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Dissociative electron attachment to isoflurane molecule in the gas phase

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Common halogenated anesthetic gases include halothane, isoflurane, sevoflurane, and desflurane. These gases can have varying global warming potential (GWP) and environmental effects (Langbein et al 1999). Halogenated aneastetics also contribute to greenhouse gas emissions, although their impact varies based on their global warming potential GWP. We studied DEA to gas phase target by means of a crossed electron-molecular beam technique (Kopyra et al 2017). Dissociative electron attachment processes were investigated utilizing the crossed beam apparatus. In this technique the incident electron beam orthogonally intersects with molecular beam resulting in the formation of fragment anions. The calibration of the energy scale is achieved by measuring SF_6 signal, with intense resonance near 0 eV. Base pressure was in the range of ~10^{-8} mbars and the working pressure around 3.2×10^{-7} mbars. We have measured halogenated aneasthetic isofluran which showed a rich fragmentation. We have observed the following fragments: F^- = 19 a.m.u, Cl^- = 35 a.m.u, FHF^-= 39 a.m.u, CF_3^- = 69 a.m.u., $C_2F_3^-$ = 81 a.m.u, $C_2F_3Cl^-$ = 116 a.m.u

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