

ACKNOWLEDGEMENT

At the outset I thank the ALMIGHTY for giving me a devoted guide teacher DR. N. S. DHAYAGUDE the Head of Physics Department whose inspirations and instructions were the main cause of the achievement of the present form of this thesis. I stand deeply indebted to him.

I express a deep sense of gratitude to our local secretary SHRI DEV RAJ GUPTAJI for his well-wishes and encouragement.

I was also encouraged by the personal interest shown by Principal DR. M. K. ZAMBRE in our studies. I also thank him for giving us his valuable permission regarding the timings and use of official utilities.

I wish to record my sincere, heartfelt thanks to Head of Department of Electronics, SHRI D. V. SUTRAVE for his timely provision of necessary apparatus. I am also thankful to SHRI B. A. MANAGOLI for his constant encouragement and personal interest shown.

I thank Head of Department of Microbiology, SHRI M. S. SHEJUL for providing the UV tube. Thanks are also due to Head of Department of Chemistry for providing certain apparatus.

It gives me great pleasure to express my deepest sense of gratitude towards MRS. V. N. DHAYAGUDE without whose contribution the present form of the thesis would

not have been seen.

The Co-operation of my colleagues of the physics and electronics departments cannot be forgotten.

The assistance of the non-teaching staff of the physics and electronic departments helped the smooth running of the practical work. Thanks are also due to non-teaching staff of Chemistry Department.

The invaluable, timely help of Dr. P. B. Joshi in providing 'Probe' and Dr. R. K. Sukhtankar for providing Geological data cards cannot be forgotten.

I sincerely thank Shri V. G. Gambhir for making available starting chemicals of desired purity in spite of odds.

I thank the earlier workers of our group Shri H. N. Vaidya and Shri D. S. Sutrave for the building up of the temperature programmer with the help of HPD, BARC group and Shri Shahane G. S. and Shri Kasture U. B. for useful discussions and hints.

I also thank Dr. M. G. Patil for personal discussions which helped in the building up of the thesis.

The timely help of Shri G. H. Ranade, Shri R. R. Nair and Shri G. A. Prabhu of NIO, GOA in getting XRD patterns, *is gratefully acknowledged.*

I thank Shri Mir Raza Hussain of IICT Hyderabad for helping in the analysis of the XRD pattern.

My sincere thanks are due to Shri K. R. Dhole of Kross International for providing the silica gelly for EL set up.

Thanks are due to Shri R. G. Shaikh for tracing of graphs.

Thanks are due to Shri H. E. Godbole, Shri B. P. Gandhi and Shri Satish Deshpande for helping in procuring certain necessities.

I thank Shri Jayjeet Patwa for efficient photography of the apparatus.

My sincere thanks to Shri N. R. Deshpande for neat typing.

I am thankful to my co-worker Shri R. N. Mulik for his invaluable help in discussions and experimental work.

This work would not have been possible without the patient co-operation of my kids, husband and parents-in-law. I owe a lot to them for their continuous moral support.

