

Small crater formation process of low-velocity impact

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The process of impingement and resulting crater formation on the surface is investigated experimentally. In the experiment, a steel projectile of 5 g in weight was projected at 300 m/sec onto a basalt block. The crater formation on a solid in laboratory experiments will be investigated. A jetting of fragments and a formation of a crater was visualized continuously. Ejected mass velocity was distributed from 80 m/s to 40 m/s in the small fragments when the impact velocity was about 300 m/s onto a brick.

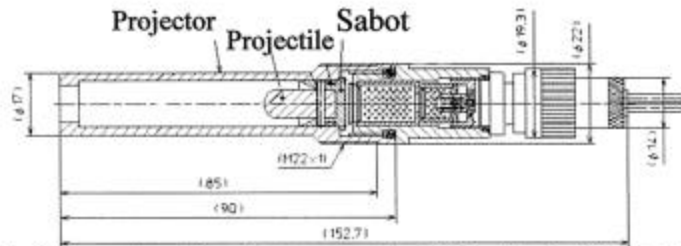


Figure 1. Schematic of projector developed in Shock Wave Research Center, Institute of Fluid Science, Tohoku University.

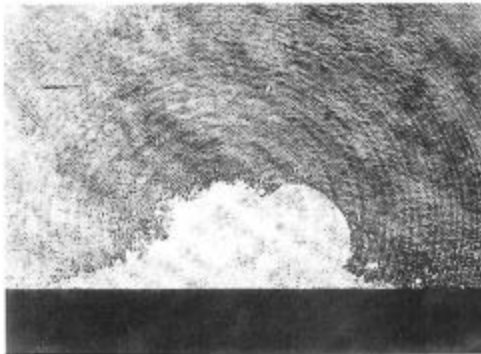


Figure 2. Holographic interferogram of impact test on a 60 mm thick brick, impact velocity = 257 m/s, at 74μs after impact.

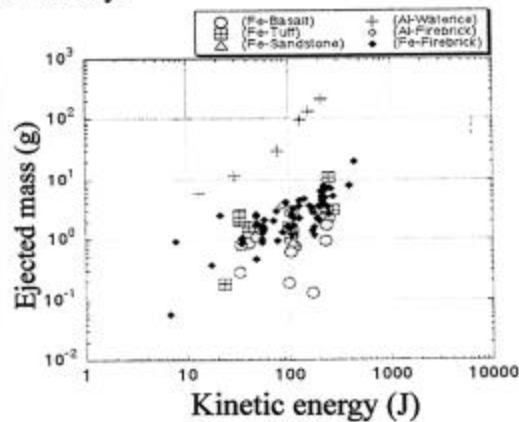
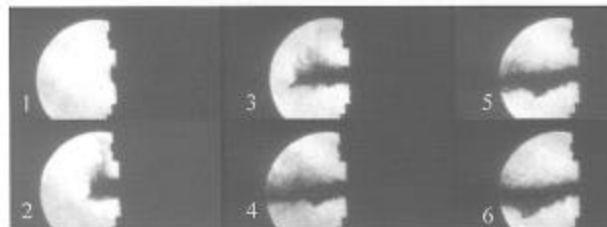


Figure 3. Ejected mass from crater.



(a) Brick target, impact velocity = 322 m/s, interframe = 300 μs.



(b) Brick target, impact velocity = 348 m/s, interframe = 500 μs.

Figure 4. Visualization of the impact tests by image converter camera