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Failure of a Long-Rod Projectile Obliquely Interacting with a Three-Layer Target SERGEY ZELEPUGIN, Tomsk Science Center, VALERIE GRIGORJAN, NIKOLAJ DOROKHOV, Research Institute of Steel OAO NII Stali — Results of experimental and numerical research of the interaction of a tungsten-alloy long rod projectile ($L/D=20$) with a three-layer target at an angle of 60° and with a velocity of 1600 m/s are presented. The material of the middle layer was an elastomer or reacting mixture in which shock-induced solid-state exothermic reaction can take place. Analysis of the data obtained shows that the character of failure of the projectile qualitatively depends on the material of the middle layer. For elastomer layer the bend and failure of the projectile on large fragments is prevailed, for the reacting mixture – “thermoshock” in an interaction zone and then high-rate erosion failure of the projectile is observed. The protective properties of the target can be improved by an activation of the middle layer with an explosive.

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