

Design and Evaluation of Molecularly Dismantlable Bio-based Polymers

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Aiming for the development of degradable bio-based polymers under marine environment, we are working on the design and development of a molecularly dismantlable unit that can be selectively cleaved by external stimuli such as heating and ultraviolet light irradiation. In particular, we are focusing on the development of a multi-lock mechanism enabling that can be accomplished by discontinuous control of the activation energy for bond cleavage in order to achieve both stability in use and quick dismantling after disposal (right figure).

In addition to synthesizing polymers having molecularly dismantling units, we are also working on precise reaction tracking in model reaction systems by tracing the reaction behavior of low molecular weight compounds containing molecularly dismantling units.

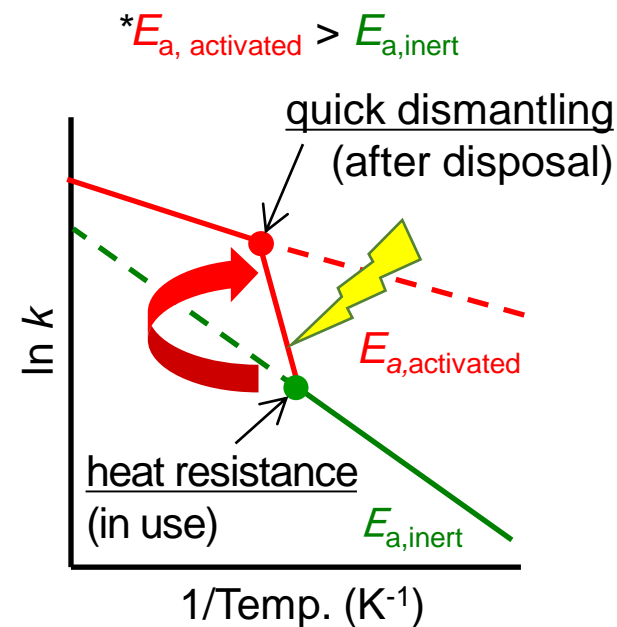


Fig. Discontinuous control of activation energy for bond dissociation by external stimuli.