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Experimental study of eject on lead surface under varied loading rate and amplitude YONGTAO CHEN, HUHAIBO TEAM, LIQINGZHONG TEAM — The eject phenomena of pure lead flyer under detonation loading of varied loading rate and amplitude were studied with the help of high speed photography, VISAR, the Asay foil and a special optical probe. The mass of eject material from the lead surface may change several times with the change of loading amplitude in range of 3GPa~5GPa and the change of corresponding loading rate. After of massive material flow, total mass of which can reach tens of times by compare to the traditional eject mass, was recorded after the traditional eject particles and tightly before the flyer surface when the loading amplitude exceeded some given threshold. Formation of such kind of dispersed material flow is surely related to the shock wave or release melting (partial melting) of lead, in which cavitation and fragmentation may take place very quickly under the tension state f release wave. The loading amplitude and loading rate were controlled by varying the gap or the thickness of a porous material between the rear surface of combined flyers and the front surface of high explosive in the range of sub-millimeter.

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