Study the Catalytic Oxidation of Phenol in both Baskets Stirred Tank and Packed Bed Reactors

Abstract- The aim of this study, using five types of AL-Fe pillared Iraqi clay to study catalyst wet air oxidation to oxide phenol from synthesis’s wastewater and study the limitation criteria in control of operating conditions. Two types of reactor (Batch and packed bed) used to study operation conditions and the best conditions result from Batch reactor was pressure 3.2Mpa, temperature 130 °C, phenol concentration 500mg/l and pH 3.9, for packed bed reactor with AL-Fe pillared clays of Anbar-Erbil, Mosul, due to high phenol removal, in up-flow mode. The results show that phenol removal is 98-97.8-95% for Erbil-Mosul-Anbar respectively, when the LHSV used in reactor 0.6 h⁻¹, and gas flow 0.28cm/s, also it can be seen that the limitation criteria in control of operating conditions, and Mosul pillared consider more stable and activity than Erbil and Anbar.

Keywords- Catalytic, catalyst wet air oxidation, Limitation, phenol.