

# # C416645 : MAJOR CHEMICAL ENGINEERING

KEY WORD: INDUSTRIAL SCALE NO<sub>x</sub> ABSORBER/ MASS TRANSFER COEFFICIENT  
ATICHAT WONGKOBLAP :<sup>x</sup> PERFORMANCE STUDY OF INDUSTRIAL-SCALE NO<sub>x</sub>  
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In the manufacturing process of Nitro Cellulose, NO<sub>x</sub> occurs from nitration process. Absorber is used to remove NO<sub>x</sub> from the effluent gas, recover nitric acid and prevent environment from pollutants.

One of industrial absorbers for aqueous nitric acid absorption of NO<sub>x</sub> is the Packed column. A hydrodynamic model of the column; the effects of liquid flowrate, gas flowrate and nitric acid concentration on column efficiency; correlation between mass transfer coefficient and efficiency were studied in this experiment.

The hydrodynamic model of the column was found similar to liquid flowing through 4 equal stirred-tanks reactors. The efficiency was found to be higher when liquid flowrates were higher but to be lower when gas flowrates and acid concentrations were higher. Its efficiency did not depend much on the mass transfer coefficient.