

Hempoxies 54: The Future of Circular Bio-Composites



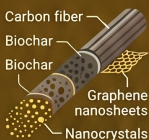
Sustainable Epoxidized Hempseed Oil Matrix

A renewable foundation using hempseed oil and bio-sourced furfuryl glycidyl ether (FGE) as a reactive diluent.



Dynamic Vitrimer Network Enables Recyclability

Zinc-catalyzed chemistry allows the material to be reprocessed, healed, and chemically recycled like a thermoplastic.



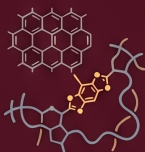
Multi-Scale Hierarchical Carbon Reinforcement

Reinforces across four length scales using carbon fiber, biochar, graphene nanosheets, and nanocrystals.



Programmable High-Performance Mechanical Properties

Capable of achieving tensile strengths up to 400MPa and modulus up to 50GPa depending on fiber loading.



Non-Covalent π - π Interfacial Coupling

The FGE component creates a molecular bridge, anchoring the matrix to all graphitic carbon phases simultaneously.