Innovating with Graphene - Tata Steel's New Materials Business

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Abstract

This presentation explores the transformative potential of graphene within Tata Steel's New Materials Business, particularly for steel plant operations. It highlights opportunities for sustainable graphene production, aligning with circular economy principles and enabling value creation. Graphene's versatility promises enhanced efficiency across applications including anti-corrosive coatings, lubricants, conveyor systems, durable tires, and water filtration. In the global market, growing demand for high-performance, sustainable materials presents significant opportunities for differentiated graphene solutions, strategic partnerships, and export-oriented applications. At the same time, challenges persist around large-scale, cost-effective production, performance standardisation, qualification across diverse end-use sectors, and competition from international players with established graphene portfolios. Ultimately, this presentation underscores graphene's role as a catalyst for innovation, efficiency, and sustainability, while positioning Tata Steel to participate meaningfully in the evolving global graphene landscape through research-driven, industrially relevant solutions.

References

[1] Method for preparation of graphene-metal foam composite. A graphene – metal foam composite and an apparatus, thereof Patent Granted - 484369
[2] A Process For Preparation of A Pyrolytic Carbonized Fibre and Applications Thereof (2025), India Patent application No. 202431006320
[3] Grease Composition Fortified with Graphene Nanomaterial (2025), India Patent application No. 202531025268

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