

21st International Conference on

Past and Present Research Systems on Green Chemistry

August 27-28, 2018 | Boston, USA

Supported copper and silver bi-metallic catalysts preparation and characterisation for oxidation reaction

Luter Leke

Benue State University, Nigeria

The partial oxidation of methanol to formaldehyde with air as oxidant has been studied with supported monometallic catalysts of copper and silver and their bimetallics over a range of temperature and contact times. This was done to ascertain the effect the bimetallics has on the reaction pathways and subsequently on the product distribution of the oxidation products of methanol. These catalysts were prepared by the impregnation method. Characterisation was performed by nitrogen adsorption and porosity measurements, XRD, and TPR of the samples prepared. These results indicated no crystalline phases of the loaded metals to be present. The reduction peaks from TPR also revealed the presence of partially oxidised and dispersed metal atoms. Results showed the formaldehyde selectivities and yields were generally low, they were highest for the bimetallics supported on the silica catalyst than the monometallics and alumina supported samples. Copper-silver interaction in the bimetallic system was proposed to enhance the reduction of the silver and hence the selectivity to formaldehyde. In particular under conditions, low conversions of methanol saw highest selectivities to formaldehyde.