PAPER

Low-energy (0–9 eV) electron interaction with gas phase 1,3-dichlorobenzene: an experimental and theoretical study

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Abstract

Dichlorobenzene used widely in industry for the synthesis of complex products, such as polymers. The processes using this compound require, as the initial step, the breakage of the C–Cl bond. In this work, we study the interaction of electrons with 1,3 dichlorobenzene molecules not only below 2 eV [M Mahmoodi-Darian *et al* 2001 *J. Phys. Chem.* A **113** 11923–14929] but also at higher energies, i.e., up to 10 eV. In this investigated energy range, the electron induces the cleavage of the C–Cl bond producing essentially a Cl^- anion and the chlorobenzene radical via dissociative electron attachment. The experimental measurements are completed with quantum scattering treatments providing the resonant states and also the integral scattering cross sections. These outcomes may potentially contribute to elaborate synthesis strategies using electrons (i.e., cold plasma, surface plasmon resonance, …).

Unveiling the efficient state of Pd catalyst for robust electrocatalytic hydrodechlorination

Dehydrochlorination study of plasticized poly(vinyl chloride) contianing modified titanium dioxide, cerium stearate, organotin and *β*-diketone complex after long-term storage

Accessibility

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