

LIST OF TABLES

Table	Caption	Page
Table 1.1	Several polymer electrolyte systems and their conductivities	2
Table 2.1	Chemical structures and physical properties of common polymers used in polymer electrolytes	7
Table 2.2	Physical properties of some lithium-based inorganic salts	14
Table 2.3	Physical properties of common plasticizers used in polymer electrolytes	20
Table 3.1	Composition of PEMA/PVdF-HFP-LiTf polymer electrolyte system	37
Table 3.2	Composition of PEMA/PVdF-HFP-LiTf-EC polymer electrolyte system	39
Table 3.3	Composition of PEMA/PVdF-HFP-LiTf-PC polymer electrolyte system	39
Table 3.4	Composition of PEMA/PVdF-HFP-LiTf-BMII polymer electrolyte system	42
Table 3.5	Composition of PEMA/PVdF-HFP-LiTf-BMITf polymer electrolyte system	43
Table 4.1	Assignment of FTIR vibrational bands of PEMA and PVdF-HFP	51
Table 4.2	Assignment of FTIR vibrational modes in PEMA, PVdF-HFP and PEMA/PVdF-HFP (70:30) blend films	55
Table 4.3	Assignment of FTIR vibrational bands of LiTf	58
Table 4.4	FTIR vibrational modes of PEMA/PVdF-HFP blend polymer electrolytes incorporated with different wt.% of LiTf	68
Table 4.5	Assignment of FTIR vibrational bands of EC	70
Table 4.6	FTIR vibrational modes of PEMA/PVdF-HFP:LiTf (70:30, w/w) blend polymer electrolytes incorporated with different wt.% of EC	79

Table 4.7	Assignment of FTIR vibrational bands of PC	80
Table 4.8	FTIR vibrational modes of PEMA/PVdF–HFP:LiTf (70:30, w/w) blend polymer electrolytes incorporated with different wt.% of PC	91
Table 4.9	Assignment of FTIR vibrational bands of BMII	92
Table 4.10	FTIR vibrational modes of PEMA/PVdF–HFP:LiTf (70:30, w/w) blend polymer electrolytes incorporated with different wt.% of BMII	101
Table 4.11	Assignment of FTIR vibrational bands of BMITf	102
Table 4.12	FTIR vibrational modes of PEMA/PVdF–HFP:LiTf (70:30, w/w) blend polymer electrolytes incorporated with different wt.% of BMITf	112
Table 5.1	Ionic conductivities, σ of PEMA/PVdF–HFP blend films incorporated with different amounts (wt. %) of LiTf salt at 298 K	120
Table 5.2	Activation energy, E_a of PEMA/PVdF–HFP blend films incorporated with different amounts (wt. %) of LiTf salt	123
Table 5.3	Number density, n , mobility, μ and diffusion coefficient, D of free ions for PEMA/PVdF–HFP–LiTf system	123
Table 5.4	Ionic conductivities, σ of PEMA/PVdF–HFP–LiTf blend films incorporated with different EC contents at 298 K	129
Table 5.5	Number density, n , mobility, μ and diffusion coefficient, D of free ions for PEMA/PVdF–HFP–LiTf–EC system	129
Table 5.6	Ionic conductivities, σ of PEMA/PVdF–HFP–LiTf blend films incorporated with different PC contents at 298 K	135
Table 5.7	Number density, n , mobility, μ and diffusion coefficient, D of free ions for PEMA/PVdF–HFP–LiTf–PC system	135
Table 5.8	Ionic conductivities, σ and activation energies, E_a of PEMA/PVdF–HFP–LiTf blend films incorporated with different BMII contents at 298 K	140
Table 5.9	Number density, n , mobility, μ and diffusion coefficient, D of free ions for PEMA/PVdF–HFP–LiTf–BMII system	141

Table 5.10	Ionic conductivities, σ of PEMA/PVdF–HFP–LiTf blend films incorporated with different BMITf contents at 298 K	146
Table 5.11	Number density, n , mobility, μ and diffusion coefficient, D of free ions for PEMA/PVdF–HFP–LiTf–BMITf system	147
Table 6.1	TGA decomposition temperatures of PEMA, PVdF–HFP, LiTf, EC, PC, BMII and BMITf	149
Table 6.2	Decomposition temperatures of PEMA/PVdF–HFP–LiTf polymer electrolytes (Value in bracket represents wt.% lost in the stage)	157
Table 6.3	Decomposition temperatures of PEMA/PVdF–HFP–LiTf–EC polymer electrolytes (Value in bracket represents wt.% lost in the stage)	159
Table 6.4	Decomposition temperatures of PEMA/PVdF–HFP–LiTf–PC polymer electrolytes (Value in bracket represents wt.% lost in the stage)	161
Table 6.5	Decomposition temperatures of PEMA/PVdF–HFP–LiTf–BMII polymer electrolytes (Value in bracket represents wt.% lost in the stage)	165
Table 6.6	Decomposition temperatures of PEMA/PVdF–HFP–LiTf–BMITf polymer electrolytes (Value in bracket represents wt.% lost in the stage)	169