

Contents

Declaration.....	iv
Summary.....	v
Acknowledgments.....	vi
General scopes of the thesis.....	viii
Abbreviations.....	xiii
Contents.....	xiv

Chapter 1 Introduction.....	1
Chapter 2. Characterisation methodology.....	51
Instrumental techniques.....	53
Diffusivity properties of the membranes.....	73
Methods of analysis.....	96
Chapter 3. Swelling behaviour of Nafion membranes: characterisation of water and methanol absorbance.....	126
Chapter 4. Preparation and Thermal Characterisation of Liquid Crystals Dispersed on a Cellulose Acetate substrate.....	172
Chapter 5. Synthesis and characterisation of Poly(vinyl alcohol)-based materials for DMFC.....	196
Chapter 6. New side-chain liquid-crystalline copolymers containing proton conducting groups.....	264
Chapter 7. Preliminary results on the diffusion properties of the membranes.....	305
Chapter 8. Conclusions.....	321