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(54) Title: OXIDATION OF HYDROCARBONS

(57) Abstract: In a process for oxidizing a hydrocarbon to the corresponding hydroperoxide, alcohol, ketone, carboxylic acid or dicarboxylic acid, a reaction medium comprising a hydrocarbon is contacted with an oxygen-containing gas in the presence of a catalyst comprising a cyclic imide of the general formula (I): wherein each of R^1 and R^2 is independently selected from hydrocarbyl and substituted hydrocarbyl radicals having 1 to 20 carbon atoms, or from the groups SO_3H , NH_2 , OH and NO_2 , or from the atoms H, F, Cl, Br and I provided that R^1 and R^2 can be linked to one another via a covalent bond; each of Q^1 and Q^2 is independently selected from C, CH, N, and CR^3 ; each of X and Z is independently selected from C, S, CH_2 , N, P and an element of Group 4 of the Periodic Table; Y is O or OH; k is 0, 1, or 2; l is 0, 1, or 2; m is 1 to 3; and R^3 can be any of the entities listed for R^1 . The contacting is conducted under conditions such as to maintain the concentration of both water and organic acids in the reaction medium below 50 ppm.

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