[012] Another problem is to recover NaOH from the reaction mixture, or reaction liquor, to be reused in further processes, particularly of the same recycling cycle.

[013] It is thus an aim of the present invention to solve the above-mentioned drawbacks of the known processes of recycling polyester-cotton textiles and to provide a method to increase the purity of the polyester monomers recovered from the depolymerizing solution and from the other solutions and mixtures resulting from the known textile recycling depolymerization processes.

[014] Another aim of the present invention is to recover NaOH, polyester monomers and indigo or indigo type dyes present in the depolymerizing solution (and also in the bleaching solution and in the washing solutions) as obtainable with the process of EP23156251. The recover process may be carried out either separately on the different solutions or after the depolymerizing solution, the bleaching solution and the washing solutions have been collected in a single solution to be treated.

SUMMARY OF THE INVENTION

[015] The above aims are reached by means of the process according to claim 1 of the present description. In one aspect, the present disclosure provides a process of recovering NaOH, dyes polyester monomers resulting from an alkaline depolymerization reaction of polyester in a blend textile, comprising the steps of providing an aqueous alkaline depolymerization liquor (1) containing polyester monomers, NaOH and optionally dyes; concentrating said liquor to a mixture (2) comprising water, solid NaOH and the solid and liquid products of the depolymerization reaction; extracting EG from said mixture (2) with an organic solvent; modifying the pH of the solid phase (4) remaining from the extraction of EG to first dissolve and subsequently precipitate TPA as a sodium salt or as an acid. Preferred embodiments are recited in the dependent claims. In another aspect, the present invention provides a process of recovering vat dyes, particularly indigo, from a textile comprising the steps of: treating a textile with an alkaline solution by passing a flow of said alkaline solution through said textile, said textile being maintained in a static condition, whereby vat dyes in their

insoluble form are removed from said textile; and separating said insoluble vat dyes from the resulting alkaline solution.

[016] The starting material for the process of the invention is the mixture resulting from a process in which the polyester part of a textile is depolymerized using a depolymerization solution containing NaOH. After the depolymerization process, the monomers terephthalic acid (TPA) and ethylene glycol (EG) are formed. In addition, the solution also contains dyes, particularly vat dyes, namely indigo and indigoid dyes or indigo type dyes, that were present on the cotton or cellulosic part of the textile and that have been removed from the surface of the textile and remain in the depolymerization solution. In some cases, other widely used polyesters such as polypropylene terephthalate (PPT), polytrimethylene terephthalate (PTT), polybutylene terephthalate (PBT), and the like, or mixtures of these polyesters, may be present; in this case the polyesters would have been