**NEWS ARTICLE**

Zinc protects road and rail infrastructure

**16 October 2023:** Road and rail infrastructure is essential to transport people and goods, supporting economic development and empowering communities. However, such infrastructure is often exposed to various environmental factors that can cause corrosion, such as moisture, salt, and stray currents. Corrosion can compromise the safety, performance, and durability of road and rail infrastructure, leading to increased maintenance costs, reduced service life, and potential accidents.

“To prevent or reduce corrosion, one of the most effective and economical solutions is to use zinc as a coating material for steel,” comments **Simon Norton**, Executive Director of the [International Zinc Association (IZA) Africa](http://www.zinc.org). Zinc as a metal has several properties that make it ideal for corrosion protection. It forms a protective layer on the surface of steel that acts as a barrier against corrosive agents. Referred to as a zinc patina, the layer consists of zinc oxide, zinc hydroxide, and zinc carbonate. The zinc patina is self-healing, meaning it can repair itself if damaged by scratches or abrasion.

Zinc also provides cathodic protection for steel, which means it sacrifices itself to protect the underlying steel. Zinc is more reactive than steel, so it corrodes preferentially in the presence of an electrolyte such as water. It prevents the steel from corroding even if the zinc coating is breached. In addition, zinc is a recyclable material that can be recovered from steel products at the end of their lifecycle. Recycling zinc saves energy, reduces greenhouse gas emissions, and conserves natural resources.

Zinc is widely used to protect steel structures in road and rail infrastructure such as bridges, poles, masts, guardrails, fences, and rails. Some of the common applications of zinc here are:

**Galvanizing**: This is the process of coating steel with a thin layer of zinc by dipping it into molten zinc. Galvanizing is one of the most common and oldest methods of corrosion protection for steel. Galvanized steel can last for decades without significant corrosion in most environments.

**Zinoco**: This is a special rail coating that combines cathodic protection with a durable metallic alloy. Zinoco was developed by British Steel to resist corrosion in harsh environments, such as coastal areas, wet tunnels, level crossings, and stray current zones. Zinoco is more resistant to damage by impact and abrasion than traditional rail coatings.

**Zinc-rich paint**: This is a type of paint with a high percentage of zinc particles in a binder. Zinc-rich paint provides both barrier and cathodic protection for steel and can be applied by spraying or brushing on steel surfaces.

“Zinc is a key element for corrosion protection of road and rail infrastructure because it offers multiple benefits such as enhancing safety and reliability by preventing or reducing corrosion damage,” says Simon. It extends the service life and reduces the maintenance costs of road and rail infrastructure by delaying or avoiding the need for repairs or replacements. What’s more, it supports environmental sustainability by reducing energy consumption and minimising waste.

“Zinc is a proven solution for corrosion protection that has been used for over 150 years. With its superior performance, durability, and recyclability, zinc will continue to play an important role in preserving and improving road and rail infrastructure around the world,” concludes Simon.

***Ends***

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**Notes to the Editor**To download hi-res images for this news article, please visit [http://media.ngage.co.za](http://media.ngage.co.za/) and click the International Zinc Association link to view the company’s press office.

**About the International Zinc Association**

The IZA is the only global industry association dedicated exclusively to the interests of zinc and its users. Operating internationally and locally through its regional affiliates, the IZA helps sustain the long-term global demand for zinc and its markets by promoting such key end uses as corrosion protection for steel and zinc as being essential in human health and crop nutrition. IZA’s main programmes are Sustainability & Environment, Technology & Market Development and Communications.

In South Africa, the IZA plays a vital role in establishing the basis for the successful revitalisation of the zinc industry by increasing awareness of zinc and its applications and benefits in key sectors and markets, which will ultimately translate into the increased uptake of zinc.

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