

Simulation of BHET (bis(2-hydroxyethyl) terephthalate) production process by  
glycolysis of  
PET (polyethylene terephthalate)

입란, Qasim Imtiaz, 한명완<sup>1</sup>, 김도현\*  
한국과학기술원; <sup>1</sup>충남대학교  
(dohyun.kim@kaist.ac.kr\*)

Polyethylene terephthalate (PET) is one of the most versatile polymers used extensively for the fabrication of polyester fiber, soft drink bottles, and photographic films. Its use has increased tremendously in recent years. The current proliferation of PET poses serious environmental and economic concerns. Recycling of PET into its monomer BHET is a promising choice to solve these problems. BHET production from PET glycolysis is simulated and the yield of BHET is optimized using Aspen plus®.

In this study, we consider glycolysis of PET at 265 °C and 0.6 MPa. Influence of various parameters such as temperature, PET : EG ratio, and concentration of catalyst on the yield of the glycolysis products are investigated. Poly-NRTL model is used for phase equilibrium thermodynamics. The largest yield of BHET from PET was 85 mol %.