Acknowledgements

First of all, I would like to express my sincere gratitude to my research supervisors Dr. P Radhakrishnan, Professor, ISP and Dr V P N Nampoori, the Director of ISP for their guidance, suggestions and support given to me in completing the thesis. Their timely help and motivation are also remembered.

I also thank Dr V M Nandakumaran and Dr C P Girijavallabhan for their constant support. Thanks to all other teachers of both ISP and CELOS.

I am grateful to Dr Sanjay G and Dr Suja H of Department of Applied Chemistry, CUSAT for providing me dye intercalated montmorillonite samples and to the suggestions regarding the experimental results.

Dr K R Dayas, Director, C-MET, Thrissur is also thanked for providing me rare earth titanates and giving me necessary ideas for interpreting the experimental results.

I am obliged to my colleagues and friends, especially Sudeesh, Thomas, Linesh, Murali, Bindu and Annieta for helping me with my experimental works and to Sajan, Sriram, Tamilarasan, Sheeba, Prabhath and Sajeev for providing me the necessary reference papers. The encouragement given by all my teachers and friends, particularly my batch-mates Litty and Dann are also remembered.

I also acknowledge UGC for financial assistance and CELOS for providing experimental facilities. Thanks to all staff of ISP and CELOS and to Murali, Gopi and Joshi of Instrumentation department.

Finally, I express my happiness to my parents and relatives for their support throughout my research. Thanks to my cousin Anju for proof reading. Last, but most important of all, I thank Almighty God

Lyjo K Joseph
General remarks regarding the thesis:
The author has taken reasonable care in the preparation of the thesis. All the available information regarding the references is given including doi and URL. However, certain publishers do not have these options and hence the reader may find some references without doi and URL. Some publishers are providing articles without page numbers. In such cases the article number and the number of pages are specified. A list of abbreviations is also given at the beginning of the thesis for better readability. The division of the chapters is based on the materials used for the studies.

Lyjo K Joseph
(Author)