Wahyu Setya Rini, 2019, *Graphene Oxide* (GO) from Corncobs As Catalyst of Composite GO-Fe_3O_4 for Phenol Degradation By Fenton-*like process.* This final project is supervised by Dr.rer.nat Ganden Supriyanto, M.Sc dan Ahmadi Jaya Permana, S.Si, M.Si., Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya.

ABSTRACT

The purpose of this research is to determine the effectiveness of composite graphene oxide (GO)-Fe_3O_4 for degradation of phenol in industrial wastewater. Graphene oxide (GO) from graphite based on corncobs was synthesized through three main steps, hydrolysis at 100°C, pyrolysis at 600°C, and desillication using hydrofluoric acid (HF) solution. GO was composited with Fe_3O_4 as a catalyst for degradation of phenol by Fenton-like process. Characterization using FTIR showed the typical functional groups of GO, namely C-O, C = O, C = C aromatic, and OH and Fe-O. The characterization using XRD showed peaks at position 2θ 35.16° and formed structure of catalyst GO-Fe_3O_4 amorphous. In this research using variations parameters of the degradation time, dose of catalyst, concentration of H_2O_2, and pH. The optimum results were obtained with a catalyst dose of 0.1 g / L, the final concentration of H_2O_2 was 15 mM, and pH 4 at 30 ° C for 30 minutes successfully degraded samples 1 and 2 by 56,03 and 51.95%.

Keywords : *corncobs, graphene oxide, phenol, fenton-like process*