Various benefits are offered by polyester due to its certain desirable properties. However its properties like lack of moisture sorption and wicking, generation of static electric charge and oleophilicity make the polyester uncomfortable for wearing purposes.

Various chemical finishing treatments have been developed in the recent past to improve hydrophilicity, antistatic, soil-release and anti-soil redeposition properties of polyester but only a few of them were found durable to laundering. The main reason for the poor wash fastness is the lack of accessible reactive centres in polyester which can hold applied chemicals through covalent bonding. Hydrophilic character of polyester textiles can also be improved by hydrolyzing some of its ester linkages and thereby creating carboxylic and hydroxyl groups on the fibre surface. This can be carried out under the alkaline or acidic conditions. All these hydrolytic processes result in loss in weight and strength of the polymer, and therefore, a satisfactory compromise has to be made between the increase in hydrophilicity and fibre weight loss during the course of finishing operation. Out of various chemical finishing processes, alkaline hydrolysis has received considerable attention in the recent past.
A survey of the pertinent literature indicates that alkaline hydrolysis has been studied to impart silk-like properties to polyester textiles with a view to give aesthetic comfort and also to impart surface hydrophilicity to polyester. The studies dealing with basic and other aspects of the alkali reaction are relatively few and in some cases conflicting views have been expressed. It was, therefore, thought worthwhile to carry out a systematic study on alkaline hydrolysis of polyester and to characterise and correlate its various physical, mechanical and physicochemical properties.

Ester exchange reaction of PET with sodium salts of different glycols namely ethylene glycol (EG), diethylene glycol (DEG) and triethylene glycol (TEG) are also studied.

Present thesis is divided into four chapters. First two chapters provide general introduction and review of pertinent literature on the subject. The later two chapters deal with experimental studies and findings of the present investigations. At the end, summary of the investigations and conclusions derived from the work are presented.

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