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Evaluation of effect of different solvents on the oxidation of benzyl alcohol & cyclohexanol using modified clays

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Oxidation of benzyl alcohol to benzaldehyde and cyclohexanol to cyclohexanone was used as a model reaction to check the activity of modified clays (Surfactant immobilized- interlayered-manganate & chromate clays and metal cation exchanged clays impregnated with manganate /chromate) in presence of different solvents (like benzene, hexane, acetonitrile, ethyl acetate, n-butyl acetate and benzyl acetate). Study was carried out to evaluate the effect of different solvents (both polar and non polar) on the yield of the products obtained after the oxidation of benzyl alcohol and cyclohexanol. Polar solvents showed higher yield compare to non polar solvents. The yield was also found to increase with high boiling solvents. It is observed that as boiling point of solvents increases it enhances the rate of the reaction. Oxidation of benzyl alcohol and cyclohexanol can be carried out by conventional method using oxidizing agents in presence of Bronsted acids such as H2SO4, HF and HCl. But these catalysts are corrosive, non-reusable, difficult to isolate from the reaction mixture, form unwanted side products, difficult to handle and require tedious work up procedure. The increasing environmental pollution and economical constraints encouraged chemists to develop clean and high performance catalysts. In this direction, attention has been paid to heterogeneous or heterogenized clay catalysts system in presence of various solvents for oxidation reactions which are eco friendly, low cost etc. Thus modified clays in presence of different solvents could be advantageously used in the oxidation of alcohols.

Biography

N. Suma has completed her Ph.D. at the age of 42 years from Visveswaraya Technological University, Belgaum, Karnataka, India during the year 2012. She has totally 17 years of teaching experience and published 7 international and national papers in reputed journals. She has presented papers at international conferences. Three years back she had presented paper at international conference held at Kunming, China. Now she is working as Professor and HOD at Global Academy of Technology, Bangalore, India. Presently she is involved in research in the field of green chemistry, organic chemistry and material Science.

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