PREFACE

The present thesis embodied the results of research work carried out by the author under the supervisor of Prof. Pranab Ghosh, at the department of chemistry, Universality of North Bengal, Dist. Darjeeling, West Bengal, during the period of 2016 to 2021. It comprises the synthesis and characterization of multifunctional lube oil additives. The performance of the prepared additives was evaluated in different mineral base stocks as viscosity index improver, pour point depressant, antiwear, antioxidant, and detergent/dispersant additives. Lubricant is a combination of lubricating oil or base oil and a package of additives. Additives increase the performance of the lubricating oil already present or add some new properties. The key function of a lubricant is to minimize the friction and wear between two moving metal surfaces, remove heat and contaminant suspension. In modern technology, the application of multifunctional lube oil additives is of great interest. In the present work, the author has prepared some multifunctional lube oil additives and additive performances were evaluated in different base stocks. In Part I, acrylate-based synthetic polymeric additives have been synthesized and their performances were evaluated in different base stocks. Synthesis, characterization, and performance evaluation of vegetable oils (castor oil and rapeseed oil) based polymeric additives have been reported in Part II of the thesis.