OPTIMIZING ISOTACTIC POLYPROPYLENE MEMBRANE
PREPARATION CONDITION VIA TIPS FOR CARBON DIOXIDE AND
NITROGEN SEPARATION

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MASTER OF CHEMICAL ENGINEERING
UNIVERSITI MALAYSIA PAHANG
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Thesis submitted in fulfillment of the requirements for the award of the degree of Master of Engineering in Chemical

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TABLE OF CONTENTS

SUPERVISOR’S DECLARATION i
STUDENT’S DECLARATION ii
ACKNOWLEDGEMENTS iv
ABSTRACT v
ABSTRAK vi
TABLE OF CONTENTS vii
LIST OF TABLES xi
LIST OF FIGURES xiii
LIST OF SYMBOLS xvi
LIST OF ABBREVIATIONS xvii

CHAPTER 1 INTRODUCTIONS

1.1 Research Background 1
1.2 Problem Statement 4
1.3 Objectives of Research 6
1.4 Research Scopes 6
1.5 Significant of the Research 7

CHAPTER 2 LITERATURE REVIEWS

2.1 Membrane Separation Technology 8
2.2 Membrane Materials 9
2.2.1 Inorganic Membranes 10
2.2.2 Polymeric Membranes 11
2.3 The Formation of Porous Structure via TIPS and NIPS 14
2.4 Polymer-Diluent System and Relationship with The Phase Diagram 17
2.5 Parameters effect the iPP Membrane Preparation using TIPS Method

2.5.1 Effect of Molecular Weight and Molecular Structure Contribution 18

2.5.2 Effect of Polymer Concentration 19

2.5.3 Effect of Temperature for Homogeneous Solution 20

2.5.4 Effect of Evaporation Time 20

2.5.5 Effect of Cooling Rate During Quenching Process 21

2.5.6 Effect of Quenching Condition 21

2.5.7 Effect of Types of Diluents 22

2.5.8 Effect of Drying Temperature and Drying Rate 23

2.5.9 Effect of Additives 24

2.6 Water and Carbon Dioxide Recovery Technology from Boiler Flue gas

2.6.1 Heat Exchangers to Condense the Water 26

2.6.2 Desiccant to Absorb the Water 26

2.6.3 Nano Technology 27

2.7 Gas Separation 28

2.7.1 Mechanism of Gas Separation 28

2.8 The Hydrophobic Membranes Properties 33

CHAPTER 3 METHODOLOGY

3.1 Introduction 35

3.2 Materials 36

3.2.1 Isotactic Polypropylene (iPP) 37

3.2.2 Additive 37

3.2.3 Diluents 38

3.2.4 Solvent 38
3.3 Experiment Procedure on the iPP Membrane Preparation
  3.3.1 Effect of Additive Concentration on Contact Angle
  3.3.2 Effect of Immersion Time in Methanol and Drying in Oven
3.4 Characterization / Analysis Method
  3.4.1 Scanning Electron Microscopy (SEM)
  3.4.2 Fourier Transform Infrared (FTIR)
3.5 Membrane Performance Study
  3.5.1 Hydrophobicity/ Contact Angle
  3.5.2 Permeability and Selectivity
3.6 Response Surface Methodology (RSM)
  3.6.1 Factorial Analysis by $2^3$ Factorial Design (FFD)
  3.6.2 Optimization by Central Composite Design (CCD)

CHAPTER 4 RESULT AND DISCUSSIONS

4.1 Effect of Adipic Acid Concentration to The Contact Angle Measurement
4.2 Effect of Immersion and Drying Time
4.3 Characterization
  4.3.1 Effect of Diluent Type on the Membrane Pore Morphology
  4.3.2 Effect of Adipic Acid Concentration on the Membrane Pore Morphology
  4.3.3 Effect of Adipic Acid on Chemical Composition of PP-DPE and MS Membrane
4.4 Permeability and Selectivity of the Fabricated Membrane
  4.4.1 Effect of Adipic Acid Concentration on the Permeability of the PP-DPE/MS Membrane
  4.4.2 Effect of Additive Concentration on Selectivity of the
Membrane

4.5 Factorial Analysis by 2-Level Factorial Design 80

4.5.1 Main Factor and Interaction Factors Contribution 84

Effect

4.5.1.1 Interaction Effect by Drying Temperature-Drying Time on the Contact Angle and Selectivity 84

4.5.1.2 Interaction Effect by Concentration-Dry Temperature/Dry time on the Contact Angle 86

4.5.2 The Best Condition obtained by FFD and Data Prediction for CCD 88

4.6 Optimization by Central Composite Design (CCD) 89

4.6.1 Confirmation Runs 95

4.6.2 Characterization of Optimum Membrane 96

4.6.2.1 Morphology and Pores Structure 96

4.6.2.2 Chemical Compositions on Membrane with Optimum Condition 100

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions 101

5.2 Future Works 103

REFERENCES 104

LIST OF PUBLICATIONS 113

APPENDIX A 114

APPENDIX B 118

APPENDIX C 120
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Tables No</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The world regions identified for most CO₂ emission</td>
<td>2</td>
</tr>
<tr>
<td>2.1</td>
<td>The strengths and limitations of the ceramic membranes</td>
<td>10</td>
</tr>
<tr>
<td>2.2</td>
<td>The surfaces tension and contact angle of the polymer based material</td>
<td>12</td>
</tr>
<tr>
<td>2.3</td>
<td>Cost of commercial membranes</td>
<td>12</td>
</tr>
<tr>
<td>2.4</td>
<td>The type of polymer-diluents system studied prepared by TIPS technique</td>
<td>22</td>
</tr>
<tr>
<td>2.5</td>
<td>Various additives in iPP homogeneous solution</td>
<td>25</td>
</tr>
<tr>
<td>2.6</td>
<td>The transport mechanisms used to describe gas separation using membrane</td>
<td>29</td>
</tr>
<tr>
<td>2.7</td>
<td>CO₂/N₂ transport properties of glassy polymer</td>
<td>32</td>
</tr>
<tr>
<td>2.8</td>
<td>Molecular weight (Da) and kinetic diameter (Å) of gases encountered in membrane gas separation</td>
<td>32</td>
</tr>
<tr>
<td>2.9</td>
<td>Contact angle of commercial membranes</td>
<td>34</td>
</tr>
<tr>
<td>3.1</td>
<td>The physical properties of the isotactic polypropylene</td>
<td>37</td>
</tr>
<tr>
<td>3.2</td>
<td>Properties of iPP and solvents used in membrane preparation</td>
<td>38</td>
</tr>
<tr>
<td>3.3</td>
<td>The weight loss distributed by immersing in methanol bath and drying in the oven</td>
<td>41</td>
</tr>
<tr>
<td>3.4</td>
<td>Design arrangement using polymer concentration (15 - 25 wt %), immersion time (5 -10 h), drying temperature (55 - 65 °C) and drying time (20 - 60 min)</td>
<td>47</td>
</tr>
<tr>
<td>3.5</td>
<td>Experimental table for optimization of drying temperature (51-59 °C) and drying time (10 -30 min) using CCD</td>
<td>48</td>
</tr>
<tr>
<td>4.1</td>
<td>Experimental data obtained from using 2-level factorial design</td>
<td>81</td>
</tr>
<tr>
<td>4.2</td>
<td>Analysis of variance for the regression model for contact angle</td>
<td>82</td>
</tr>
<tr>
<td>4.3</td>
<td>Analysis of variance for the regression model for selectivity</td>
<td>82</td>
</tr>
<tr>
<td>4.4</td>
<td>Low and high level of factors setting for CCD</td>
<td>89</td>
</tr>
<tr>
<td>4.5</td>
<td>Experimental table for optimization using CCD</td>
<td>89</td>
</tr>
<tr>
<td>4.6</td>
<td>ANOVA for the contact angle response surface quadratic model</td>
<td>90</td>
</tr>
<tr>
<td>4.7</td>
<td>ANOVA for the selectivity response surface quadratic model</td>
<td>91</td>
</tr>
<tr>
<td>4.8</td>
<td>Confirmation runs</td>
<td>96</td>
</tr>
<tr>
<td>4.9</td>
<td>The pore size distribution and average pores size of fabricated membrane</td>
<td>99</td>
</tr>
</tbody>
</table>
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figures No</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Type and structure of membranes (a) symmetrical membranes and (b) anisotropic membranes</td>
<td>9</td>
</tr>
<tr>
<td>2.2</td>
<td>The molecular structure changing of propylene to polypropylene by either Zieglar-Natta Polymerization or metallocene catalysis process</td>
<td>13</td>
</tr>
<tr>
<td>2.3</td>
<td>The molecular structures of isotactic, syndiotactic and atactic polypropylene</td>
<td>14</td>
</tr>
<tr>
<td>2.4</td>
<td>Preparation of the porous PP membrane using the thermally induced phase separation method</td>
<td>15</td>
</tr>
<tr>
<td>2.5</td>
<td>The polymer and diluents were mixed into a precipitation bath to promote liquid-liquid demixing</td>
<td>16</td>
</tr>
<tr>
<td>2.6</td>
<td>Particle formation in phase diagram through TIPS process</td>
<td>17</td>
</tr>
<tr>
<td>2.7</td>
<td>Schematic of the structure of (a) DPE and (b) MS diluents</td>
<td>23</td>
</tr>
<tr>
<td>2.8</td>
<td>Effect the solvent evaporation temperature and time on membrane porosity</td>
<td>24</td>
</tr>
<tr>
<td>2.9</td>
<td>Methods and technologies for CO₂ recovery</td>
<td>27</td>
</tr>
<tr>
<td>3.0</td>
<td>Illustration of contact angle formed on the smooth solid surface</td>
<td>33</td>
</tr>
<tr>
<td>3.1</td>
<td>Overall flowchart of the experimental procedure</td>
<td>36</td>
</tr>
<tr>
<td>3.2</td>
<td>Flowchart of the membrane preparation using various adipic acid mass fraction</td>
<td>40</td>
</tr>
<tr>
<td>3.3</td>
<td>The illustration of the permeation gas</td>
<td>43</td>
</tr>
<tr>
<td>4.1</td>
<td>The effect of additive concentration on the contact angle measurement on membrane surfaces using two types of diluents (a) DPE and (b) MS</td>
<td>51</td>
</tr>
</tbody>
</table>
4.2 Weight loss contributed by evaporation (a) by immersion in methanol, (b) drying on oven for 1 hr 54

4.3 Final morphologies and structure of cross section membranes prepared without the additive with magnification of 5kx. Where (a) iPP-DPE and (b) iPP-MS membranes 56

4.4 Pore size distribution of iPP membranes fabricated from (a) DPE and (b) MS (without adding adipic acid) 57

4.5 Morphology of the iPP-DPE membrane at outer surface membranes without the additive at magnification of 2 kx. Where: (a) bottom and (b) top surface 59

4.6 Morphology of the iPP-MS membrane at outer surface membranes without the additive at magnification of 2 kx. Where: (a) bottom and (b) top surface 59

4.7 Effect of adipic acid concentration on the morphology and cross section structures at magnification of 2 kx. Where: (a) 0.5 wt% on iPP-DPE and (b) 1.5 wt% on iPP-DPE,(c) 0.5 wt% on IPP-MS and (d) 1.5 wt% on IPP-MS 61

4.8 Pore size distribution of iPP-DPE membranes fabricated from (a) 0.5 wt% and (b) 1.5 wt% of the adipic acid 62

4.9 Pore size distribution of iPP-MS membranes fabricated from (a) 0.5 wt% and (b) 1.5 wt% of the adipic acid 63

4.10 Effect of adipic acid concentration on the morphology and structures at the bottom surfaces at magnification of 2 kx. Where: (a) 0.5 wt% on iPP-DPE and (b) 1.5 wt% on iPP-DPE,(c) 0.5 wt% on IPP-MS and (d) 1.5 wt% on IPP-MS 65

4.11 Effect of adipic acid concentration on the morphology and structures at the top surfaces at magnification of 2 kx. Where: (a) 0.5 wt% on iPP-DPE and (b) 1.5 wt% on iPP-DPE,(c) 0.5 wt% on IPP-MS and (d) 1.5 wt% on IPP-MS 66

4.12 FTIR spectrum of raw iPP pellet 68

4.13 FTIR spectrum (wavelengths, cm\(^{-1}\)) of PP-DPE at different of adipic acid concentration (a) 0 wt%, (b) 0.5 wt%, (c) 1.0 wt% and (d) 1.5 wt% 69

4.14 FTIR spectrum (wavelengths, cm\(^{-1}\)) of PP-MS at different of adipic acid concentration (a) 0 wt%, (b) 0.5 wt%, (c) 1.0 wt% 71
and (d) 1.5 wt% 

4.15 CO₂ permeability on the membrane prepared using (a) DPE (b) MS 74

4.16 N₂ permeability on the membrane prepared using (a) DPE (b) MS 75

4.17 Effect of additive concentration on the CO₂ / N₂ gas selectivity (a) iPP-DPE and (b) iPP-MS membrane 77

4.18 Carbon Dioxide permeability against selectivity relative to nitrogen of polymeric membranes examples presented here, small dot and mixed matrix membrane, larger dot with Robeson’s upper bound on performance. 79

4.19 Carbon Dioxide permeability against selectivity relative to nitrogen of iPP membranes prepared by using (a) DPE and (b) MS 79

4.20 The interaction effect graph between dry time and dry temperature on the (a) contact angle and (b) selectivity 85

4.21 The interaction effect graph between concentration and dry temperature on the contact angle measurement 87

4.22 The interaction effect graph between concentration and dry time on the contact angle measurement 88

4.23 Contour Plot (a) and 3D plot (b) for contact angle model graph 93

4.24 Contour Plot (a) and 3D plot (b) for selectivity model graph 94

4.25 Final morphologies and structure of PP-DPE membranes of the optimum membrane with magnification of 2 kx .Where a: cross section; b: bottom surface and c: top surfaces 97

4.26 Pore size distribution of the membrane prepared by dry temperature at 54.96 °C and drying time of 18.66 min 98

4.27 FTIR spectrum (cm⁻¹) of membrane with concentration 25 wt% using DPE diluents, immersion time of 5 hr, dry temperature of 54.96 °C and dry time in 18.66 minutes 100
LIST OF SYMBOLS

A  Isotactic polypropylene concentration (wt. %)
B  Immersion time in methanol (hour)
C  Dry Temperature (°C)
D  Dry Time (minutes)
K  Degrees of freedom associated with SSR
$R^2$  Coefficient of determination
$X_i$  Coded value of the $i$th independent variable
$X_i$  Uncoded value of the $i$th independent variable
$X_i^*$  Uncoded $i$th independent variable at the center point
$\Delta X_i$  Step change value
Y  Response

Greek symbols

$\beta_0$  Constant coefficient
$\beta_1/\beta_2$  Linear coefficient
$\beta_{11}/\beta_{22}$  Quadratic coefficients
$\beta_{12}$  Quadratic interaction coefficients
$\epsilon$  Approximation error
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPP</td>
<td>Isotactic polypropylene</td>
</tr>
<tr>
<td>RSM</td>
<td>Responds Surface Methodology</td>
</tr>
<tr>
<td>CCD</td>
<td>Centre Composite Design</td>
</tr>
<tr>
<td>TIPS</td>
<td>Thermally Induced Phase Separation</td>
</tr>
<tr>
<td>SEM</td>
<td>Scanning Electron Microscopy</td>
</tr>
<tr>
<td>FTIR</td>
<td>Fourier Transform Infrared Spectroscopy</td>
</tr>
<tr>
<td>DPE</td>
<td>Diphenyl Ether</td>
</tr>
<tr>
<td>PE</td>
<td>Polyethylene</td>
</tr>
<tr>
<td>PTFE</td>
<td>Polytetrafluorethylene</td>
</tr>
<tr>
<td>PVDF</td>
<td>poly (vinylidene fluoride)</td>
</tr>
<tr>
<td>N₂</td>
<td>Nitrogen</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
</tbody>
</table>