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## Self pH regulated iron(II) catalyst for radical free oxidation of benzyl alcohols



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### ABSTRACT

Selective oxidation of various aromatic benzyl alcohols to benzaldehydes was found to be catalyzed with 90% conversion and 99% selectivity by an iron (II) catalyst herein designated as Fe-DDPA [DDPA = 3'-disulfanediyldipropionic acid]. The Fe-DDPA catalyst was prepared by a small loading of FeCl<sub>2</sub> into a 2D sheet formed by the supramolecular assembling of DDPA. From both solid and liquid state nuclear magnetic resonance (NMR) spectroscopic study it was evident for the stabilization of the Fe(II) center through Fe-S interaction with the disulfide (S-S) unit of DDPA. DDPA was found to serve as an excellent support to maintain a pH that was