



Catalytic Oxidation of CO over Pure And Doped Cu-Ni-O System

A.M.Turky

Chemistry Department, Faculty of Science, Suez Canal University, Ismailia, **EGYPT**

Email: amturky1@yahoo.com

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ABSTRACT

Gas phase catalytic oxidation of CO by oxygen at temperature range 175-225°C was studied over pure and Na₂O-doped binary CuO-NiO system. CuO content was varied between 20-50 mol% and dopant concentration was varied between 2-8 molpercent. All samples were prepared by wet impregnation method followed by thermal treatment at 400 and 600°C. The techniques employed were XRD, EDX, nitrogen adsorption at -196°C and gas phase oxidation of CO by oxygen adopting static method. Results revealed that the CuO-NiO system with chemical composition of CuO-4NiO was the most catalytically active one for CO oxidation. This system in particular was subjected to Na₂O-doping which resulted in further improvement of its catalytic activity. Doping process brought about a considerable change as to surface characteristic of the investigated system. Activation energy values indicated that doping process did not modify the energetic nature of this catalyzed reaction but rather changed the concentration of the active sites involved.

Keywords: CO oxidation, mixed Cu-Ni-O catalyst, Na₂O-doping.
