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India's Infrastructure Revolution: Zinc the Catalyst for a Stronger, More Resilient Nation

Given India's extensive coastline and diverse climatic conditions, the nation is particularly vulnerable to this issue. Prioritizing zinc galvanization can mitigate these losses and establish a robust infrastructure pipeline.



ETInfra

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India's transformation from a developing nation to a developed one hinges on its ability to build a robust and resilient infrastructure. At the core of this infrastructural renaissance is steel, a material synonymous with strength and durability.

With steel production surging, India has become the global leader in



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Zinc plays a pivotal role in mitigating this challenge through galvanization, forming a protective layer around steel that is both pragmatic and essential to combat corrosion.

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Galvanization, a metallurgical process involving the application of a zinc coating to steel, showcases zinc's exceptional corrosion-resistant properties. Zinc oxidizes in preference to the underlying steel, effectively shielding it from rust and enhancing its corrosion resistance.

This process extends the lifespan of steel structures, yielding substantial economic benefits, including reduced maintenance costs, increased asset life, improved structural reliability and optimized resource allocation.

The economic impact of corrosion is significant. A recent study by the



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Additionally, the durability provided by zinc-coated steel is crucial for the growing renewable energy sector. Wind turbines, solar panels, and other critical infrastructure components exposed to harsh environmental conditions require materials with exceptional longevity.

Zinc galvanization ensures the optimal performance and extended service life of these assets, alongside its use in sectors such as automotive, energy storage solutions, electrical components, and high-tech manufacturing.

India's ambitious infrastructure plans, exemplified by initiatives like the National Infrastructure Pipeline and Gati Shakti Yojana, necessitate materials that can withstand the test of time. Zinc meets this requirement with excellence. Beyond its role in corrosion protection, zinc is also gaining traction in the energy storage domain.



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Zinc-based batteries, a promising technology, offer a sustainable and cost-effective alternative to lithium batteries. This potential cost saving is significant, as zinc is more abundant and four times less expensive than lithium, offering substantial economic benefits.

Atmanirbhar Bharat underscores India's commitment to domestic manufacturing and value addition. Zinc, being a domestically available resource, aligns perfectly with this vision. By investing in zinc-based solutions across various industries, India can reduce its reliance on imports, enhance supply chain resilience, and create employment opportunities. Furthermore, zinc's high recyclability contributes to sustainable development, embodying the principles of a circular economy.

It is crucial to recognize the qualitative benefits of zinc galvanization. For example, the reduced maintenance requirements for galvanized structures translate into improved safety, enhanced structural integrity and dependability.

India's infrastructure revolution is heavily dependent on metals. Roads, railways, urban centres, stadiums, bridges, high-rise buildings, public infrastructure like bus-stands, airports, all these architectural marvels in the making will require structural integrity that will last for generations.