

Supporting Information

Direct Coal Liquefaction with Fe₃O₄ Nanocatalysts Prepared by a Simple Solid-State Method

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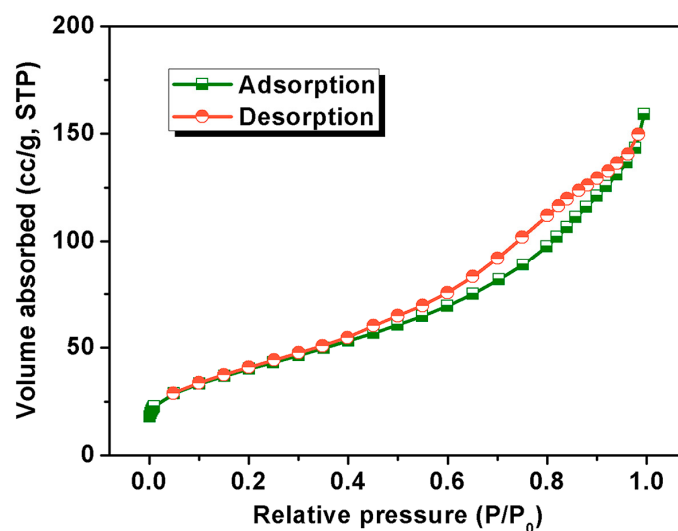


Figure S1. Nitrogen adsorption-desorption isotherm of Fe₃O₄ nanoparticles.

Table S1. Summary of catalytic activities for the direct coal liquefaction with various catalysts.

Catalyst	Coal	Temperature (°C)	Initial H ₂ Pressure (MPa)	Holding Time (min)	Conversion (wt %)	Oil Yield (wt %)
Fe ₃ O ₄ NPs (this work) ^a	Dahuangshan	430	6	60	96.6	60.4
Fe ₃ O ₄ NPs (this work) ^a	Heishan	430	6	60	74.6	55.4
Fe ₃ O ₄ NPs capped with oleic acid [1]	Heishan	430	6	60	89.6	65.1
γ-FeOOH [2]	Yallourn	450	12	60	98.4	51.9
Nanosized iron dispersed on coal [3]	Shenhua	430	5	30	87.0	65.0
Fe ₂ S ₃ supported on coal [4]	Yanzhou	490	7	5	84.0	49.0
Fe ₂ S ₃ supported on coal [5]	Daliuta	440	6	30	68.8	59.5
FeNi supported on carbon NPs [6] ^a	Tanito Harum	450	15	105	99.0	80.0
FeNi supported on carbon NPs [7] ^a	Adaro	450	15	60	99.0	68.0

^a NPs = Nanoparticles.

References

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