Simulation of Ammonia Production Plant by Using Aspen Hysys

BY

Mohamed Nasser Mohamed Ibrahim

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science
In
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Under the Supervision of

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Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledge all sources used and have cited them in the references section

Name: Mohamed Nasser Mohamed Date:

Signature:

Dedication

I would like to dedicate the present work to my family, my parents and my brothers, who have been supporting me in all steps of my life.

Acknowledgment

Praise to "Allah", the Most Gracious and the Most Merciful Who Guides Us to the Right Way

All praises and thanks to Allah, the lord of the Words, the sustainer of the universe, and the rule of the day of resurrection. He provided me with all means of support, guidance, patience and ability to complete this work.

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Nomenclature

Abbreviations

M.P	Melting Point
B.P	Boiling Point
EPA	Boiling Point
KAAP	Kellogg Advanced Ammonia Process
KBR	Kellogg Brown and Root
KRES	Kellogg Reforming Exchanger System
LAC	Linde Ammonia Concept
LCA	Leading Concept Ammonia
ICI	Imperial Chemical Industries
GHR	Gas Heated Reformer
PSA	Pressure Swing Adsorption
PFD	Process Flow Diagram
EOS	Equation of State
GCOES	Generalized Cubic Equation of State
SRK	Soave-Redlich-Kwong
VLE	Vapor Liquid Equilibrium
PR	Peng-Robinson
LKP	Lee-Kesler Plocker
HEN	Heat Exchanger Network
LTS	Low Temperature Shift Conversion
HTS	High Temperature Shift Conversion