

Abstract Submitted
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Nanosecond Time Resolved and Steady State Infrared Studies of Photoinduced Decomposition of TATB at Ambient and Elevated Pressures¹ ELIZABETH A. GLASCOE, JOSEPH M. ZAUG, MICHAEL R. ARMSTRONG, JONATHAN C. CROWHURST, CHRISTIAN D. GRANT, LAURENCE E. FRIED, Lawrence Livermore National Lab — The timescale and/or products of photo-induced decomposition of 1,3,5-triamino-2,4,6-trinitrobenzene (TATB) were investigated at ambient and elevated pressures. Ultrafast time-resolved infrared and steady state Fourier transform IR (FTIR) spectroscopies were used to probe TATB and its products after photoexcitation with a 5 nanosecond pulse of 532 nm light. At ambient pressure, transient spectra of TATB indicate that the molecule has significantly decomposed within 60 nanoseconds; transient spectra also indicate that formation of CO₂, an observed decomposition product, is complete within 30-40 microseconds. Comparison of steady-state FTIR spectra obtained at ambient and elevated pressure (ca. 8 GPa) indicate that the decomposition products vary with pressure and only the high pressure decomposition produces water.

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Elizabeth A. Glascoe
Lawrence Livermore National Lab

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