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Surface Preparation Methods to Enhance Dynamic Surface Property Measurements of Shocked Metal Surfaces MICHAEL ZELLNER, WENDY MCNEIL, GEORGE GRAY III, DAVID HUERTA, NICHOLAS KING, GEORGE NEAL, JEREMY PAYTON, JIM RUBIN, Los Alamos National Laboratory, GERALD STEVENS, WILLIAM TURLEY, National Security Technologies, WILLIAM BUTTLER, Los Alamos National Laboratory — This effort investigates surface-preparation methods to enhance dynamic surface-property measurements of shocked metal surfaces. To assess the ability of making reliable and consistent dynamic surface-property measurements, the amount of material ejected from the free-surface upon shock release to vacuum (ejecta) was monitored for shocked Al-1100 and Sn targets. Four surface preparation methods were considered: fly-cut machined finish, diamond-turned machine finish, polished finish, and ball-rolled. The samples were shock loaded by in-contact detonation of HE PBX-9501 on the front-side of the metal coupons. Ejecta production at the back-side or free-side of the metal coupons was monitored using piezoelectric pins, optical shadowgraphy, and x-ray attenuation radiography.

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