

Abstract Submitted
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Observations on shock induced chemistry of cyclohexane MINTA AKIN, RICKY CHAU, Lawrence Livermore National Laboratory — We use double pass absorption spectroscopy to examine shock induced reactions in situ in cyclohexane and benzene at pressures up to 33.1 GPa. Reactions in cyclohexane begin by 27 GPa and complete by 33.1 GPa. Absorption spectra indicate that the first reaction occurs within or near the shock front, and that a metastable local equilibrium is reached in the post-shock state. A second process is observed upon reshock at the lower pressures, suggesting a new equilibrium is reached post-reshock as well. Absorption bands are consistent with the formation of short radicals or fragments upon decomposition; however, spectral resolution is too low to confirm this mechanism. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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