



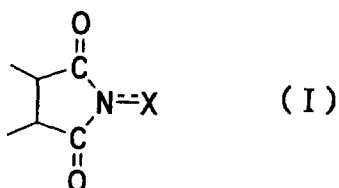
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ABSTRACT

A series of steps of (A) a step for bringing a cycloalkane into contact with molecular oxygen (oxidizing reactor 2) in the presence of an oxidizing catalyst having an imide unit of the following formula (I):



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wherein X represents oxygen atom or hydroxyl group;

(B) a step for separating the catalyst, and by-produced acid component or a derivative thereof from the reaction mixture (filter 3, extracting column 4, hydrolyzing unit 7, saponifying unit 8); and

(C) steps for separating the cycloalkane, a cycloalkanol, and a cycloalkanone from the reaction mixture individually (distilling columns 5, 6, 9, and 10) makes it possible to produce cycloalkanones efficiently. A first component (lower-boiling point component) containing the cycloalkane and a second component (higher-boiling point component) containing the cycloalkanone and cycloalkanol may be separated from the reaction mixture, and the cycloalkanone and the cycloalkanol may be separated from the higher-boiling point component. Such production process is capable of providing cycloalkanones with high efficiency.

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