

### Wet air oxidation of phenol over Cu/Al<sub>2</sub>O<sub>3</sub> catalysts

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Wet oxidation of phenol was conducted over the supported transition metal oxide catalysts (Mn, Fe, Co, Ni, or Cu on Al<sub>2</sub>O<sub>3</sub>) and the Cu/Al<sub>2</sub>O<sub>3</sub> showed the highest catalytic activity among the tested catalysts, which might be related to the surface reducibility of the catalyst. The supported Cu oxide catalysts of different Cu loading were prepared and the optimum Cu loading for the wet oxidation was found. The activity of the Cu catalysts were explained with the surface area, surface reducibility, crystal structure of Cu, etc. which were characterized with N<sub>2</sub> adsorption, TPR (Temperature Programmed Reduction), XRD, etc. The reaction pathway was suggested from the detected reaction intermediates.