Acknowledgements

I express my deep sense of gratitude and obeisance to my Supervising Teachers, Dr. Sabu Thomas, Reader, School of Chemical Sciences, Mahatma Gandhi University, Kottayam, and Dr. K. E. George, Reader, Department of Polymer Science and Rubber Technology, Cochin University of Science and Technology, Kochi, for suggesting the topic of my research work and for their constant encouragement and advises throughout my research work.

I am thankful to Dr. V. N. Rajasekharan Pillai, Vice-Chancellor, Mahatma Gandhi University, Kottayam, and former Director, School of Chemical Sciences, Mahatma Gandhi University, and Dr. M. Padmanabhan, Reader-in-Charge, School of Chemical Sciences, for their valuable support during the Ph.D. work.

I would like to thank Dr. A. S. Padmanabhan, Reader, School of Chemical Sciences, Mahatma Gandhi University, for his sincere co-operation and support.

I express my deep sense of gratitude Dr. Peter Koshiy, Mrs. Prasannakumari, and Mr. Vijayakumar of Regional Research Laboratory, Thiruvananthapuram, for extending the SEM facilities for my work.

I am thankful to Dr. Rani Joseph, Reader, Department of Polymer Science and Rubber Technology, Cochin University of Science and Technology, Kochi, for her sincere support during the course of my Ph.D.

My sincere thanks are due to all my teachers who taught me over the years especially Mr. R. Raghunadha Varma, Lecturer, Department of Chemistry, Dewasworn Board Pampa College, Parumala, Mannar, for the constant inspiration and blessings.

My sincere thanks are due to Dr. N. M. Mathew, Director, Rubber Research Institute of India, Kottayam, for permitting me to carry out melt mixing.

I express my obligation to Dr. Manoj N., CSIR Research Associate, RRL, Thiruvananthapuram, who directed me to Dr. Sabu Thomas and his constant encouragement throughout the Ph.D. work.

I express my thanks to the staff, School of Chemical Sciences, Mahatma Gandhi University, especially to Mr. K. A. James and Mr. Vijayakumar, for the neat tracings.

I am thankful Dr. G. Unnikrishnan, for his constant inspiration throughout the Ph.D. programme. Thanks are due to Mr. Kalaprasad for his valuable help during the preparation of the thesis. I am thankful to my friends in Polymer Technology Lab, for their help and suggestions throughout my research work. I express my sincere thanks to Dr. Zachariah Dommen, Dr. Soney C. George, Dr. Snoopy George, Dr. Asaletta, Dr. Hima Varghese, Dr. Ajil P. Mathew, Mr. Seno Jose, Mr. Bejoy Francis, Mr. Abi Santhosh Aprem, Mr. Harikumar B. and Mrs. Preethi, for their valuable help and suggestions.

I am thankful to UGC, New Delhi, for the financial assistance for my research work.

I express my sincere thanks to the members of Mr. Copy Write, Ettumanoor, especially Mr. Benny George and Mr. Anil for the effort they rendered in the preparation of this Ph.D. thesis.

I remember with deepest love my Father, T. P. Chandrasekharan Nair, who died in August 1999 and my Mother, Mrs. Padmavathi Amma, and other members of the family, for their patience and moral support extended all these years. A special word of thanks to my brother, Mr. Krishna Kumar, for his moral support and constant encouragement.

Above all, I bow God Almighty for all the blessings showered on me throughout the period of this work.

Radhesh Kumar C.