

OB01

High Regioselective Electrochemical Epoxide Ring Opening Reaction by the Various Alkylboranes Prepared by Hydroboration of Alkenes

알켄의 수소화붕소 첨가반응에 의한 다양한
유기보레인화합물로부터의 높은 위치선택성을 가진 전기화학적
에폭시화합물의 고리 열림 반응

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The epoxide ring opening reaction by attacking of electrochemically generated alkyl anions from organoborane using sacrificial anode showed extremely higher regioselectivities than Grignard reaction originated from alkyl halide.

In this experiment, especially, many structurally diverse organoboranes, such as B-alkyl-9-BBN, B-alkylcatecholborane, B-alkyldithexylborane, and etc. prepared readily by the hydroboration of alkenes, were used for practical applications of electrochemical epoxide ring opening reactions.

In the case of styrene oxide or sterically hindered alkyl epoxides, the electrochemically generated alkyl or phenyl anion from alkylboranes attacked to the less hindered site only showing 100 to 0 ratio. And when the metal alkoxide and boron trifluoride were added to the mixtures, the increase of the chemical yields and decrease of by-product were found.

