# TECHNICAL CIRCULAR No. 832 of 4th July 2024

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| To | All Surveyors/Auditors. All flags |
| Title | **Hull Corrosion Resistance** |
| Reference | CONARINA Guidelines |

## Corrosion Resistance

Corrosion is a pervasive issue in the maritime industry, exacerbated by the harsh maritime environment's high salt and moisture levels. Left unchecked, it can compromise ship structural integrity, necessitating costly repairs and posing safety risks to crew and cargo.

### Design Innovations for Corrosion Resistance

Ship designers integrate features such as optimized drainage systems and strategic insulation to minimize direct exposure to corrosive elements. Proper placement of scuppers and drain facilitates efficient water drainage, reducing the likelihood of corrosion in critical areas.

### Protective Coating: Shielding Ships from the Elements

The application of advanced coatings, including epoxy, polyurethane, and zinc-rich formulations, forms a vital defense against moisture and salt ingress. These coatings not only protect metal surfaces but also enhance fuel efficiency by maintaining a smooth hull profile and preventing marine growth accumulation.

### Protective Coating: Safeguarding Metals with Sacrificial Anodes

Cathodic protection methods, such as sacrificial anodes and impressed current systems, offer proactive defense mechanisms against corrosion. Sacrificial anodes made of zinc, aluminum, or magnesium sacrificially corrode to protect ship metals, while impressed current systems provide continuous electrochemical protection tailored to specific ship requirements.

### Corrosion Inhibitors and Other Strategies

In addition to coatings and cathodic protection, corrosion inhibitors are employed to further mitigate corrosion rates on exposed metal surfaces. These chemical compounds are cost-effective solutions that extend the lifespan of ships components and reduce maintenance expenditures.

By incorporating these comprehensive strategies- from innovative design principles that minimize corrosive exposure to advanced coating applications and proactive cathodic protective measures-

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the maritime industry can effectively combat corrosion. These efforts not only ensure the longevity and safety of ships but also contribute to operational efficiency and environmental sustainability in marine transportation.

REFERENCES:

- CONARINA Instructions

ATTACHMENTS: No

Kindest Regards,

CONARINA Technical Office

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