

CONTENTS OF VOL. 33, Nos. 7 - 12, 1959

July

S. S. SPASSKII, M. A. MIKHAILOVA, A. I. TARASOV, T. V. MOLCHANOVA, and M. E. MAT'KOVA: Copolymerisation of unsaturated polyesters with vinyl monomers. IV. Copolymerisation of polydiethyleneglycol fumarate with styrene, acrylonitrile, methyl methacrylate, and vinyl acetate (1449)	1	V. D. KRYLOV, Ya. I. VABEL', Yu. N. EFREMOV, A. M. KLENINA, and S. L. LEL'CHUK: Kinetics of phase transitions in copper-silicon alloy catalysts and their relation to the kinetics of direct synthesis of ethyl-chlorosilanes (1594)	69
B. F. ORMONT: Energies of atomisation and heats of formation of some carbides and nitrides and the most probable values of the dissociation energy of nitrogen and the sublimation energy of carbon (1455)	4	A. M. SUKHOTIN and Z. N. TIMOFEEVA: Ionic association in solutions. II. The causes of "anomalous" electrical conductivity (1602)	72
P. G. MASLOV: Thermodynamic properties of sodium compounds in the solid state. II (1461)	6	S. P. MISKIDZH'YAN: Electrolytic dissociation in non-aqueous systems. IX. The system <i>p</i> -anisidine-allyl mustard oil (1610)	76
A. A. ALCHUDZHAN and M. A. INDZHIKYAN: Catalytic properties of the Pd + Pt system (1467)	9	N. V. TROITSKAYA, K. P. MISHCHENKO, and I. E. FLIS: The equilibrium $\text{ClO}_2 + e \rightleftharpoons \text{ClO}_2^-$ in aqueous solution at different temperatures (1614)	77
A. M. GURVICH: The relationship between the working capacity of a chromatographic column of alumina and the concentration of impurities in a salt undergoing purification on the column (1473)	12	A. N. MAL'TSEV, E. N. EREMIN, and I. N. VOROB'EVA: Steady-state concentrations of nitric oxide in the electric discharge. II. Experiments with air in a narrow tube (1618)	79
P. P. SHORYGIN: Mutual influence of substituents in <i>p</i> -disubstituted benzene derivatives (1477)	13	A. U. AKOPYAN: Overvoltage in the cathodic reduction of oxygen and activation energies of the corresponding reactions (1625)	82
I. R. KRICHEVSKII, N. E. KHAZANOVA, Yu. V. TSEKHANSKAYA, and L. R. LINSHITS: Critical phenomena in the hexamethyleneimine-water system. I. The boundary curve for the liquid-liquid equilibrium near the critical point (1484)	17	A. A. TRAPEZNIKOV and A. M. TOLMACHEV: The formation of aluminium hydroxide (1632)	85
A. Ya. KUZNETSOV: Electrical conductivity of glasses in the $\text{Li}_2\text{O}-\text{SiO}_2$ system (1492)	20	Yu. V. MNYUKH: Thermal expansion coefficient of the straight-chain hydrocarbon $\text{C}_{30}\text{H}_{62}$ (1638)	88
L. B. SOKOLOV and A. D. ABKIN: The mechanism of copolymerisation involving bifunctional monomers. II. The polymerisation of binary systems involving ethyleneglycol di- α -chloroacrylate (1495)	22	A. B. GAGARINA and N. M. EMANUEL': Kinetics of the reaction between methane and nitrogen dioxide (1641)	90
V. I. GINZBURG: The oxidation of phenol at a rotating platinum anode (1504)	26	K. V. CHMUTOV and E. E. FINKEL': Effect of γ -radiation from cobalt-60 on the permeability of polyethylene to water vapour (1648)	93
V. N. VASIL'EVA, V. P. BAZOV, and M. A. GEIDERIKH: Spectra and dipole moments of paraderivatives of dimethylaniline (1516)	32	R. Kh. BRUSHTIN and D. L. KONDRASHOV: A gauge for measuring the pressure of corrosive gases (1653)	96
V. B. KOGAN, V. M. FRIDMAN, and T. G. ROMANOVA: Phase equilibria in systems formed by paraffinic hydrocarbons with aliphatic alcohols (1521)	34	K. V. CHMUTOV, V. S. LAPIK, P. M. KALACHEV, and Yu. A. SILKIN: A self-compensated diaphragm pressure gauge (1655)	96
E. V. STUPOCHENKO and A. I. OSIPOV: Kinetics of thermal dissociation of diatomic molecules (1526)	36	A. Ya. LISYUTIN: Calculation of ionisation potentials (1657)	97
L. D. BELYAKOVA and A. V. KISELEV: Adsorption and chemisorption of methanol by silica gels of various degrees of surface hydration (1534)	39	N. N. TYUTYULKOV: The effect of intramolecular interaction of molecular refraction (1660)	98
S. I. DRAKIN and V. A. MIKHAILOV: Calculation of the entropy of cation hydration (1544)	45	N. A. SHISHAKOV: The structure of germanium condensed in vacuo (1662)	99
V. A. KUZNETSOV, T. D. D'YAKOVA, and V. P. MAL'TSEVA: Electrocapillary phenomena and surface tension in bismuth-cadmium alloys in vacuo (1551)	48	M. A. SHLUGER and V. A. KAZAKOV: Effect of sulphate ions on the formation of cathodic films in the electrodeposition of chromium (1666)	101
L. K. LEPIN' and V. M. KADEK: Dependence of rate of oxidation and electrode potential of copper on the pH of solution (1560)	53	Yu. N. MOLIN and Yu. D. TSVETKOV: The variation of the shape of the electron paramagnetic resonance spectrum with temperature in peroxide type radicals (1668)	102
B. WALIGORA: Factors influencing the initial potential of the antimony gel-decinormal calomel adsorption half-cell (potentiometric chromatography) (1566)	56	Third conference on physical chemistry in the Ukrainian Republic (Report) (1671)	104
E. S. ITSKEVICH and P. G. STRELKOV: Low temperature thermodynamics. VIII. Heat capacity of CdCl_2 and CdI_2 between 1.6° and 300°K. Enthalpy and entropy of CdCl_2 and CdI_2 at 298.16°K (1575)	60	Georgii Mitrofanovich Panchenkov (Fiftieth Birthday) (1674)	105
N. N. GRYAZEVA and A. V. KISELEV: Adsorption isotherms from three-component solutions (1581)	62	Fedor Fedorovich Vol'kenshtein (Fiftieth Birthday) (1676)	106

August

A. I. FEDOSOV: Retardation of the motion of gas bubbles by surface-active substances at moderate Reynolds numbers (1681)	109
P. G. MASLOV and Yu. P. MASLOV: Thermodynamic properties of crystalline compounds. III. Lithium compounds (1687)	112
A. A. ALCHUDZHAN and M. A. MANTIKYAN: Mixed adsorption catalysts for hydrogenation reactions. II. Effect of order of adsorption of palladium and silver on silica on the activity of the mixed catalysts (1691)	113

NISONYAN, S. Ya. BEIDER, A. M. MARKEVICH, and B. NALBANDYAN: Oxidation and decomposition of formaldehyde at high temperatures	(1695)	115
ASTREBOV and N. I. KOBOZEV: The physical chemistry of concentrated ozone. VII. Concentration limits to flame propagation in gaseous mixtures of ozone	(1701)	118
ANDOMIRSKII and Sh. M. KOGAN: Calculation of adsorption isotherms in the electronic theory of chemisorption	(1709)	122
ISHITALIK: Rates of individual stages in the cathodic reduction of hydrogen. I.	(1715)	125
KUZNETSOV: Changes in the electrical conductivity of glasses accompanying crystallisation	(1726)	131
ASHKO: X-ray investigation of the structure of some liquid metallic systems	(1730)	133
UKHOTIN and Z. N. TIMOFEEVA: Association of ions in solution. III. Potentiometric determination of the activity coefficients of ions in solutions of low dielectric constant	(1739)	137
IS, K. P. MISHCHENKO, and N. V. TROITSKAYA: Potential of the chlorine electrode at various temperatures	(1744)	140
BERNENKO and M. A. LOSHKAREV: Simultaneous discharge of lead and tin ions during the electrolytic refining of lead	(1750)	142
IANZHELII and B. I. VERKIN: Diffusion in liquefied gases	(1758)	147
TESIK and L. N. AKIMOVA: An indirect method of estimating the reaction zone width of a detonation wave	(1762)	148
OGDANOVSKII and A. I. SHLYGIN: Electrochemical oxidation of alcohols and aldehydes on platinum. The mechanism of the electrochemical oxidation of formaldehyde	(1769)	151
ARAIEVA and N. S. KOLOSOVA: The radiation-induced reactions of aqueous diisopropyl ether	(1774)	153
FILIPPOV and Yu. M. EMEL'YANOV: The electrical theory of ozonisers. V. The power factor of ozonisers	(1780)	155
MOZDVIZHENSII, V. A. DMITRIEV, and I. AVDEEVA: Anodic behaviour of aluminium in an electropolishing electrolyte at low polarising current densities	(1788)	159
MNYUKH: Amorphous phase in straight-chain paraffins	(1791)	161
LANTRATOV and E. V. TSARENKO: Thermodynamic properties of liquid metallic solutions. The potassium-thallium system	(1792)	161
GOLUTVIN: Heat contents and heat capacities in the titanium-silicon system	(1798)	164
GERASIMOV, A. P. PURMAL', and A. B. TSENTSIPER: O_2 photolysis in alkaline media	(1806)	168
AL'GUEV: The nature of the conductivity of solid sodium carbonate	(1808)	168
CHAZANOVA and L. R. LINSHITS: Critical phenomena in the hexamethyleneimine-water system. Some physicochemical properties of the hexamethyleneimine-water system	(1811)	170
OLOV'EVA: The homogeneous-heterogeneous combustion of carbon monoxide in narrow ducts	(1813)	171
SHEINKER and Yu. I. POMERANTSEV: Tautomerism of some derivatives of heterocyclic compounds. IX. Structure of salts of heterocyclic hydroxy derivatives	(1819)	174
AKOVSKII, B. A. STEPANOV, O. F. RYAZANTSEVA, and N. V. SEREBRYAKOVA: The redox potentials of thiophosphates	(1830)	178
ISNYAK and G. I. CHUFAROV: The influence of added CO_2 , Na_2CO_3 , Al_2O_3 , and SiO_2 on the kinetics of the reduction of magnetic iron oxide by carbon	(1840)	183
AKOVICH: The influence of addition of the solid reaction product on the rate of dehydration of certain crystalline hydrates	(1847)	186
PROKHORENKO and I. Z. FISHER: The microstructure of simple liquids	(1852)	188
PALATNIK and V. S. ZORIN: Theory of transitions in metastable phases	(1859)	191

F. N. KOZLENKO: Behaviour of the glass electrode as a hydrogen electrode in non-aqueous media of basic character	(1866)	194
A. B. GAGARINA and N. M. EMANUEL': Kinetics and mechanism of the reaction between methane and nitrogen dioxide	(1872)	197
P. P. PUGACHEVICH: Apparatus for the measurement of the surface tension of low-melting metal alloys	(1880)	201
N. G. VOSTROKNUTOV, A. N. KORNILOV, G. L. GAL'-CHENKO, S. M. SKURATOV, and B. I. TIMOFEEV: Circuit for measuring the work done by an alternating current in calorimetry	(1883)	203
O. A. ESIN, G. A. TETERIN, and I. N. ZAKHAROV: Transport numbers in single-component molten electrolytes	(1887)	204
N. N. BUBNOV and V. M. CHIBRIKIN: Variation with temperature of the width of the components of the hyperfine structure of electron paramagnetic-resonance spectra	(1891)	206
E. E. NIKITIN: Calculation of the bimolecular rate constant for the thermal decomposition of molecules	(1893)	208
Work of the Physical Chemistry Section of the Eighth Mendeleev Congress on General and Applied Chemistry (Report)	(1895)	209

September

B. I. STEPANOV, R. G. ZHBANKOV, and A. Ya. ROSENBERG: Infra-red spectra of cellulose during the production of viscose	(1907)	215
L. I. KASHTANOV and L. N. SOKOLOVA: Limiting concentration of inhibitor in the oxidation of sodium sulphite by atmospheric oxygen	(1914)	218
S. S. KIRILYUK and S. P. MISKIDZH'YAN: Physicochemical analysis of electrically conducting non-aqueous systems and the mechanism of the electrolytic dissociation of the compounds formed in them. II. The allyl mustard-oil-quinoline system	(1918)	220
B. P. NIKOL'SKII, M. M. SHUL'TS, and N. V. PESHEKHOVA: Theory of the glass electrode. IX. Application of ion-exchange theory to glass electrodes functioning as different metal electrodes	(1922)	222
L. N. CHERKASOVA: Effect of structure on the thermal conductivity of polymers	(1928)	224
I. A. SEMIOKHIN, G. M. PANCHENKOV, V. K. KOROVKIN, and A. V. BORISOV: Separation of oxygen isotopes in the electrical synthesis of ozone	(1933)	226
L. S. PALATNIK, G. R. VINOOROV, M. B. KAGAN, and V. B. KUROPYATNIK: Investigation of multicomponent heterogeneous systems by the phase-mass method. I.	(1939)	230
V. L. KHEIFETS and A. B. SHEININ: Oscillographic investigation of the kinetics of electrode processes. I. Mathematical treatment	(1945)	233
P. G. MASLOV: Thermodynamic properties of halides, hydrates, and amines of cadmium. IV.	(1951)	236
N. P. KRUSHINSKAYA and M. A. PROSKURNIN: The oxidation of chlorobenzene in aqueous solutions irradiated by gamma rays	(1954)	237
O. A. REUTOV, I. P. BELETSKAYA, and R. E. MARDALEISHVILI: Kinetics of the symmetrisation of organomercury salts. II. Determination of reaction order with respect to ammonia for the symmetrisation of esters of α -bromomercuriphenylacetic acid	(1962)	240
G. K. BORESKOV: The effects of the interaction of the reactants with the catalyst on the kinetics of catalysed reactions	(1969)	243
V. N. VASIL'EVA and E. N. GUR'YANOVA: Dipole moments and structures of disulphides	(1976)	246
A. A. SUTYAGINA and K. M. GORBUNOVA: Nickel plating in the presence of an alternating current. I. Structures of deposits made from solutions free from added surface-active materials	(1982)	248
V. I. ZHELANKIN, V. S. KUTSEV, and B. F. ORMONT: Equilibrium in the high-temperature reduction of hafnium dioxide by carbon	(1988)	251

- M.I. VINNIK, R.S. RYABOVA, and N.M. CHIRKOV: Kinetics and mechanisms of reactions in concentrated mineral acids. I. Dehydration kinetics of *o*-benzoyl-benzoic acid in concentrated sulphuric acid (1992) 253
- S.P. MISKIDZH'YAN, F.N. KOZLENKO, and I.A. VOLINA: Electrolytic dissociation in non-aqueous systems. X. Allyl mustard oil-piperidine system (2002) 257
- S.V. USIKOV: Electrodeless measurement of the electrical conductivity of solutions at high frequencies (2007) 259
- D.S. TSIKLIS, A.N. KOFMAN, and L.I. SHENDEREI: Solubility of acetylene in acetone and accompanying volume changes (2012) 262
- A.E. LUTSKII and B.P. KONDRATENKO: Intramolecular hydrogen bonds and dipole moments of organic compounds. V. Nitroanilines and their *N*-methyl and *N,N*-dimethyl derivatives (2017) 265
- G.F. VORONIN and A.M. EVSEEV: Thermodynamic properties of germanium-zinc alloys (2024) 268
- L.S. KUZINA and E.N. GUR'YANOVA: Isotopic exchange of sulphur in thiurams and dithiocarbamic acid esters (2030) 271
- N.G. SMIRNOV and K.A. USPENSKII: The experimental determination of the attenuation coefficients of γ -radiation in cylindrical emitters (2036) 273
- M.I. TEMKIN: Conditions governing the coexistence of gaseous phases (2040) 275
- S.L. KIPERMAN and A.A. BALANDIN: Bonding energy between the surface of metallic catalysts and carbon (2045) 277
- S.S. VASIL'EV: Kinetics of the excitation of molecules by electromagnetic and mechanical waves. III. Role of structural assemblies in the primary activation in photosynthesis (2053) 281
- I.N. BAKULINA and N.I. IONOV: Determination of the electron affinities of halogen and sulphur atoms and the cyano radical by the surface ionisation method (2063) 286
- M.M. SHELECHNIK: Temperature distribution in a column during the occurrence of first-order reactions (2073) 291
- Yu.V. MNYUKH: X-ray investigation of the structure of linear polyesters (2076) 292
- G.A. PATRIKEEV: Correlation between the mechanical characteristics and structure of stretched rubber (2081) 295
- I.I. SKOROKHODOV, L.I. NEKRASOV, L.A. REZNITSKII, K.G. KHOMYAKOV, and N.I. KOBOZEV: Trapped radicals and a higher peroxide of hydrogen. II. Some notes on the thermochemistry of the higher peroxide H_2O_4 and the HO_2 radical (2090) 300
- Yu.N. SHEINKER, E.M. PERESLENI, N.P. ZOSIMOVA, and Yu.I. POMERANTSEV: Tautomerism in heterocyclic compounds. X. Acylated heterocyclic amines (2096) 303
- Ya.A. KALASHNIKOV: Temperature fluctuations in atmospheres of hydrogen or helium resulting from the evolution of volatile substances from the material of the apparatus on heating (2110) 308
- A.E. SHILOV, A.K. ZEFIROVA, and N.N. TIKHOMIROVA: Electron paramagnetic resonance in the $Al(iso-C_4H_9)_3-Ti(C_2H_5)_2Cl_2$ system (Letter to Editor) (2113) 310
- Sergei Vasil'evich Gorbachev (Sixtieth Birthday) (2115) 311
- A.M. SUKHOTIN and K.M. KARTASHOVA: Dynamic method for measuring the capacitance of electrodes and its application to the determination of zero-charge potentials (2145) 3
- V.Ya. EFREMOV, M.B. NEIMAN, and V.N. PANFILOV: Kinetic tracer method for investigating complex chemical and biochemical reactions. VIII. Formation and consumption of methyl alcohol during the oxidation of propylene (2151) 3
- V.I. ZYKOV: The reduction of the BrO_3^- anion at a dropping mercury electrode. III. The influence of added La^{3+} on the kinetics of the discharge of BrO_3^- in the presence of cations of lower charge (2156) 3
- V.M. GLAZOV and V.N. VIGDOROVICH: Viscosimetric study of the kinetics of the dissociation and formation of intermetallic compounds in melts (2164) 3
- G.A. DOBREN'KOV, R.K. BANKOVSKII, and R.Sh. NIGMATULLIN: Use of capacitance phenomena at the dropping mercury electrode in the study of chemical kinetics (2169) 3
- I.E. TITOVA: The effect of 8-hydroxyquinoline on the rate of dissolution of iron and aluminium in hydrochloric acid (2173) 3
- V.S. GURMAN and A.M. CHAIKIN: The rôle of the surface in the thermal reaction between hydrogen and chlorine (2178) 3
- V.P. MOISEEV and O.S. POPOVA: X-ray structure study of electrolytic manganese deposits (2183) 3
- Yu.V. MNYUKH: X-ray study of eicosandiol-decamethylene-dicarboxylic acid polyester (2190) 3
- P.P. PUGACHEVICH and O.A. TIMOFEEVICHEVA: Experimental study of the surface tension of metallic solutions. II. Surface tension of very dilute alkali-metal amalgams at 22° (2196) 3
- M.G. KAGANER: New method for determining the specific surface of adsorbents and other finely divided substances (2202) 3
- Yu.N. VOL'NOV: The absorption spectrum of stannic iodide solutions (2211) 3
- A.M. MARKEVICH and L.F. FILIPPOVA: Effect of heterogeneous factors on the oxidation of formaldehyde (2214) 3
- V.P. SHISHOKIN, V.A. AGEeva, and N.A. VIKHOREVA: Long-term hardness as a method of physicochemical analysis (2222) 3
- V.A. TSKHAI: The heat of adsorption of hydrogen on certain types of ionic lattice (2230) 3
- A.A. ARSHINOV and A.K. MUSIN: Particles as electron concentration stabilisers (2241) 3
- G.F. VORONIN and A.M. EVSEEV: Thermodynamic properties of liquid lead-tin alloys (2245) 3
- A.S. FOMENKO, T.M. ABRAMOVA, and I.L. GANKINA: Study of metal corrosion using heavy oxygen. II. The corrosion of cadmium in a moist atmosphere (2249) 3
- M.V. PIKUNOV: Crystallisation of solid solutions (2253) 3
- V.A. POLTORAK, L.Ya. LETTIS, and V.V. VOEVODSKII: Rôle of the surface in the thermal decomposition of propane (2259) 3
- A.I. LEVIN and S.S. SAVEL'EV: The mechanism of formation of polychromate solutions during the electrolysis of sodium dichromate in a diaphragm bath (2264) 3
- E.A. KUZ'MIN: Construction of property-composition diagrams for multicomponent equilibrium systems (2271) 3
- B.V. DERYAGIN, S.S. DUKHIN, and V.A. LISICHENKO: The kinetics of the attachment of mineral particles to bubbles during flotation. I. The electric field of a moving bubble (2280) 3
- V.V. ALEKSANDROV and N.A. IZMAILOV: Thermodynamic properties of electrolytes in non-aqueous solutions. VI. Activity coefficients of hydrogen chloride in alcohol and aqueous alcohol (2288) 3
- Yu.N. ANDREEV: A study of the optical, adhesive, and mechanical properties of thin films of titanium dioxide (2295) 3
- V.N. TOLMACHEV and G.G. LOMAKINA: A spectrophotometric study of the reaction of sodium 1,8-dihydroxy-2-(2'-hydroxyazobenzene)-3,6-naphthalene-disulphonate with calcium, strontium, and barium ions (2302) 3

October

- KIRILL POPOV: Thermodynamics of the oxidation of propane-oxygen mixtures at constant temperature and pressure (2121) 313
- A.A. SUTYAGINA and K.M. GORBUNOVA: The electrodeposition of nickel with alternating currents. II. Electrolytes with added surface-active materials (2128) 316
- A.E. LUTSKI and L.A. KOCHERGINA: Intramolecular hydrogen bonding and dipole moments of organic compounds. VI. Nitro- and nitrosonaphthols (2135) 320
- M.M. EGOROV, V.F. KISELEV, and K.G. KRASIL'NIKOV: Adsorptive capacity per unit surface of quartz (2141) 323

- S. Ya. PSHEZHETSKII, N. M. MOROZOV, S. A. KAMENETSKAYA, V. N. SIRYATSKAYA, and E. I. GRIBOVA: Kinetics of the thermal decomposition of ozone (2306) 402
- G. A. AKSEL'RUD: Theory of the diffusion extraction of substances from porous bodies. I. Equations for the extraction kinetics (2316) 406
- N. A. SLAVINSKAYA and S. A. KAMENETSKAYA: The effect of ozone on the critical conditions for the ignition of ethyl alcohol in oxygen (2325) 410
- I. R. KRICHNEVSKII and Yu. V. TSEKHANSKAYA: Dissolution of solid acids in binary liquid solutions in the critical region (2331) 413
- M. F. LANTRATOV and A. G. MORACHEVSKII: Use of glass as electrolyte in thermodynamic studies of sodium alloys (2339) 417
- S. M. KOGARKO, M. I. DEVISHEV, and V. Ya. BASEVICH: Ignition of gases in the reaction products of a flame (2345) 419
- I. V. BEREZIN and B. I. MAKALETS: Mechanism of rupture of the C-C bond in the liquid-phase oxidation of *n*-heptane by molecular oxygen (2351) 422
- Yu. V. FILIPPOV and V. P. VENDILLO: The electrical theory of ozonisers. VI. The effect of the size of the discharge gap on the electrical characteristics of ozonisers (2358) 426
- N. M. SELIVANOVA, G. A. ZUBOVA, and E. I. FINKEL'SHTEIN: Thermodynamic properties of silver selenate (2365) 430
- M. M. VETYUKOV, R. G. CHUVILYAEV, and S. N. SHKOL'NIKOV: Automatic balance for dynamic determination of vapour pressure (2370) 432
- E. M. PETROV and V. F. KOKHOVA: Small-scale autoclave with thermostat and stirring device (2372) 433
- S. I. SKLYARENKO, Yu. U. SAMSON, and V. E. BARU: Apparatus for measuring the electrical conductivity of non-aqueous solutions (2375) 435
- The problem of non-steady-state concentration polarisation (Discussion) (2379) 437
- A. Ya. KIPNIS: Some studies of Russian scientists on the thermodynamics of phase equilibria (2383) 440
- Evgenii Nikolaevich Eremin (Fiftieth Birthday) (2387) 442
- November
- All-Union Conference on Solution Thermodynamics and Structure (January 1958)
- V. V. VATOLLO: The application of the variational method to the calculation of the distribution functions of molecules in a liquid (2393) 445
- A. E. LUTSKII and E. M. OBUKHOVA: Association in binary mixtures and dependence of their physical properties on concentration (2397) 446
- L. D. SHCHERBA and A. M. SUKHOTIN: Study of ion hydration from infra-red absorption spectra (2401) 448
- A. M. SUKHOTIN: Ionic association in solution (2405) 450
- A. M. SARZHEVSKII and A. N. SEVCHENKO: A fluorescence method for determining the volume of the solvate sheaths of molecules in solution (2410) 453
- E. M. RYZHKOV and A. M. SUKHOTIN: An electrochemical study of anhydrous hydrogen chloride solutions (2414) 454
- G. I. MIKULIN: The effect of dielectric saturation of the solvent in the electrostatic theory of solutions (2419) 456
- G. I. MIKULIN: A thermodynamic interpretation of the hydrate theory of electrolyte solutions (2424) 458
- M. F. LANTRATOV and A. F. ALABYSHEV: Thermodynamic properties of liquid metallic solutions formed by potassium with thallium, lead, and bismuth (2429) 460
- E. HÁLA: Liquid-vapour equilibrium. An explicit expression for the equilibrium composition of the phases in multicomponent systems (2435) 463
- Conference on the Physics and Physical Chemistry of Catalysis (April 1958)
- G. M. ZHABROVA, V. I. VLADIMIROVA, and E. V. EGOROV: Effect of sorbed impurities on the catalytic properties of zinc oxide (2442) 467
- O. A. GOLOVINA, M. M. SAKHAROV, S. Z. ROGINSKII, and E. S. DOKUKINA: Isotopic data on the role of two-dimensional chains in the synthesis of hydrocarbons from carbon monoxide and hydrogen (2451) 471
- A. M. BRODSKII, R. A. KALINENKO, K. P. LAVROVSKII, and V. B. TITOV: The mechanism of the high-temperature cracking of ethane (2457) 474
- N. S. RABOVSKAYA: Use of ion-exchange resins as catalysts in organic synthesis (2467) 479
- A. A. BALANDIN, E. I. KARPEISKAYA, and A. A. TOLSTOPYATOVA: The principle of structural correspondence and the catalytic properties of rhenium (2471) 481
- A. A. BALANDIN, O. K. BOGDANOVA, and A. P. SHCHEGLOVA: The influence of the molecular structure of alcohols on the kinetics of their dehydrogenation (2476) 483
- A. A. BALANDIN and E. I. KLABUNOVSKII: Stereochemical study of the mechanism of catalysis (2480) 485
- A. A. BALANDIN, L. Kh. FREIDLIN, and N. V. NIKIFOROVA: Kinetics of the selective catalytic hydrogenation of bifunctional peroxides and hydroperoxides on nickel. Reactions predicted by the multiplet theory (2485) 487
- A. A. BALANDIN and N. A. VASYUNINA: Hydrogenation of monosaccharides and polyhydric alcohols and the multiplet theory of catalysis (2490) 489
- A. A. BALANDIN and E. I. KLABUNOVSKII: Action of enzymes and optically active catalysts from the standpoint of the multiplet theory of catalysis (2492) 489
- D. P. DOBYCHIN and T. F. TSELLINSKAYA: Constancy of catalytic activity per unit surface of solid catalysts (2498) 492
- A. V. AGAFONOV, M. A. KALIKO, I. E. GEL'MS, M. N. PERVUSHINA, and Z. I. RABINOVICH: Physicochemical properties and catalytic activity of some natural materials used for the preparation of cracking catalysts (2504) 495
- E. S. SEMENOVA and L. I. PIGUZOVA: Aluminosilicate-molybdenum oxide catalyst for the destructive hydrogenation of heavy crude-petroleum (2509) 497
- Yu. S. NIKITIN: Investigation of pore structure and catalytic activity of pelleted aluminosilicate catalysts (2513) 499
- M. A. KALIKO: Formation and character of the active centres in aluminosilicate catalysts (2517) 501
- O. A. STREL'TSOV, M. T. RUSOV, and K. K. SKARCHENKO: Effect of conditions of formation on the specific activity of a catalyst for the synthesis of ammonia (2521) 503
- O. M. POLTORAK: The thermodynamics of crystalline catalysts (2524) 504
- V. V. BOLDYREV: Application of the electronic theory of adsorption to the kinetics and mechanism of topochemical reactions (2539) 511
- L. D. KUZNETSOV and S. S. LACHINOV: Effect of aluminium oxide and potassium oxide promoters on the activity of an iron catalyst for the synthesis of ammonia (2542) 513
- L. I. AVRAMENKO and R. V. KOLESNIKOVA: Formation of oxygen atoms on a glass surface (2548) 515
- O. V. KRYLOV and E. A. FOKINA: Some catalytic reactions on the surface of calcium oxide (2555) 518
- V. D. KRYLOV, L. Kh. FREIDLIN, and I. F. ZHUKOVA: The effect of water vapour on the structure and activity of Raney-nickel catalyst (2559) 520
- I. A. MYASNIKOV: Study of intermediate products of a heterogeneous catalytic reaction by measurement of electrical conductivity (2564) 523
- F. P. IVANOVSKII, V. A. DONTSOVA, and G. S. BESKOVA: Kinetics of the catalytic hydrogenation of carbon disulphide on iron, nickel, and cobalt sulphides (2569) 525
- N. M. POPOVA and D. V. SOKOL'SKII: The mechanism of hydrogenation of benzoquinone on platinum, palladium/CaCO₃, and Raney nickel (2573) 527
- D. V. SOKOL'SKII and G. D. ZAKUMBAEVA: The effect of the addition of potassium bromide on the mechanism of the catalytic hydrogenation of some organic compounds (2579) 530
- o0o---
- Yu. G. SIVER: Non-stationary electrode processes in stirred media. I. Potential-current measurements at constant potential (2586) 533

- S. N. ZADUMKIN: The effect of anharmonicity of ion vibrations on the surface tension of metals (2601) 539
- E. I. GUROVICH and M. S. MATVEEVA: Measurement of the potentials of metals in molten salts (2607) 542
- T. A. KOLACH and V. B. ZENKEVICH: An adiabatic calorimeter jacket (2615) 546
- A. T. VAS'KO and D. P. ZOSIMOVICH: Electronic apparatus for the rapid plotting of polarisation curves (2617) 547
- V. F. KISELEV and K. G. KRASIL'NIKOV: The "absolute" adsorptive properties of silica and silicate surfaces (2621) 549
- L. D. BELYAKOVA, O. M. DZHIGIT, A. V. KISELEV, G. G. MUTTIK, and K. D. SHCHERBAKOVA: Reply to the article by V. F. Kiselev and K. G. Krasil'nikov: "The 'absolute' adsorptive properties of silica and silicate surfaces" (2624) 551
- N. K. ANDRUSHCHENKO and N. A. SHISHAKOV: Kinetics of the reversible adsorption of oxygen on the surface of certain metals (2629) 554
- O. Ya. SAMOILOV: Theory of the hydration of ions in aqueous solution (2631) 555
- I. A. SEMIOKHIN, G. M. PANCHENKOV, and Yu. A. ZHUROV: Isotope exchange between carbon dioxide and the carbonate ion in the separation of the isotopes of carbon and oxygen (2633) 556
- A. D. ABKIN, A. P. SHEINKER, and L. P. MEZHIROVA: The carbanion mechanism of polymerisation under the action of γ -rays (2636) 558
- December
- A. I. SERBINOV: Thermal explosion and isothermal decomposition of explosives. I. Activation energy for the decomposition of glycerol trinitrate (2641) 559
- A. M. SUKHOTIN and K. M. KARTASHOVA: Study of the passive iron electrode by dynamic measurement of its capacitance (2649) 562
- V. V. SOSNIN, O. V. TRAVIN, and E. N. YARKHO: Temperature dependence of the rate of desulphuration of cast iron by slags of the $\text{CaO}-\text{Al}_2\text{O}_3-\text{SiO}_2$ system (2652) 564
- D. G. KNORRE, V. L. PIKAEVA, and N. M. EMANUEL': Effect of rate of initiation of active centres on the kinetics of chain reactions with degenerate branching and second-order chain termination (2660) 568
- G. A. EMEL'YANENKO, E. Ya. BAIBAROVA, and V. P. GALUSHKO: The influence of certain organic substances on the electrodeposition of cadmium (2668) 571
- E. A. GYUNNER: Equation for the density of ternary aqueous solution (2674) 574
- M. I. VINNIK, R. S. RYABOVA, and N. M. CHIRKOV: Kinetics and mechanism of reactions in concentrated solutions of strong acids. II. Kinetics of the decarbonylation of phenylglyoxylic (benzoylformic) acid catalysed by sulphuric acid (2677) 575
- A. S. BADRIAN, N. S. ENIKOLOPYAN, and M. S. FURMAN: The influence of pressure in the gas-phase oxidation of hydrocarbons (2687) 580
- L. O. APEL'BAUM and M. I. TEMKIN: Kinetics of the decomposition of ammonia on platinum at low pressures (2697) 585
- Yu. B. KAGAN, A. N. BASHKIROV, E. V. KAMZOLKINA, and A. Ya. ROZOVSKII: Reaction kinetics of carbon monoxide in the presence of iron catalysts (2706) 590
- D. A. BOCHVAR, I. V. STANKEVICH, and A. L. CHIST-YAKOV: Molecular-orbital calculations for certain derivatives of the cyclopropenyl cation (2712) 593
- A. I. ZEBREVA, E. F. SPERANSKAYA, and M. T. KOZLOV-SKII: An electrochemical study of copper-cadmium amalgams (2715) 594
- I. K. PROKHOROVA and G. A. BOGDANOV: The kinetics of the catalytic decomposition of H_2O_2 in the presence of $\text{Na}_2\text{WO}_4 + \text{SrCl}_2$. I. (2721) 597
- L. I. KRISHTALIK: Adsorption equilibrium and kinetics when atoms adsorbed on a metal interact through a surface electron gas (2729) 600
- S. S. URAZOVSKII, I. P. KOTLYARENKO, and A. I. KURIS'KO: Differences between the dissociation constants of polymorphous modifications of acids in non-aqueous solutions (2732) 602
- I. I. DILUNG and B. Ya. DAIN: Spectrophotometric investigation of dark and photochemical reactions of chlorophyll *a* with stannous chloride (2740) 605
- O. A. ESIN and G. A. TETERIN: Electrolytic transfer in fused cobalt silicates (2748) 610
- V. I. LOZGACHEV: Isotopic-exchange method for measuring saturated-vapour pressure and diffusion coefficient. I. The effect of molecular condensation coefficient on the rate of exchange reaction (2755) 613
- V. N. TSVETKOV and V. G. ALDOSHIN: Light scattering and viscosity of acetone solutions of polyphenylmethacrylamide fractions (2767) 619
- I. N. BELYAEV and L. I. POLEZHAIEVA: Dilatometric study of the lead orthophosphate-barium titanate and barium orthophosphate-lead titanate systems (2770) 621
- B. I. BROUNSHTEIN, B. F. YUDIN, and O. S. LUKOVSKII: Thermodynamic properties of elementary iodine (2773) 623
- S. Ya. FRENKEL', A. V. TOPCHIEV, B. A. KRENTSEL', Yu. Ya. GOL'DFARB, and L. M. PYRKOV: Investigation of polydispersity of polymers by the unestablished sedimentation-equilibrium method. I. Study of polyisobutylene prepared in the presence of a complex organometallic catalyst (2778) 625
- S. S. KIRILYUK and S. P. MISKIDZH'YAN: Electrolytic dissociation of some allylamine thiocyanates in various solvents (2786) 629
- G. M. OKSENGENDLER and E. P. GENDRIKOV: Cis-trans isomerism of thioindigos (2791) 631
- A. M. SHKODIN and L. I. KARKUZAKI: Acid-base equilibria in anhydrous acetic acid. I. Determination of acid dissociation constants from electromotive-force measurements (2795) 633
- A. F. VOROB'EV: Calculations on data for a calorimetric experiment when secondary processes with varying rates of heat evolution are present in the main and final periods (2802) 637
- E. E. FINKEL' and K. V. CHMUTOV: Flow counter operating under atmospheric pressure (2805) 638
- E. M. SKOBETS: The analysis of polarographic waves (2807) 639
- N. I. KOBOZEV, V. B. EVDOKIMOV, I. A. ZUBOVICH, I. V. KRYLOVA, V. P. LEBEDEV, A. N. MAL'TSEV, L. I. NEKRASOV, and T. A. POSPELOVA: Hyperparamagnetism in dilute adsorbed films and solid solutions (2811) 641
- F. S. YAKUSHIN, Yu. G. DUBINSKII, E. A. YAKOVLEVA, and A. I. SHATENSHTEIN: Kinetic isotope effect accompanying hydrogen exchange in liquid ammonia (2821) 647
- P. A. AKISHIN, L. N. GOROKHOV, and L. N. SIDOROV: Mass-spectrographic study of sodium chloride and lithium fluoride with a double effusion chamber (2822) 648
- History of the formulation and development of the theory of electrolytic dissociation (centenary of the birth of Svante Arrhenius) (2824) 649