



Rhenium borides (Re_3B and ReB_2) mechanosynthesis and their use as a catalyst for H_2 production from biomass pyrolysis

M.G. Granados-Fitch^a, J.M. Quintana-Melgoza^b, E.A. Juarez-Arellano^c, M. Avalos-Borja^a  

[Show more](#) 

 Share  Cite

<https://doi.org/10.1016/j.materresbull.2020.111180> 

[Get rights and content](#) 

Highlights

- Re_3B mechanosynthesis is reported for the first time.
- ReB_2 and Re_3B are used in catalytic H_2 production by CS pyrolysis.
- 800 °C and 10 wt % of catalyst are the optimal values to enhance H_2 production.
- Re_3B reaches 77.4 % H_2 yield at optimal conditions.
- A mechanism for H_2 formation is proposed from CS pyrolysis.

Abstract

In this study, we report on Re_3B and ReB_2 mechanosynthesis. Re_3B and ReB_2 are used as catalysts in H_2 production by coconut shell pyrolysis from 500 to 800 °C and using 5, 10, and 20 wt % of catalyst. H_2 , CH_4 , and CO production is monitored using gas chromatography with a thermal conductivity