

- The efficacy of electrocoagulation as an environmentally sustainable method for minimizing wastewater contamination.
- Multi-objectives simultaneously optimize wastewater pollution treatment's effectiveness, expressed by the yield of turbidity and demand chemical in oxygen (COD).
- Quadratic models accurately predicted removal efficiencies with high R^2 .
- Current intensity was identified as the most influential factor for all responses.
- The process achieves near-total turbidity removal (~100%) and a remarkable 97.57% reduction in COD.
- The CCD- based optimization provides a robust framework for wastewater treatment.