ABSTRACT

A process for producing an oxirane compound from an organic peroxide other than ethylbenzene hydroperoxide and an olefin in the presence of an immobilized catalyst bed, wherein the process satisfies the following conditions (1) to (4):

(1) the catalyst bed is divided into n catalyst beds and the catalyst beds are used in series, wherein n is an integer of 2 or more,

(2) a fresh organic peroxide is divided into portions, which are supplied to respective inlets of the catalyst beds,

(3) a fresh olefin is supplied to the inlet of the first catalyst bed, and

(4) the reaction mixture discharged from each outlet of respective catalyst beds excluding the final catalyst bed is supplied to the inlet of the subsequent catalyst bed.