

# Computational and experimental studies of the dusting process of liquid lead under the action of a sequence of shock waves

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To study the process of two-stage dust formation of lead in 2022, 2023, experiments were conducted using X-ray equipment, a protonographic complex and the PDV technique with a LiF screen. The primary impact was carried out by an unsteady shock wave with an amplitude of about 42 GPa with a decreasing pressure gradient behind the shock wave front with the transition of lead to a liquid state. The reloading was carried out after about 2.3 microseconds by a compacting shock wave with an increase in the pressure amplitude of about 5 GPa. Based on the experimental results, it was possible to visualize the process of secondary dust formation of lead and to plot the velocity distributions of the secondary ejected mass after repeated exposure of the shock wave to the surface of the material. Numerical simulation of shock wave loading and the process of lead dust formation using surface data obtained by an optical profilometer has been performed in the EGAC software package. The calculations describe the experimental results.