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Low and high strain rate compressive properties and aging study of Sylgard 184 with varying amounts of plasticizer and crosslinker TOMISLAV KOSTA, THOMAS KRAWIETZ, JESUS MARES, United States Air Force Research Laboratory, Munitions Directorate — We present the quasi-static and high strain rate compressive mechanical properties of Sylgard 184, a Dow Corning commercial variant of polydimethylsiloxane (PDMS), and four variants. The four variants are composed of Sylgard 184 with various amounts of plasticizer and crosslinker. For each of the five materials we present the quasi-static and dynamic compressive properties measured via Instron load frame and Kolsky bar. Additionally, we present a curing/aging study of Sylgard 184 where we measure the compressive properties as a function of natural aging in the time period following sample manufacture. This work is motivated by the wide interest of Sylgard 184 across numerous communities from biomechanics to flexible electronics. While PDMS has been characterized in the literature, efforts appear to have been focused on low strain rates and here we extend the characterization to the high strain rate regime with the intent of measuring the shock response in the future.

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