Special Issue

Next-Generation Catalysis for Green Biolubricants and Biofuel Production

Message from the Guest Editor

Transitioning lab research to industrial-scale biolubricant and biofuel production demands catalysts that are efficient, selective, and durable. Lab work tailors active sites, nanostructured supports, and multifunctional properties to optimize pathways and cut by-products, boosting viscosity, oxidative stability, and biodegradability for lubricants, and energy density and combustion for fuels.

Scale-up challenges center on catalyst stability, regeneration, and cost under continuous operation. For economic viability, trends include green solvents, low-temperature routes, and hybrid heterogeneous–enzyme systems. Innovative catalysts link sustainability goals to practice, curbing carbon and fossil reliance. Future work targets scalability, lower impact, and competitive large-scale performance. This Special Issue welcomes catalyst advances for biofuels and biolubricants, emphasizing industrial feasibility or positive environmental impact.

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