

# An investigation on the efficiency of the catalyst systems used in the chemical recycling of PET

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## SUMMARY

The increase in plastic production leads to generation of more and more plastic waste, which triggers the destruction of the natural environment. Thanks to recycling technologies offering solutions to this significant problem. Polyethylene terephthalate (PET) has become one of the most investigated polymers because of its high consumption and potential for recycling. In this study, recycling of PET waste by glycolysis using different catalysts is investigated. Different types of waste PET materials such as transparent PET beverage bottles and colored PET mineral water bottles are depolymerized using zinc acetate ( $Zn(Ac)_2$ ) and 1,3-Dimethylurea/ $Zn(OAc)_2$  deep eutectic solvent (1,3-DMU/ $Zn(OAc)_2$  DES) and the BHET obtained is characterized with regards to its chemical structure and thermal properties and compared to commercially available BHET. Additionally, the yields of the glycolysis processes applied are evaluated.

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