

Abstract Submitted
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Comparison of ion chemistries in cyclohexane, methylcyclohexane and ethylcyclohexane¹ CHARLES JIAO, UES, ALAN GARSCADDEN, STEVEN ADAMS, Air Force Research Laboratory — Cycloalkanes are significant components of many complex fuels [1,2]. Methylcyclohexane was chosen as the representative cycloalkane in surrogate mixtures for practical fuels [3]. In this study we investigated the electron impact ionization of methylcyclohexane and two other cyclohexanes, cyclohexane and ethylcyclohexane, as functions of the electron energy in the range of 10 to 200 eV. Comparison of the ionization cross sections of these three compounds as well as their fragmentation patterns has been made. The reactions of the fragment ions with their parent molecules, respectively, were also studied and include mainly charge transfer, hydride transfer and H₂⁻ transfer. The trends in the reactivities and types of the reactions will be discussed.

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