

BEHAVIOR OF METALS UNDER EXPLOSIVE CONDITIONS
(1100-1199)

Subtopics

Equations of states of solids; experimental techniques; free surface velocity determinations; scabbing (analysis and experimental) and fracture.

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Bibliography

- 1101 Rinehart J S and Pearson J
ENGRAVEMENT OF TRANSIENT STRESS WAVE PARTICLE
VELOCITIES
Journal of Applied Physics
1953, Vol. 24, pp 462-469.

A simple and unique technique is described for determining the particle velocity of a material subjected to high-speed loading. The force is applied to a plate that has a pellet attached on the opposite side. The propagation of the wave through the plate and pellet causes the pellet to indent the surface of the plate. Average particle velocity can be determined by measuring the depth of penetration.

- 1102 Shreffler R G and Deal W E
FREE SURFACE PROPERTIES OF EXPLOSIVE-DRIVEN METAL
PLATES
Journal of Applied Physics
1953, Vol. 24, pp. 44-48.

A photographic technique for study of metal-free surfaces under acceleration by high explosives is presented. Methods for reducing the data from the photographic record are described. Specific results using brass plates driven by explosives are cited. (Author's abstract)

- 1103 Allen W A
FREE SURFACE MOTION INDUCED BY SHOCK WAVES IN STEEL
Journal of Applied Physics
1953, Vol. 24, pp. 1180-1185.

Free surface motion is studied by photographing the motion of the image of point light sources on a highly polished steel surface. Plate is forced by the detonation of explosives. Results are analyzed.

For details of experimental technique, see article 1051.