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Shock driven decomposition and reshock in PMMA MEGHAN K. LENTZ, JOSHUA D. COE, KIRILL VELIZHANIN, Los Alamos National Laboratory — Polymethyl methacrylate (PMMA) is a transparent thermoplastic often used as a Hugoniot standard or as a window material in shock compression experiments. We present new equations of state (EOS) for solid PMMA based on the `Sesame` framework, and for its shock-driven decomposition products based on thermochemical modeling. We compare our results to a wide variety of existing data, finding good agreement in all cases. Previous proceedings (AIP Conference Proceedings **845**, 131 (2006)) described plate impact experiments in which PMMA was reshocked to pressures of up to ∼130 GPa, well above that at which it decomposes on its principal Hugoniot. These results were reanalyzed in a later proceeding (*ibid.* **1426**, 771 (2012)), motivated largely by a higher than anticipated Gruneisen coefficient (Γ) inferred originally. We revisit this discussion based on hydrodynamic simulations performed with our new EOS.

Meghan K. Lentz
Los Alamos National Laboratory

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