

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

New impact sensitivity test of liquid explosives. ¹ ANDREI TIUTIAEV, Samara state technical university, VALERI TREBUNSKIY, Retired — The sensitivity of liquid explosive in the presence of gas bubbles increases many times as compared with the liquid without gas bubbles. Local hot spot in this case formed as a result of compression and heating of the gas inside the bubbles. If we consider that in the liquid as a result of convection, wave motion, shock, etc. gas bubbles are easily generated, the need to develop a method for determining sensitivity of liquid explosives to impact and a detailed study of the ignition explosives with bubbles is obvious. On a mathematical model of a single steam bubbles in the fluid theoretically considered the process of initiating explosive liquid systems to impact. For the experimental investigation, the well-known K-44 -II with the metal cap were used. Instead of the metal cap in the standard method in this paper there was polyurethane foam cylindrical container with LHE, which is easily deforms by impact. A large number of tests with different liquid explosives were made. It was found that the test LHE to impact with polyurethane foam to a large extent reflect the real mechanical sensitivity due to the small loss of impact energy on the deformation of the metal cap, as well as the best differentiation LHE sensitivity due to the higher resolution method .

¹Results obtained in the samara state technical university

Andrei Tiutiaev
Samara state technical university

Date submitted: 05 Nov 2015

Electronic form version 1.4