

POSSIBILITY OF NORMAL SPHERICAL  
DETONATION IN A HYDROGEN-OXYGEN  
GAS MIXTURE: ALLOWABLE TEMPERATURE,  
MACH NUMBER, AND HYDROGEN CONTENT

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S u m m a r y

In the framework of the classical theory of detonation with the use of the previously obtained relations for spherical waves, the ranges of the allowable values of temperature, Mach number, and hydrogen content in a gas mixture, where the normal spherical detonation is possible, are determined. The critical values of parameters associated with the kinetics of chemical reactions at the blast wave front and the parameters responsible for the shock transition intensity (the minimum and the maximum of the Mach number) are calculated for the reacting medium. By analyzing the interaction between H<sub>2</sub> and O<sub>2</sub>, the intervals of the critical temperature, the temperature of detonation in a stationary medium, and the hydrogen content in the mixture, at which the spherical detonation is possible, are determined graphically.