## <u>Acknowledgements</u>

A thesis like this is of course not possible without the help and support from many people. I would like to give my deepest thanks to all:

I take this opportunity to place on records my deep sense of gratitude to Late Dr. Sujata S. Kansara without whom this thesis would not have seen the light of the day. My words fail to pay homage to Dr. Kansara, whose continuous encouragement and able guidance had always helped me to overcome difficult situations during research tenure. It was a wonderful experience to be a research fellow of Dr. Kansara. I pray to almighty, let her soul rest in peace.

My special thanks are due to my present supervisor Prof. Animesh Kumar Rakshit for keeping faith in me and accepting me as research student and helping me to complete the present thesis. I express my heartfelt sincere gratitude for his excellent guidance, valuable suggestions and teaching me not only chemistry but also imbibing other virtues which are necessary for a good researcher.

I express my gratitude to Prof. N.K, Patel, The Sardar Patel University, Vallabh Vidyanagar for his guidance and co-operation during my research tenure. His kind words and advice has always been a source of encouragement and inspirations.

Thanks are due to The M. S. University of Baroda for financial assistance during the period 1999-2001 and Council of Scientific and Industrial Research (CSIR) New Delhi from 2002 onwards till date..

Prof Surekha Devi, Head, Department of Chemistry M,S, University of Baroda, Vadodara for providing necessary infracstructure facilities

I am also grateful to Prof. H. S. Rama, Prof. B. V. Kamath, Dr. S. S. Madhavrao and all the teachers of this department for their timely help and suggestions.

Thanks are also due to Dr. Randhir Parmar and Mr. Kalpseh Patel, ISTAR, Sardar Patel university, Vallabh Vidyanager for providing me the facility for testing of surface coating materials. Help of Dr. Atul Raja and Dr. Sachin Sathe, Gharda Chemicals Ltd., Panoli, Bharuch for adhesion strength measurements is also kindly acknowledged.

I thank my friends Dr Mathakiya, Dr. Shukla, Bragadish, Sandeep, Shivaji, Dinesh, Mitesh, Bhaskar, Dr. Desai, Dr. Thakore, Dr. Dogra, for their unflagging support and making the laboratory environment

My parents, elder sister & jijaji as well as in-laws for their constant moral support, affection and care, which helped me a lot during my research tenure.

Last but not least Mala- my wife for always being there, continuously showing love and taking care of me in each and every step of my research tenure. It would not have been possible for me to complete the doctoral thesis without her moral support.

I am the only responsible person for the mistakes that might have still managed to escape attention.

Homand

Keyur Somani