Preface

A novel feature emerges from the study of the history of the wide variety of ionomers. Although the field of ionomers is currently less than half a century old, hosts of new applications ranging from membranes to paints in industry have appeared. The ionomer field underwent a multiplex growth producing surprisingly large number of papers and patents per year. The presence of ions in polymers is an additional structural parameter available for the modification of properties and provides a route for the polymer chemist in tailoring material properties to particular applications. The compositional variety of ionic polymers is matched by the variety of their usages. The reprocessability of the rubber-based ionomers helps them to be used for injection and blow moulding. Synthesis of ionic cross-linked rubbers, therefore, became an area where many research and developments had taken place and the efforts were proved to be fruitful.

The present thesis aims at the synthesis of the ionomers based on natural rubber. Consisting of eight chapters, the thesis portrays an introduction and literature survey in the first chapter, and describes the materials and methods employed for the study in the second chapter. Novel ionomers based on radiation induced styrene grafted natural rubber and alternative methods of synthesis of natural rubber ionomers have been incorporated into the chapters 3 & 4 respectively. The effect of fillers on the properties of ionomers forms the basis of the fifth chapter. Sixth chapter narrates the electrical behavior in the microwave frequency. Use of the ionomer as a compatibilizer on the SBR/NBR immiscible blend system is the content of the seventh chapter. The major findings in the present study along with further scope for the research have been summarized in the final chapter 8.

A thesis such as this one would have been impossible without the generous, enthusiastic and inspiring guidance of my dear supervising teacher Dr. Thomas Kurian, Reader, Department of Polymer Science and Rubber Technology (PS & RT), Cochin University of Science and Technology (CUSAT), Cochin, INDIA. It is a pleasure to express my deep gratitude to Prof.Dr. K.E.George and Dr. Rani Joseph for their innumerable suggestions involving both scientific and linguistic aspects. The benefit of valuable discussions and suggestions of Professor A.Eisenberg, Dept. of Chemistry, McGill University, CANADA is also gratefully acknowledged. May I express my deep indebtedness to Prof. Joon-Seop Kim and Su-Hwan Kim, Dept. of Polymer Science and Engineering, Chosun
University, Kwangju, SOUTH KOREA for extending their collaboration and work experience in
analyzing the samples using DSC and DMTA. Several personalities were most helpful during the
course of my studies. In this connection special thanks are due to the distinguished faculties of the
PS & RT, CUSAT, Cochin, INDIA, doctors Kuriakose, Eby Thomas Thachil, Philip Kurian, and
Sunil. K.N. My sincere thanks are due to Mr. Jacob Samuel, fellow research scholars and
supporting staff for all their encouragements. Extensive support of Dr. Schmit Pauline and Mr. Sony
Varghese of the Eindhoven University of Technology, The Netherlands in connection with the SEM
analysis was very important in making this thesis possible. My acknowledgements are due to Dr.
K.T.Mathew, Dr. Joe Jacob and other colleagues in the department of electronics, CUSAT, Cochin,
INDIA for accomplishing microwave studies. I want to thank Dr. K.T.Thomas, Deputy Director,
Rubber Research Institute of India, Kottayam, INDIA for providing the samples for my research
work. I gratefully acknowledge the permission granted by Rev. Fr. Manager, and Principal of
Sacred Heart College, Thevara, Cochin, Kerala, INDIA, for completing my study. I am thankful to
many colleagues in the post graduate department of chemistry and other friends in the college who
have encouraged me and given me advice on many issues. I thank my parents, relatives, in-laws
and neighbors for their moral support and unselfish encouragement through out my research work.
And, of course, I thank my wife Tessy, and my loving children Tomin and Teslin for the
understanding and patience they have shown at all times, but most conspicuously during the
writing of this thesis. Finally to the almighty for showering up on me thy choicest blessings for the
completion of the research work.

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