

Supporting Information

Effect of Design Parameters in Nanocatalyst Synthesis on Pyrolysis for Producing Diesel-Like Fuel from Waste Lubricating Oil

Riny Yolandha Parapat^{1*}, Aji Tri Laksono¹, Rizki Imam Fauzi¹, Yuni Maulani¹, Freddy Haryanto², Alfian Noviyanto³, Michael Schwarze⁴ and Reinhard Schomäcker⁴

¹ Chemical Engineering Department, Institut Teknologi Nasional Bandung, PHH. Mustopha 23, 40124 Bandung, Indonesia.

² Physics Department, Institut Teknologi Bandung, Ganesha 10, 40132, Bandung, Indonesia

³ Nano Centre Indonesia. Utama. Kawasan Puspittek, Gedung 410 – Ruang B07, Serpong. Indonesia

⁴ Department of Chemistry, Technische Universität Berlin, Straße des 17. Juni 124, 10623 Berlin, Germany

* E-mail: rinyyolandha@itenas.ac.id

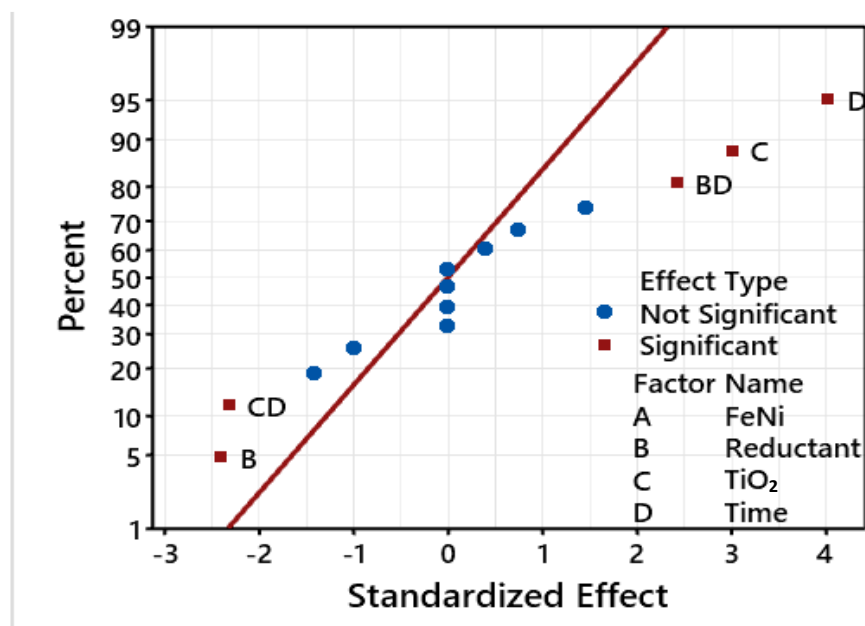


Fig. S1 Normal Plot of the Standardized Effects of Calorific Value (Cal/g)

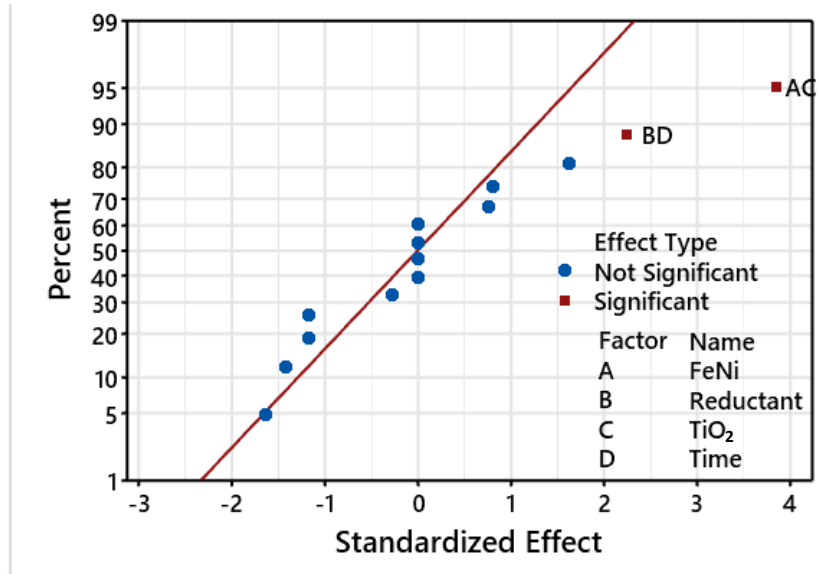


Fig. S2 Normal Plot of the Standardized Effects of Density (Kg/m³)

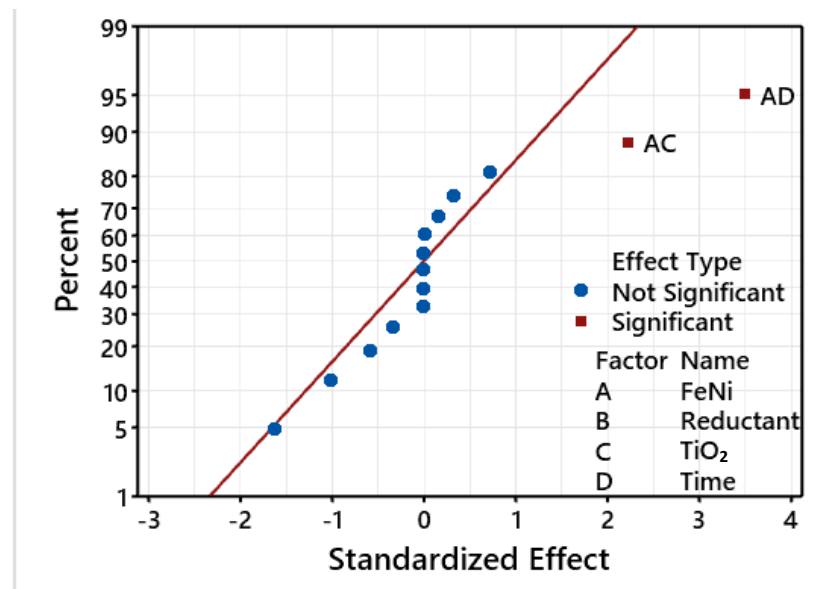


Fig. S3 Normal Plot of the Standardized Effects of Catalyst Yield

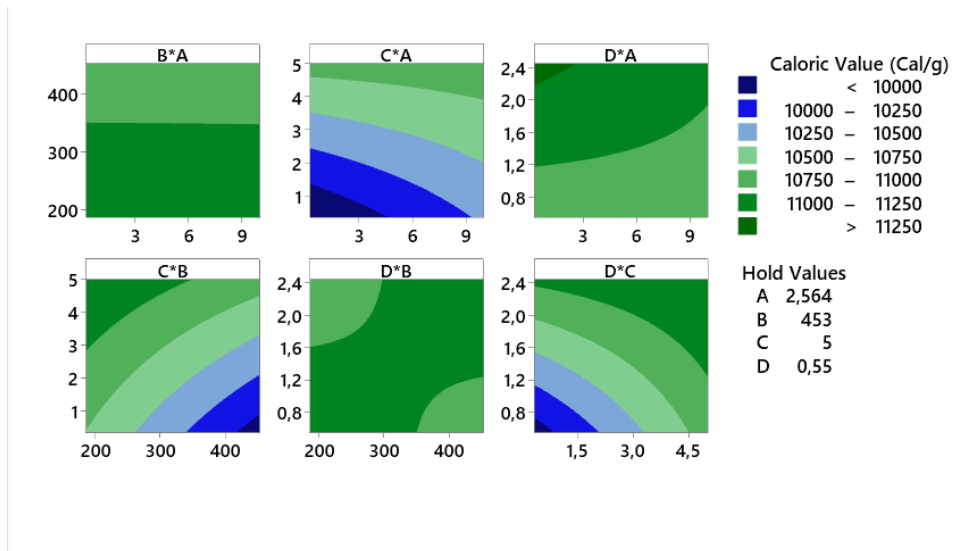


Fig. S4 Contour Plots of Caloric Value (Cal/g)

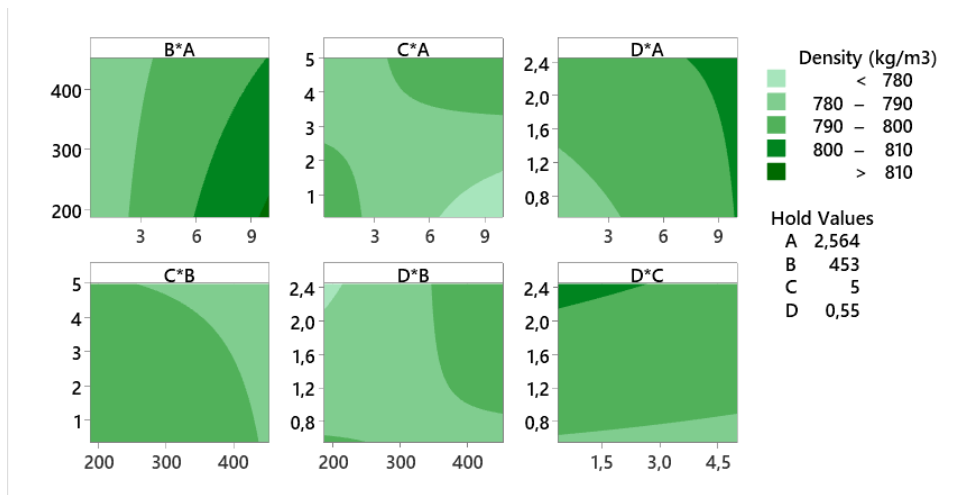


Fig. S5 Contour Plots of Density (Kg/m³)

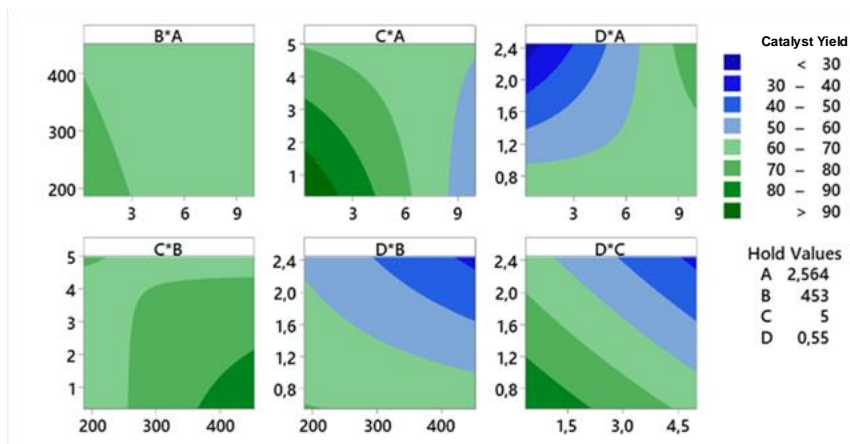


Fig. S6 Contour Plots of Catalyst Yield

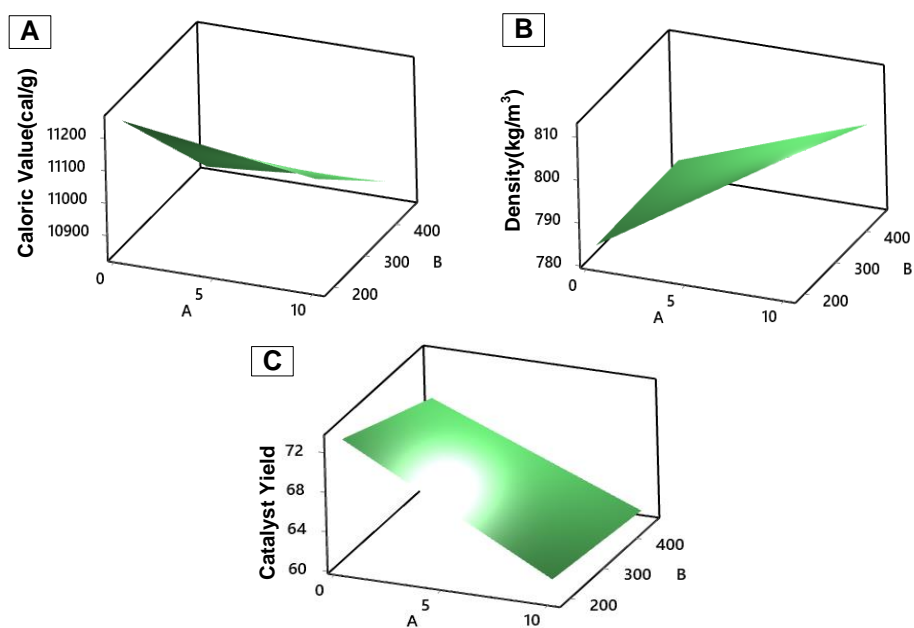


Fig. S7 Surface Plots of a calorific value (cal/g), b density (kg/m³), and c catalyst yield

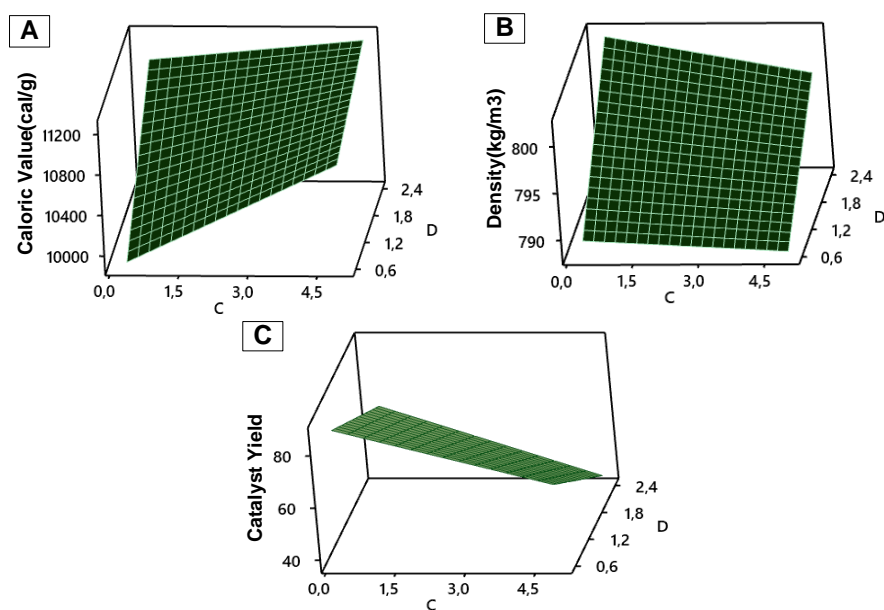


Fig. S8 Surface Plots of (a) calorific value (cal/g), (b) density (kg/m³), and (c) catalyst yield

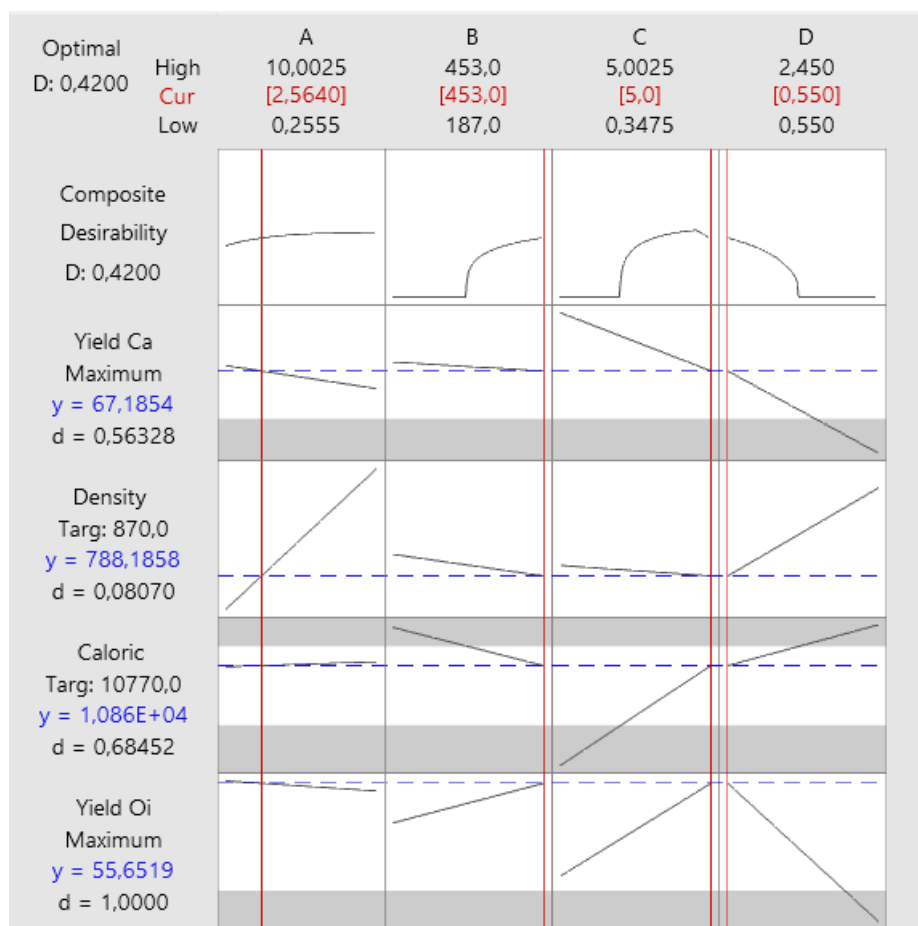


Fig. S9 Response Optimization: Yield Catalyst; Density (kg/m³); Caloric Value (Cal/g); Oil Yield

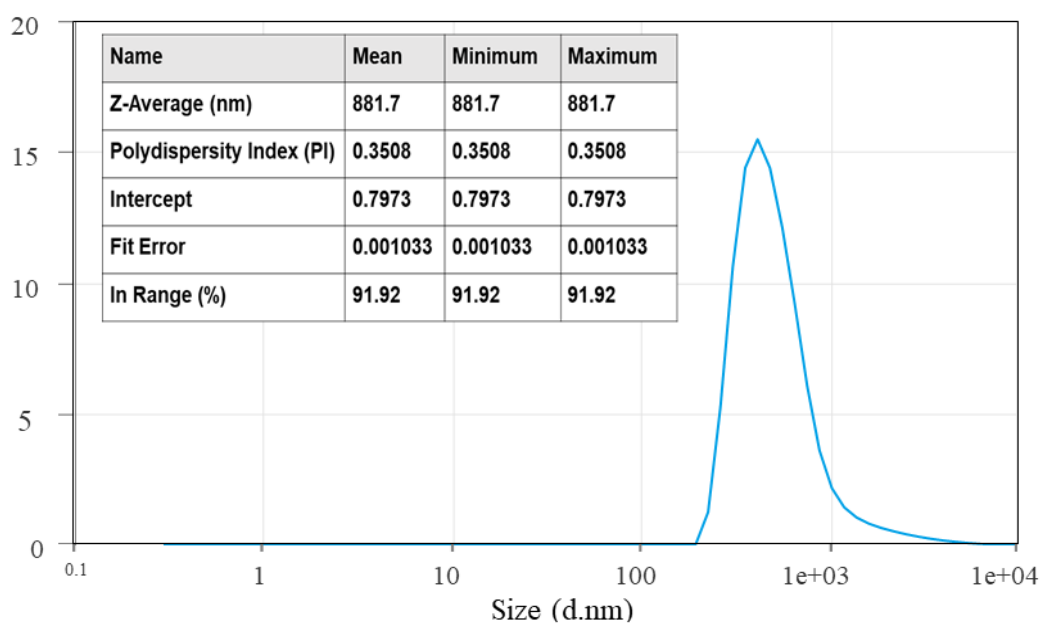


Fig. S10 Particle size distribution of the TiO₂ support was measured using a Particle Size Analyzer (PSA)