



# Lignin-Based Anti-Corrosive Coatings

What if the answer to corrosion lies in wood? Lignin, a natural by-product, is redefining anti-corrosion coatings with eco-friendly, high-performance solutions. New breakthroughs reveal lignin's power to rival traditional materials, cutting costs and environmental harm. Dive into the future of sustainable coatings today!

## BACKGROUND

Corrosion causes global losses exceeding USD 2.5 trillion annually. Traditional anti-corrosive coatings rely heavily on petroleum-derived materials and toxic inhibitors, posing environmental risks. Lignin, an abundant by-product of the paper and biofuel industries, offers a renewable, eco-friendly alternative. Its aromatic structure, antioxidant properties, and natural hydrophobicity make it a promising material for advanced anti-corrosive applications.

## TECHNOLOGY

Sustainable coatings that meet industry performance standards while reducing environmental impact are possible by combining enzymatic engineering and green chemistry principles. acib has developed lignin-based anti-corrosive coatings offering an eco-friendly alternative to traditional solutions:

- **Enhanced Barrier Properties:** Lignin's aromatic structure minimizes water and oxygen permeability, preventing metal corrosion.
- **Antioxidant Activity:** Phenolic compounds in lignin scavenge free radicals, reducing oxidative damage.
- **Adhesion Improvement:** Tailored enzymatic processes enhance lignin's compatibility with coating substrates.
- **Sustainable and Economic Production:** Utilizes cheap industrial lignin streams, promoting circular bioeconomy practices.

This technology reduces dependency on non-renewable resources while delivering cost-effective, high-performance coatings

## OFFER

acib seeks industrial partners to collaborate on scaling and commercializing lignin-based coatings. Benefit from:

- **Innovation Access:** Collaborate with acib's expert team to refine and adapt the technology to your specific industrial applications.
- **Exclusive IP Ownership:** Benefit from proprietary formulations and processes developed in partnership.

## EXPERTS

Prof. Dr. Georg Gübitz

## DEVELOPMENT STATUS:

Technology Readiness Level 3  
(Experimental proof-of-concept)

## KEYWORDS

- Sustainable Coatings
- Lignin Modification
- Corrosion Resistance
- Eco-Friendly Solutions
- Antioxidant Properties
- Barrier Technology
- Enzymatic Engineering
- Industrial Sustainability
- Green Chemistry

## CONTACT

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