

Abstract Submitted
for the SHOCK13 Meeting of
The American Physical Society

Transient Absorption and Hugoniot Equations of State of Shocked Reactive Liquids KATHRYN BROWN, SHAWN MCGRANE, PETER SCHULZE, NHAN DANG, DAVID MOORE, Los Alamos National Laboratory — We use transient absorption spectroscopy and ultrafast dynamic ellipsometry (UDE) to characterize reactions that occur in reactive liquid thin layers, including nitromethane and carbon disulfide, that have been subjected to sustained (~ 300 ps) shocks up to <20 GPa from an amplified Ti:sapphire laser. Shock compression can cause some liquids to react and form new chemical species. Though not chemical-specific, transient absorption and deviations from the universal liquid Hugoniot can indicate the presence of chemical reactions taking place. The information obtained from these experiments can be applied to more specific characterization methods such as vibrational spectroscopy.

Kathryn E. Brown
Los Alamos National Laboratory

Date submitted: 20 Feb 2013

Electronic form version 1.4