



SEMINAIRE ISMO

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Matrix Isolation FTIR Studies of Conformational Diversity of 1-Alkene Secondary Ozonides

Secondary ozonides (SOZ) of alkenes are formed in troposphere during ozonization reaction and may be considered as one of the major atmospheric pollutants. These species are involved in various processes of the atmosphere layer's destruction. Moreover, their reactivity depends on many parameters and especially on their spatial structure. Conformational diversity may come from different stable structures of five member rings and from rotation of aliphatic radicals attached to the ring. In 1-propene SOZ case conformations form only because of the first reason, therefore 1-butene and 1-heptene SOZ are the ones of the simplest SOZ, which may have conformational diversity due to aliphatic chain rotation.

In this work, we have obtained FTIR absorption spectra of the ozonization reaction products of 1-butene and 1-heptene isolated in Xe, Ar and CO₂ matrixes. Various matrix isolation techniques, including "hot nozzle", photolysis and annealing was used for the assignment of the spectral bands. For the first time it was found that 1-butene SOZ consists of 5 stable conformers (3 *equatorial* and 2 *axial* conformers), while 1-heptene SOZ exists as mixture of only 3 *equatorial* conformers.

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