

COMBUSTION AND EXPLOSION

[GORENIE I VZRYV (MOSKVA)]

Vol. 18 No. 1 Year 2025

Editor-in-Chief S. M. Frolov

In this issue:

On the criteria for defining ignition delay time of a hydrogen–oxygen mixture as applied to numerical simulation A. A. Zakharkina, A. S. Sharipov, and I. N. Kadochnikov	3
Conversion of rich preheated methane–oxygen mixtures in a flat stabilized laminar flame M. G. Bryukov, A. A. Belyaev, K. Ya. Troshin, P. A. Vlasov, and V. S. Arutyunov	15
Effect of H ₂ and CO additives on the process of soot formation during pyrolysis of ethylene and methane A. R. Akhunyanov, P. A. Vlasov, V. N. Smirnov, and V. S. Arutyunov	24
Ignition of model biogas mixtures in an adiabatic compression reactor I. V. Bilera	34
Reconstruction of the dynamic system from experimental data of the pressure signal during detonation combustion in a pulsejet engine I. P. Boychuk, S. Yu. Alekseyants, A. V. Grinek, K. V. Migalin, and A. M. Fishenko	45
Movement and aerodynamic drag coefficient of titanium and aluminum particles during combustion in air N. S. Belousova and O. G. Glotov	55
Shock-to-detonation transition in a two-phase mixture of liquid triethylaluminum with superheated steam S. M. Frolov, I. O. Shamshin, K. A. Byrdin, K. A. Avdeev, V. S. Aksenov, P. A. Storozhenko, and S. L. Guseinov	63
Aerodynamic atomization of metal melt jets by transverse pulsed shock and detonation waves S. M. Frolov, V. S. Ivanov, V. S. Aksenov, I. O. Shamshin, F. S. Frolov, A. E. Zangiev, T. I. Eyvazova, V. Ya. Popkova, M. V. Grishin, A. K. Gatin, and T. V. Dudareva	75
Specific features of thermal runaway of lithium–ion batteries equipped with safety valves D. N. Nikiforov, P. V. Komissarov, S. S. Basakina, D. M. Yakunov, and D. M. Itkis	96
Thermodynamic model of propellant powder combustion taking into account its compressibility P. S. Utkin and P. A. Chuprov	104
Study of the ability of combustion-to-explosion transition in a semiconfined volume of three explosives — RDX, HMX, and CL-20 V. N. Kulikov, A. N. Osavchuk, and N. E. Kosheleva	119
Circular cavity in a closed layer of solid explosive: Collapse on impact and initiation of explosion A. V. Dubovik	124