Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Supporting Information

Hydrogen Production by the Water-Gas Shift Reaction using $CuNi/Fe_2O_3$ Catalyst

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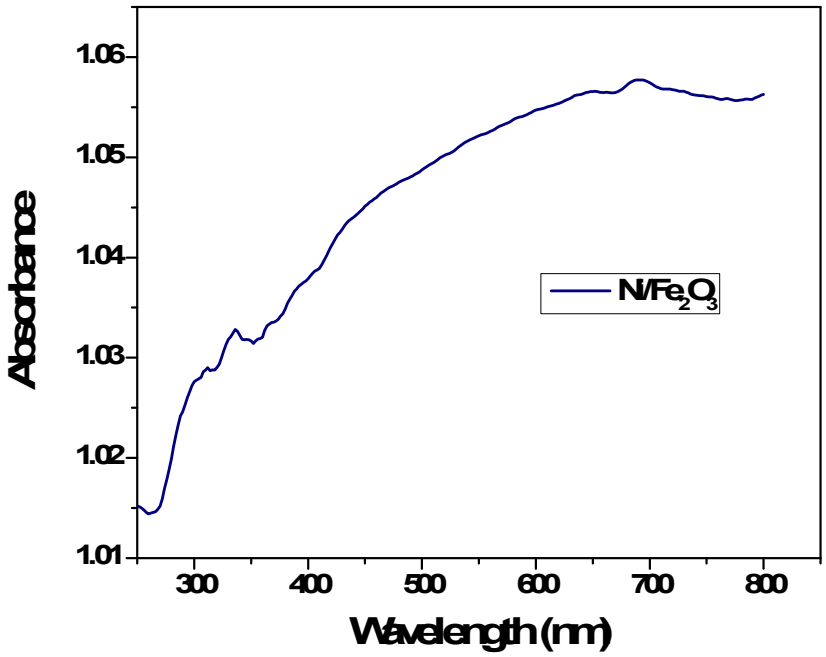

Fig. S1. Diffuse reflectance spectrum of the Ni/Fe_2O_4 catalyst.

Fig. S1 shows the diffuse reflectance spectrum of the Ni/Fe_2O_4 catalyst after reduction. It shows two bands; the first in the range of 300-400 nm and the second at ~700 nm. The initial band was corresponds to the charge transfer transitions from O^{2-} 2p to Fe^{3+} 3d-orbitals[1] and the last band was attributed to the $NiFe_2O_4$, which corresponds to the Ni ions in the octahedral sites.[2] This suggests that Ni in the Ni/Fe_2O_4 catalyst was present in the oxidized form under the reduction conditions used for the reaction not as a metallic phase (Ni^0).

References

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2. S. Balaji, R. K. Selvan, L. J. Berchmans, S. Angappan, K. Subramanian, C. O. Augustin, *Mater. Sci. Eng. B*, 2005, **119**, 119.