Pre-treatment of the low-grade waste PET for depolymerization to monomers

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PET placard is a major low-grade waste PET fabrics that contain high level of impurities including silica, acryl binder, and synthetic dye. Increase of domestic placard usage poses serious environmental and economic problem. The placard is mainly made of polyethylene terephthalate (PET) that can be recycled for the conservation of resources and environment. Glycolysis is the most promising option for the chemical recycling of waste PET on commercial scale. The monomer generated by glycolysis reaction with ethylene glycol is bis(2-hydroxyetheyl) terephthalate (BHET). The impurities on the PET placard should be removed before depolymerization process to obtain high quality of monomers. Previously, we reported that removing impurities on PET placard increases the BHET yield and purity. In this study, we propose an advanced pre-treatment method to effectively remove the impurities on PET placard. The BHET monomer was confirmed by conventional analysis.