Chemical Dissociation of Cyclohexane under Shock Loading

RICKY CHAU, NEIL C. HOLMES, Lawrence Livermore National Laboratory —
We present a study of the chemical dissociation process in the ringed hydrocarbon
cyclohexane under shock loading. Cyclohexane was subjected to shock loading in
the pressure range of 12 GPa to 39 GPa. The dissociation was observed using dou-
ble pass optical absorption spectroscopy. We observed the onset of dissociation as
the shock pressure was increased. A strong wavelength dependence was observed
in the absorption first beginning at 650 nm and eventually at 400 nm at 39 GPa.
The absorption mechanism is is suggestive of Mie scattering of fine carbon particles.
The kinetics of the dissociation and the formation of the carbon particles will be
discussed.

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Ricky Chau
Lawrence Livermore National Laboratory

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