

# SHOCK WAVES IN LIQUID CONTAINING INERT AND REACTIVE GAS BUBBLES

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**Abstract:** A physico-mathematical model of nonisothermal two-phase two-velocity flow of bubbly medium composed of inert liquid and inert or reactive gas bubbles is proposed. It is shown that a solution in the form of a shock wave with an oscillating structure and a supersonic self-sustaining solitary wave, or “bubble detonation,” can be obtained using the proposed model. Comparison of calculation results with experimental data on the velocity and structure of shock and detonation waves propagating in water with bubbles of nitrogen or acetylene–oxygen mixture showed satisfactory predictive capabilities of the model.

**Keywords:** bubbly medium; chemically reactive gas; bubble detonation; shock wave; two-phase flow

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