

Heterogeneous Metal Catalysts for Oxidation Reactions

Md. Eaqub Ali^a, Md. Motiar Rahman^a, Shaheen M. Sarkar^b, and Sharifah Bee Abd Hamid^a

^aNanotechnology and Catalysis Research Centre (NanoCat), Universiti of Malaya, 50603 Kuala Lumpur, Malaysia

^bFaculty of Industrial Sciences and Technology, University Malaysia Pahang, 26300 Gambang, Kuantan, Malaysia

ABSTRACT

Oxidation reactions may be considered as the heart of chemical synthesis. However, the indiscriminate uses of harsh and corrosive chemicals in this endeavor are threatening to the ecosystems, public health, and terrestrial, aquatic, and aerial flora and fauna. Heterogeneous catalysts with various supports are brought to the spotlight because of their excellent capabilities to accelerate the rate of chemical reactions with low cost. They also minimize the use of chemicals in industries and thus are friendly and green to the environment. However, heterogeneous oxidation catalysis are not comprehensively presented in literature. In this short review, we clearly depicted the current state of catalytic oxidation reactions in chemical industries with specific emphasis on heterogeneous catalysts. We outlined here both the synthesis and applications of important oxidation catalysts. We believe it would serve as a reference guide for the selection of oxidation catalysts for both industries and academics.

DOI: 10.1155/2014/192038