# Immobilization of catalase on the modified PMMA and PS beads

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Immobilization of enzyme on a support is widely used in the industry, because it allows reuse of the enzyme and facilitates product recovery[1)]. However, the commercial supports such as Lewatit from Beyer and Eupergit from Rhom and Hass cost as high as 100~600 USD/Kg[2)]. In this study, the cheap and bulk polymers, PMMA and PS, in a diameter of 100 ㎛ manufacture by Pocera were chemically modified on the purpose to be used as enzyme immobilization supports. Oxirane functional group was introduced to PMMA and amine to PS. The amounts of the enzyme immobilized on the modified PMMA and PS after 24 hours of contact were 35.8 and 22.7 mg-catalase/g-support, respectively while that of Lewatit was 110.2 mg/catalase-g-support. When the contact time was 6 days, the amounts were increased to around 60 mg-catalase/g-support. Another chemical approach to increase the number of functional group remarkably is being tried now and it will hopefully enhance the immobilization capacity of the polymers up to the level of commercial supports. Besides, the activities of the immobilized enzyme under various reaction conditions were investigated and compared with that of free enzyme.

## References

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