

Contents

	Page
Acknowledgements	i
Chapter - 1	1
: Introduction	1
1.1 : Polymers of acrylamide	3
1.2 : Montmorillonite	4
1.3 : Clay-organic interactions	6
1.4 : Clay catalised polymerization	11
Chapter - 2	18
: Scope and object	18
Chapter - 3	22
: Studies on redox polymerization of acrylamide in aqueous and aqueous - montmorillonite media	22
3.1 : Review of previous work	23
3.2 : Experimental	28
3.3 : Aqueous polymerization of acrylamide by FeCl ₃ - TU redox couple	33
3.3.1 : Introduction	33
3.3.2 : Experimental	34
3.3.3 : Results and discussion	34
3.4 : Aqueous polymerization of acrylamide by Fe(III)-TU redox couple on montmorillonite surface	44
3.4.1 : Introduction	44
3.4.2 : Experimental	44
3.4.3 : Results and discussion	45
3.5 : Aqueous polymerization of acrylamide by Ce(IV)-EDTA redox couple on montmorillonite surface	65

3.5.1	:	Introduction	65
3.5.2	:	Experimental	65
3.5.3	:	Results and discussion	66
3.6	:	General discussion	75
Chapter - 4	:	Studies on copolymerization of acrylamide with diacetone acrylamide and N-tert-butyl acrylamide.	84
4.1	:	Introduction and review of previous work	85
4.2	:	Experimental	88
4.3	:	Results and discussion	90
Chapter - 5	:	Studies on solution properties of acrylamide in water-dimethylsulphoxide mixtures	102
5.1	:	Introduction and review of previous work	103
5.2	:	Experimental	110
5.3	:	Results and discussion	112
Chapter - 6	:	Summary and conclusion	121
References			135
List of publications			153