

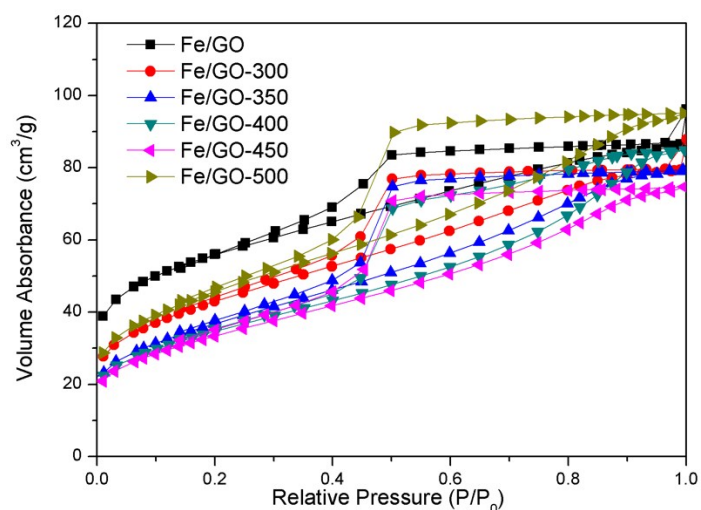


Fig S1 The N₂ adsorption and desorption isotherms of the prepared catalysts.

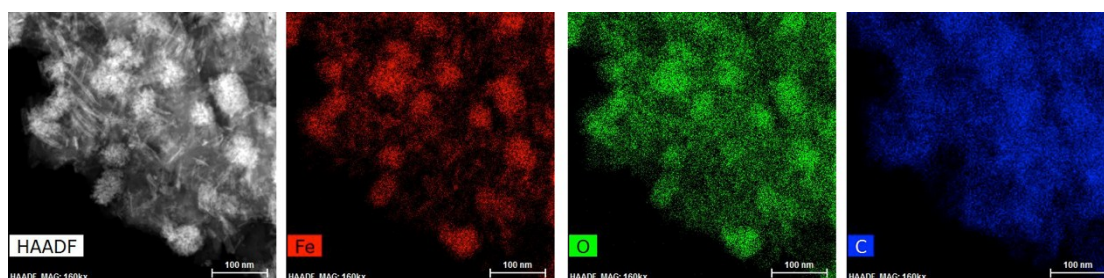


Fig S2 STEM images of Fe/GO-300 and corresponding mapping.

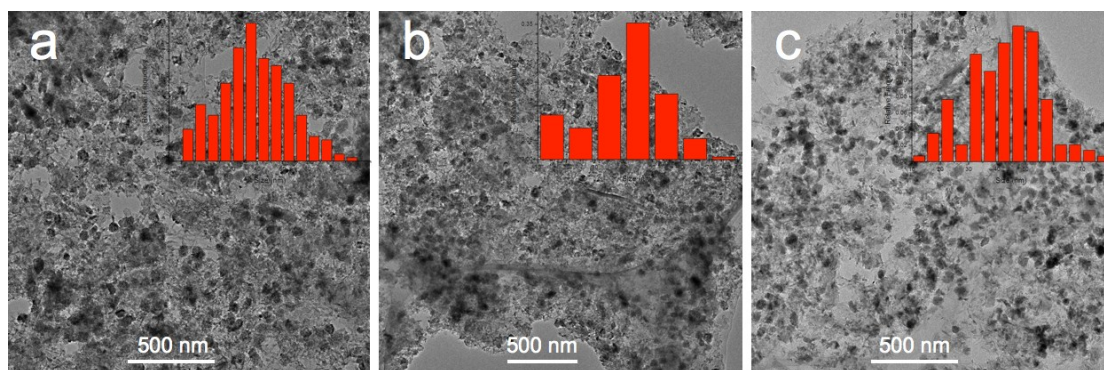


Fig S3 TEM images of (a) Fe/GO-350; (b) Fe/GO-400; (c) Fe/GO-450.

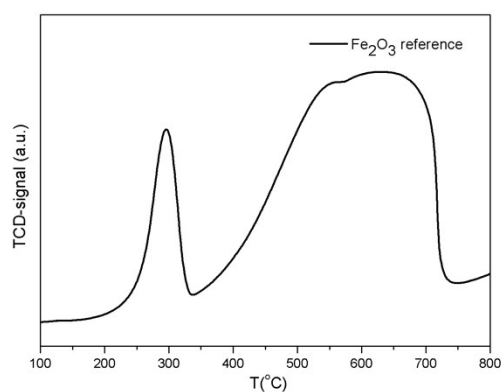


Fig S4 H₂-TPR profile of the Fe₂O₃ reference.

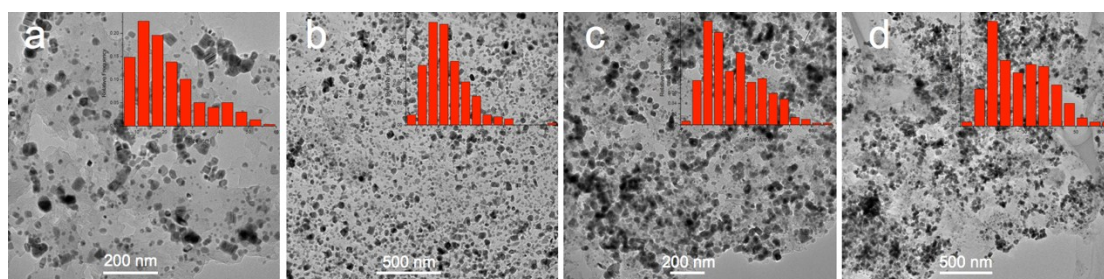


Fig S5 TEM images of (a) Fe/GO-300; (b) Fe/GO-350; (c) Fe/GO-400 and (d) Fe/GO-450 after FTS.

Table S1 The area ratios of C-C/C=C, C-O, C=O species

Catalysts	C-C/C=C (%)	C-O (%)	C=O (%)
Fe/GO	58	31	11
Fe/GO-300	68	14	18
Fe/GO-350	67	17	16
Fe/GO-400	70	14	16
Fe/GO-450	69	17	14
Fe/GO-500	73	17	10