بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية
التوثيق الالكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

بعض الوثائق

الأصلية تالفة

بالرسالة صفحات
لم ترد بالأصل

PROCESS DESIGN OPTIMIZATION OF PROPANE ABSORPTION REFRIGERATION CYCLE OPERATING WITH DIFFERENT HYDROCARBON SOLVENTS

By

Neama Mohamed Naser Madany

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
Chemical Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

PROCESS DESIGN OPTIMIZATION OF PROPANE ABSORPTION REFRIGERATION CYCLE OPERATING WITH DIFFERENT HYDROCARBON SOLVENTS

Key Words:

Absorption Refrigeration; Propane; Hydrocarbons ; COP ; Design Optimization

Summary:

In this study, six innovative process modifications of an absorption refrigeration cycle are simulated using ASPEN HYSYS software. The simulations' performance is evaluated considering two working fluid pairs namely, (propane-methyl cyclopentane) and (propane - ethyl cyclopentane). The performances of all proposed schemes are investigated at different operating conditions to select the optimum design scheme. The optimum design performance is compared to commercial cycles. A single absorption refrigeration cycle with a splitter and double heat exchangers revealed the highest performance among all proposed schemes at all operating conditions. Double absorbers and multi-absorbers cycle can compete effectively with all proposed cycles but at specific operating conditions depending on the process requirements of chilling temperatures so they are considered as a tailor-made design.

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 acknowledged all sources used and have cited them in the references section.

Name: Neama Mohamed Naser Madany Date:

Signature:

Dedication

This work is dedicated to my beloved family specially my parents, my husband, and my children, for their encouragement, understanding, and contributions.

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Contents