

Vol. 10, No. 4, 2016A simultaneous English language translation of this journal is available from Pleiades Publishing, Ltd.
Distributed worldwide by Springer. *Russian Journal of Physical Chemistry B* ISSN 1990-7931.**Elementary Physicochemical Processes**Statistical Dynamics of Direct Three-Body Recombination of Heavy Ions
in the Presence of Argon and Xenon Atoms*V. M. Azriel, L. I. Kolesnikova, and L. Yu. Rusin*

553

Effect of External Factors on Physicochemical TransformationsPhotoinduced Processes in Thin Films of MoO₃ and Mixed V₂O₅ : MoO₃ Oxides*T. V. Sviridova, L. Yu. Sadovskaya, A. I. Kokorin, N. M. Lapchuk, and D. V. Sviridov*

561

Light Conversion in Thin Films of a Mixture of Mesotetraphenylporphyrin
and Erbium-Doped Yttrium Vanadate Crystallites: 2. Optical Properties*I. A. Nagovitsyn, G. K. Chudinova, A. I. Zubov, L. A. Butusov,
E. V. Zavedeev, V. V. Kurilkin, and G. G. Komissarov*

566

Kinetics and Mechanism of Chemical Reactions. Catalysis

Thermal Decomposition of 2,4,6-Triazido-1,3,5-Triazine

*V. V. Nedel'ko, B. L. Korsunskii, T. S. Larikova, S. V. Chapyshev,
N. V. Chukanov, and Shu Yuantsze*

570

Kinetics of Coal Char Gasification in a Carbon Dioxide Medium

A. G. Korotikh, K. V. Slyusarskiy, and A. A. Ditts

576

¹⁶O/¹⁸O Oxygen Isotope Exchange Kinetics in MnO₄⁻ as Probed by ⁵⁵Mn NMR*V. P. Tarasov and G. A. Kirakosyan*

582

Formation of Soot Particles in Pyrolysis and Oxidation of Aliphatic and Aromatic
Hydrocarbons: Experiments and Detailed Kinetic Modeling*G. L. Agafonov, I. V. Bilera, P. A. Vlasov, Yu. A. Kolbanovskii,
V. N. Smirnov, and A. M. Tereza*

587

Experimental Study and Macrokinetic Simulation of the Partial Gas-Phase
Oxidation of Propane*I. G. Fokin, E. N. Shatunova, V. I. Savchenko, and V. S. Arutyunov*

595

Combustion, Explosion, and Shock Waves

Ignition of Cyclopropane in Shock Waves

P. A. Vlasov, A. A. Garmash, and A. M. Tereza

602

Laser Initiation of PETN–Iron Nanoparticle Composites

B. P. Aduev, D. R. Nurmukhametov, A. A. Zvekov, A. P. Nikitin, and R. Yu. Kovalev

615

Explosive Decomposition of Pentaerythritol Tetranitrate Pellets Containing
Nickel Nanoparticles with Various Radii*B. P. Aduev, N. R. Nurmukhametov, R. P. Kolmykov, A. P. Nikitin,
M. V. Anan'eva, A. A. Zvekov, and A. V. Kalenskii*

621

Existence of Limiting Values of the Specific Impulse of Metal-Free Composite Solid
Propellants at a Preset Highest Allowable Combustion Temperature*D. B. Lempert, E. M. Dorofeenko, S. I. Soglasnova, and A. A. Matveev*

628

Enthalpies of Formation of Trinitromethyl-Substituted Aromatic and Heteroaromatic Compounds and Their Efficiency as Oxidizers in Energetic Compositions

A. V. Shastin and D. B. Lempert

632

Combustion and Characteristics of Mechanically Activated Ni + Al Mixture: Effects of the Weight and Size of the Milling Balls

N. A. Kochetov

639

Thermal Reaction Characterization of Micron-Sized Aluminum Powders in CO₂

Baozhong Zhu, Qi Wang, Yunlan Sun, and Tao Jia

644

Cellular Wave Mode of the Infiltration Combustion of Porous Media

S. V. Kostin, P. M. Krishenik, and K. G. Shkadinskii

651

Electric and Magnetic Properties of Materials

Light Conversion in Thin Films of Mixtures of Mesotetraphenylporphyrin and Yttrium Vanadate Crystallites Doped with Erbium. I. Photovoltaic Properties and Structure

*I. A. Nagovitsyn, G. K. Chudinova, A. I. Zubov, E. V. Zavedeev,
Yu. M. Tairov, V. A. Moshnikov, I. E. Kononova, and V. V. Kurilkin*

657

Chemical Physics of Polymer Materials

Mechanism of Formation of Fine Rubber Powder from Ternary Ethylene–Propylene–Diene Vulcanizates

*D. V. Solomatin, O. P. Kuznetsova, U. G. Zvereva,
V. Ya. Rochev, V. G. Bekeshev, and E. V. Prut*

662

A Study of Propylene Polymerization over Bimetallic Titanium–Vanadium Catalysts

N. Yu. Kovaleva, Yu. A. Gavrilov, P. M. Nedorezova, and A. M. Aladyshev

672

Thermodynamic Characteristics of the Thermal Polymerization of Perfluoropropylvinyl Ether at High Pressures

A. A. Zharov and I. B. Konovalova

676

Synthesis, Characterization and Hall Effect Studies of Polystyrene/Polyindole Composites

S. Eşsiz and B. Sari

679

Structural Dynamic Properties of Nonwoven Composite Mixtures Based on Ultrafine Tissues of Poly(3-Hydroxybutyrate) with Chitosan

*S. G. Karpova, A. A. Ol'khov, A. L. Jordanskii,
S. M. Lomakin, N. S. Shilkina, and A. A. Popov*

687

Features of the Processes Occurring during Low-Temperature Reactions between Molecular Chlorine and Monomers and during the Heating of Mixtures

D. A. Gordon and A. I. Mikhailov

699

Chemical Physics of Nanomaterials

Structure and Reactivity of Mechanoactivated Mg (Al)/MoO₃ Nanocomposites

*A. N. Streletskii, I. V. Kolbaney, K. Ya. Troshin, A. A. Borisov, A. V. Leonov,
S. N. Mudretsova, V. V. Artemov, and A. Yu. Dolgoroborodov*

707

Dynamics of Transport Processes

Highly Porous Basalt-Fiber-Based Heat Insulation for Steam-Heated Oil Wells in the Far North

V. A. Tarasov, V. A. Moiseev, M. A. Komkov, R. V. Boyarskaya, and A. S. Filimonov

719