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Energy and volume activation parameters of the retro-Diels-Alder reaction in different solvents

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Abstract

The temperature and pressure effects on the decay rate of an adduct obtained from 9-chloroanthracene and tetracyanoethene by a Diels-Alder reaction were studied. The rate constants (298.2 K) and the enthalpies, entropies, and volumes of activation were determined for the retro-Diels-Alder reaction in different solvents. The data obtained confirm a possible decrease in the molar volume of the solvated adduct upon partial bond cleavage on the way to the transition state. The reversal of the sign in front of the activation volume cannot be indicative of a changed reaction mechanism. © 2009 Springer Science+Business Media, Inc.

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Keywords

Kinetic parameters, Retro-Diels-Alder reaction