

AUTOXIDATION OF CYCLIC OLEFINS IN PERFLUORINATED ORGANIC SOLVENTS

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It is well known that several perfluorinated organic compounds (particularly alkanes and cyclic ethers perfluorinated) have specific properties like solvents of biatomic gas and oxygen.

Since these perfluorinated compounds have also sufficient capabilities as solvents of several alifatic hydrocarbons and practically none as solvents of their oxidation products (alcohols, ketones; peroxides, acids, water, etc.), these solvents seem ideal for the studying of oxidation reactions in liquid phase.

The kinetics of autoxidation, with O_2 for temperatures between $15^\circ C$ and $60^\circ C$, of cyclohexene and methyl cyclohexenes, have been studied in fluorinated solvents (various mixtures of 3,n-perfluoro-propyl-perfluoro-tetrahydrofuran, and 3,n-perfluoro-buthyl-perfluoro-tetrahydropyran) with formula $C_8F_{16}O$. This study includes the determination of the kinetic parameters both during the induction phase and during the stationary phase.

The above mentioned oxidations we have studied in analogous conditions in other solvents (carbon tetrachloride, benzene chloride, etc.). The highest rates observed and the larger selectivity of the fluorinated solvents have been pointed out.