

COMBUSTION AND EXPLOSION [GORENIE I VZRYV (MOSKVA)]

Vol. 10 No. 1 Year 2017

Editor-in-Chief and Chair of Editorial Council Professor S. M. Frolov

In this issue:

Direct numerical simulation of turbulent combustion of gases in two-dimensional approximation V. Ya. Basevich, A. A. Belyaev, S. M. Frolov, and B. Basara	4
Thermokinetic oscillations at oxidation and combustion of methane A. A. Belyaev, A. V. Arutyunov, V. S. Arutyunov, B. V. Lidskii, A. V. Nikitin, and V. S. Posvyanskii	11
Detailed kinetic mechanism of methane oxidation and combustion in the presence of sulphur dioxide V. Ya. Basevich, A. A. Belyaev, V. A. Smetanyuk, S. M. Frolov, and F. S. Frolov	16
Kinetics of pyrolysis and partial oxidation of hydrogen sulfide V. A. Savelieva, N. S. Titova, and A. M. Starik	21
Matrix conversion of methane into syngas with low content of nitrogen A. V. Nikitin, V. I. Savchenko, I. V. Sedov, K. A. Timofeev, V. M. Smelev, and V. S. Arutyunov	28
On acetylene synthesis by partial oxidation of simple hydrocarbons K. Ya. Troshin and A. A. Borisov	34
Structure of stratified turbulent flow in a swirling jet-flame D. K. Sharaborin, V. M. Dulin, and D. M. Markovich	39
Radiation properties of a matrix with the ceramic coating V. M. Shmelev	45
Swirling combustion above water surface G. N. Mokhin	49
Determination of the values of $\Delta_f H_{298.15}^0$ of $(Al)_n$ clusters with $n = 3-10$ G. A. Poskrebyshchev, A. N. Ermakov, and V. B. Storozhev	53
Influence of carbon nanotubes on the combustion laws of low-calorie propellant A. P. Denisjuk, L. A. Demidova, V. A. Sizov, and A. O. Merkuskin	59
Onset of convective burning in the pressed charges of 5/7 pyroxylin propellant grains V. E. Khrapovskii and A. A. Sulimov	64
Combustion of nanothermites at subatmospheric pressure V. I. Kolesov and D. I. Patrikeev	69
Behavior of furazano[3,4-e]tetrazine-4,6-di-n-oxide crystals during long-term storage. Density as an indicator of thermal stability N. V. Chukanov, P. I. Kalmykov, G. V. Shilov, A. V. Shastin, V. V. Nedelko, S. A. Vozchikova, and B. L. Korsunskiy	73
Association between the defect structure of mechanically activated MoO_3 and the chemical activity of MICs Al/ MoO_3 M. V. Sivak, A. N. Streletskii, I. V. Kolbanev, and E. N. Degtyarev	79
Pseudoideal detonation mode in the compositions on the basis of ammonium perchlorate with nanoaluminum A. A. Shevchenko, V. G. Kirilenko, M. A. Brazhnikov, and A. Yu. Dolgoborodov	84
Method of estimation of sensitivity indicators for solid high explosives to impact. II. Mixtures of type HE-HE A. V. Dubovik	89
Foreign investigations of new high-density reactive materials for different advanced munitions N. A. Imkhovik, A. V. Svidinsky, A. S. Smirnov, and V. B. Yashin	93
Application perturbation theory for calculation of the thermodynamic properties of metals Yu. A. Bogdanova, S. A. Gubin, I. V. Maklashova, A. V. Kudinov, and I. N. Melnikov	102