

Process for oxidizing hydrocarbons with oxygen

The present invention concerns a process for oxidizing saturated hydrocarbons with oxygen, preferably saturated cyclic hydrocarbons such as cyclohexane, for the production of alkyl hydroperoxide.

More particularly, it concerns a process for oxidizing saturated hydrocarbons with oxygen, the oxidation being carried out in a plurality of successive steps in order to control the progress of the hydrocarbon oxidation reaction and in order to obtain good selectivity for alkyl hydroperoxide.

The process of the invention concerns the process for condensing the oxidation gases recovered in each oxidation reactor and recycling them to the oxidation reactors. According to the recycling process of the invention, the selectivity of the reaction for ketone and alcohol is improved and process costs are saved by reducing the “cold” hydrocarbon supplied to certain reactors in order to control the temperature.