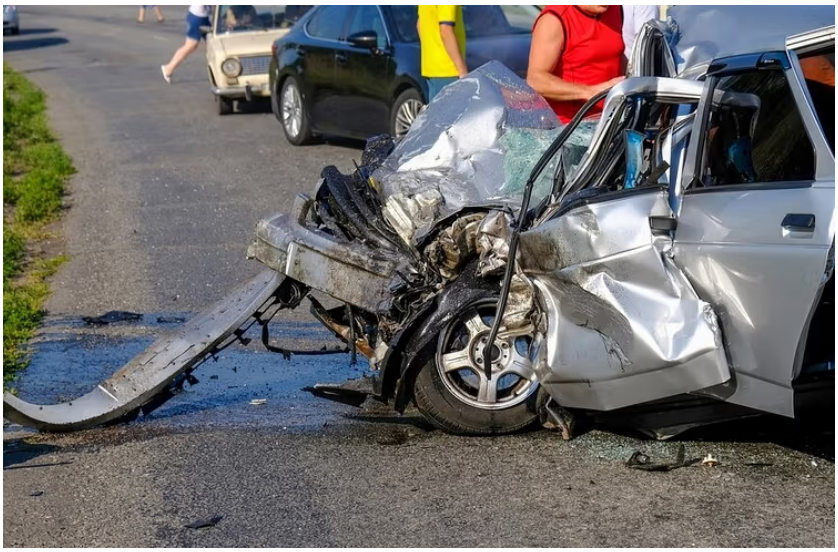
Tags: International Zinc Association

NEXT STORY

India's Roads: A Paradox of Progress and Peril

With millions of lives at stake on India's roads, the nation faces a critical challenge to reduce fatalities and create safer highways through technology, education, and collaborative action by 2030.

By Jyoti Malhotra, Volvo Car India 11 Feb 2025 997 Views Share -



Imagine a world where every few minutes, another life is lost on the road. This isn't a dystopian thriller; it's a grim reality. Road safety is a global crisis, and India is no exception. The UN declared 2021-2030 the Decade of Action for Road Safety, aiming to halve road deaths by 2030. As a signatory to this commitment, India faces the urgent task of drastically reducing road fatalities and injuries.

With over 4.5 lakh road accidents in 2022 alone, the crisis demands immediate attention and intervention. With 2030 inching closer, the need for safer roads is a wake-up call to act now.

Road accidents don't just end lives; they shatter families and leave lasting scars on communities. Survivors may face lifelong disabilities, emotional trauma, and PTSD, adding to the already heavy burden.

These far-reaching consequences underscore the urgent need for action to prevent road accidents. In stark contrast to global trends, India has witnessed a worrisome 177% surge in road fatalities between 2005 and 2022.

This alarming rise coincides with rapid infrastructural development, increased vehicle accessibility, and growing affluence – factors that have led to a significant increase in the number of vehicles on Indian roads. While this growth signifies progress, it has outpaced the development of crucial road safety infrastructure and awareness.

India's road safety record presents a complex picture. While the sheer number of accidents is undeniably alarming, a relative comparison reveals a surprising truth: India's accident and injury rates, when adjusted for its vast population, are lower than many developed nations like the USA, UK, and Japan. However, this doesn't diminish the urgency of the situation.

The global community has set an ambitious target of halving road deaths by 2030, a goal India is struggling to meet. To win the war on road safety, India needs to follow a symbiotic multi-pronged approach. This includes stricter enforcement of traffic regulations, significant improvements in road infrastructure, enhanced vehicle safety standards, and nationwide public awareness campaigns to foster a culture of responsible driving.

Though road safety campaigns are widespread, many crucial safety practices are still ignored. Over-speeding is a major concern, causing 72% of accidents, according to the Ministry of Road Transport.

Over-speeding and distracted driving due to mobile phones or other distractions are some other significant issues. Neglecting vehicle maintenance, drunk driving, and ignoring road conditions also contribute to accidents.

To curb rampant traffic violations, India enforced stricter penalties in 2019, but these have had little impact. The solution lies in addressing behavioral issues through education, enforcement, engineering, and emergency response. Vigorous enforcement is crucial to reduce over-speeding and wrong-side driving – major causes of accidents.

Technology like AI-powered surveillance and automated challans can enhance our efforts. Additionally, improving public transport can ease traffic congestion and promote safer travel thereby reducing road mishaps.

Mass education and awareness must be a regular exercise to ensure road safety becomes a nationwide movement. Collaboration with the Government, educational institutions, and India Inc. can play a transformative role, especially during the observation of the Road Safety Month.

Schools and colleges should integrate road safety modules into their curriculums, with workshops, practical demonstrations, and awareness campaigns conducted regularly. By instilling these values early, young individuals can act as ambassadors of safe driving practices.

While working towards developing better roads and safer driving practices, it is crucial to address infrastructure issues by fixing engineering flaws and 'black spots' on national and state highways. The relevant authorities should focus on providing quick emergency services like advanced life support ambulances and trauma care centers near accident-prone areas.

This helps save lives and helps in providing quick aid. While financial penalties are necessary, the intent should be on promoting responsible behavior through education and awareness and here, both corporations and the government need to work together.

While responsible corporates continue to innovate safer vehicles with advanced safety features and conduct road safety campaigns for awareness, the Centre and the state governments can help improve infrastructure, enforce traffic laws, and educate the public. This joint effort will not only save lives but also pave the way for a culture of responsible and advanced mobility, ensuring a safer future for all road users.

The path to safer roads in India demands a collective journey. It requires a transformation in our approach, from reactive measures to proactive prevention. By embracing technology, prioritizing education, and promoting a culture of responsible road use, India can turn the tide on this crisis. Every life saved is a