

## Accepted Manuscript

Title: Fluidizable Ni/La<sub>2</sub>O<sub>3</sub>- $\gamma$ Al<sub>2</sub>O<sub>3</sub> Catalyst for Steam Gasification of a Cellulosic Biomass Surrogate

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### Highlights

- A new fluidizable Ni catalyst supported on La<sub>2</sub>O<sub>3</sub> modified  $\gamma$ -Al<sub>2</sub>O<sub>3</sub>
- La<sub>2</sub>O<sub>3</sub> promotes both  $\gamma$ -Al<sub>2</sub>O<sub>3</sub> stability and nickel enhanced properties
- Catalytic biomass gasification is developed in a fluidized bed CREC Riser Simulator
- Catalyst displays improved reactivity and close to equilibrium gasification
- Observed catalyst reactivity is in line with its enhanced structural properties

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