The Precipitation and Hydrolysis of Zinc, Lead and Bismuth in Aqueous Solutions

B. Pokrić

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The pptn. of metal hydroxides, hydrolysis of metal ions, and influence of complexing agents on the formation of ppts. have been investigated in the systems: ZnCl₂-NaOH(HCl)-NaCl-H₂O; Pb(NO₃)₂-HAcac-NaOH(HClO₄)-NaClO₄-H₂O; PbCl₂-NaOH(HCl)-NaCl-H₂O; Bi(ClO₄)₃-NaOH(HClO₄)-NaClO₄-H₂O.

The investigations were done in the pH range from 0.5 to 13.5 and concns. range of metal ions from 1.0 × 10⁻⁴ M to 3.0 × 10⁻² M. The combination of tyndallometry, high voltage electrophoresis and adsorption chromatography on filter paper permits the detn. of regions of pH values and concns. of metal ions in which exist Zn²⁺ and Pb⁺⁺ ionic species, cationic and anionic hydrolytic species of zinc and lead, uncharged lead acetylacetone-Pb(Acac)²⁺, cationic, uncharged and anionic hydroxy-acetylacetone-complexes of lead, cationic chloro-hydroxo-complexes of lead, and cationic perchlorato- and hydroxo-perchlorato-complexes of bismuth.

Uncharged ionic pairs of the form [Na⁺ Zn(OH)⁺]⁺ were found to exist in the region of high pH values instead of the anionic hydroxo-complex Zn(OH)⁻. The same was found for lead, indicating that the free anionic hydroxo-complex of the form Pb(OH)⁻ does not exist in aq. solns.

At 20°C the following solv.consts. were found: for zinc hydroxide: log Kₛₒ = -20.2 and log Kₛₜ = -0.2; for lead hydroxide: log Kₛₒ = -19.3.

The new phenomenon of electrophoretic quasi mobilities characteristic for hydrolytic species in aq. solns. is described as a result of the formation of hydrogen bonds between the hydroxyl groups of metal hydrolytic species and the =CHOH groups of the amorphous part of the filter paper cellulose.


Examiners: Dr. Z. Pušar, Prof. H. Iveković, Prof. M. Mirnik


Dissertation deposited at the University Library, Zagreb, and Institute »Ruder Bošković«, Zagreb.

(85 pages, 34 figures, 100 references, original in Croatian)

B. POKRIC
DCC-30

1. The Precipitation and Hydrolysis of Zinc, Lead and Bismuth in Aqueous Solutions

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Bismuth
—, hydrolysis and precipitation of
Electrophoresis, high voltage
—, of zinc, lead and bismuth
Hydrolysis
—, of zinc, lead and bismuth
Lead
—, hydrolysis and precipitation of
Mobility, quasi
new electrochromatographic phenomenon
2,4-Pentanedione
—, complexes with lead
Precipitation
—, of zinc, lead and bismuth
Zinc
—, hydrolysis and precipitation of
Electrochemical Study of Uranium(VI) Peroxo Complexes

V. Žutić

»Ruder Bošković« Institute, Zagreb, Croatia, Yugoslavia

Redox processes of uranium(VI) peroxo complexes in aq. alkali carbonate and hydroxide solns. were studied using polarographic techniques, cyclic voltammetry, and coulometry at mercury electrodes.

In the system U(VI)–H₂O–Me₂CO₅, uranyl peroxodicarbonate has been identified as the electroactive species, with the following parameters of the redn. process: (E₁/₂, E₂, n = 0.82 V/S.C.E., n = 3, a = 0.92, k₀ = 2.5 x 10⁻⁸ cm. sec⁻¹ and the charge of the electroactive species z = -2. The redn. product, uranium(V) tricarbonato complex, reduces the peroxy group of uranyl peroxodicarbonato complex; the homogenous rate const. has been detd. as k = 60 and 4 x 10⁻¹ mol⁻¹ at 10 and 40° C, respectively.

Depending on the H₂O₂/U ratio in the system U(VI)–H₂O₂–MeOH uranium(VI) hydroxo, monoperoxo and triperoxo complexes have been characterized as electroactive species. Electrochemical redn. of uranium (VI) hydroxo complex is a simple process with E₁/₂ = 0.88 V, a = 0.49, k₀ = 3.3 x 10⁻² cm. sec⁻¹ and z = -1. Redn. of the uranium(VI) monoperoxo complex gives two waves – quasi-reversible wave at -1.05 V and an irreversible one around -1.5 V. On the other hand, uranium(VI) triperoxo complex is reduced through a single seven-electron irreversible process with E₁/₂ = -1.45 V. In all cases the same uranium(V) hydroxo complex has been identified as the stable redn. product. The behavior is still complicated by the bulk recombination reaction between uranium(VI) triperoxo and hydroxo complex, and redox reactions between uranium(V) hydroxo complex and any species containing the peroxy group.

It has been concluded that the first step of the overall redn. process of the peroxo complexes studied is the one electron redn. of the uranyl group, the potential of which is detd. by the stability of uranyl-ligand bond. The following step shows the usual characteristics presented by the noncomplexed peroxy group.


Examiners: Prof. I. Filipović, Prof. B. Težak, and dr. M. Branica.


Dissertation deposited at the University Library, Zagreb.

(150 pages, 15 tables, 58 figures, 193 references, original in Croatian).

V. ŽUTIĆ
DCC-31

1. Electrochemical Study of Uranium(VI) Peroxo Complexes
I. Žutić V.
II. »Ruder Bošković« Institute, Zagreb, Croatia, Yugoslavia

<table>
<thead>
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<th>Electrochemistry</th>
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<td>- of hydrogen peroxide-uranium</td>
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Analysis and Separation of Polarographic Waves

I. Ružić

Laboratory for Physico-Chemical Separations, Center for Marine Research, "Ruder Bošković" Institute, Zagreb, Croatia, Yugoslavia

Equations of current-potential curves for Kalousek commutator polarography, square-wave polarography, Fourier's technique, and radio-frequency polarography have been derived for reversible electrode reactions. The analysis of exp. current-potential curves for the mentioned techniques has been proposed, and the results were compared with those obtained by usual logarithmic analysis of d.c. polarograms. The general equation for such analysis has the form: 

$$A (i - i_0)^x + (A + 1)(i - I) x + i - I^* = 0,$$

where $A = \exp \left( - \frac{nF A}{RT} \right)$, $x = \exp \left( - \frac{nF (E - E_{1/2})}{RT} \right)$, $I^*$ is the residual current, $I$ is a function of the peak current, $i_0$ is the limiting current, and $A E$ is the amplitude of the polarizing voltage. $E$, $n$, $F$, $R$, $T$ and $E_{1/2}$ have their usual meaning. The procedure for the analysis of Kalousek's curves and square-wave polarograms has been applied for the analysis of normal pulse and derivative pulse (as well as a.c. and d.c. differential) polarograms respectively.

A new method for the analysis of quasi-reversible d.c. polarographic waves has been proposed, giving more accurate results than that of Koryta and Matsuda-Ayabe.

The methods for the analysis and separation of two (or more) overlapping d.c. waves as well as derivative curves have been proposed. In the first case the method can be applied for the analysis and separation of anodic-cathodic quasi-reversible d.c. waves, d.c. polarograms of a multistage polyelectronic electrode reaction, Kalousek's curves type I and II and their combinations.


Examiners: Dr. M. Branica, prof. I. Filipović and prof. R. Wolf.


Degree conferred: February 26, 1971.

(250 pages, 15 tables, 108 figures, 300 references, original in Croatian)

I. RUZIC
DCC-32

I. Analysis and Separation of Polarographic Waves

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Polarographic curves, analysis of
— for different d.c. and a.c. techniques
— for overlapping curves
— for quasireversible d.c. polarograms
BIBLIOGRAPHIA CHEMICA CROATICA

MCC-38 (Univ. Zagreb)
Master of Science Thesis


Preparation and Chelating Properties of Optically Active 1,2-diaminocyclopentane-N,N,N',N'-tetraacetic Acids

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Starting from diethyladipate, 1,2-diaminocyclopentane-N,N,N',N'-tetraacetic acid was prepd. through five reaction steps. The racemic acid was resolved with brucine and the obtained optically active acids showed specific rotations: \([\alpha]_D = +58^\circ\) and \([\alpha]_D = -53^\circ\), resp. In this way it was proved that the trans isomer of the acid is the main product of the synthesis.

Both optically active acids were used for the prepn. of resp. cobalt(II) complexes. The ORD-spectra of Co(II)-(+-)-CPDTA and Co(II)-(--)-CPDTA systems are related as mirror images (within the limits of exptl. error). These spectra are anomalous and irregular so that the abs. configuration of these complexes could not be ascertained on the ground of analogy with similar EDTA or CDTA chelates. From UV and visible absorption spectra of these complexes it could be considered that a Jahn-Teller effect is involved, giving rise to a broad max. at 450–520 nm.

Stability consts. of all the complexes investigated, detd. by a potentiometric method using a mercury pool electrode, are not significantly different.

Examiners: Dr. D. Fleš, Dr. Vl. Simeon and Prof. K. Balenović.


Thesis deposited at the Institute for Medical Research, Zagreb and at the Institute of Organic Chemistry and Biochemistry, University of Zagreb.

(73 pages, 7 tables, 4 figures, 61 references, original in Croatian)

N. PAULIC
MCC-38

1. Preparation and Chelating Properties of Optically Active 1,2-diaminocyclopentane-\(N,N,N',N'\)-tetracetic Acids

I. Pauliž N.

II. Laboratory of Analytical and Physical Chemistry, Institute for Medical Research, Yugoslav Academy of Sciences and Arts, Zagreb, Croatia, Yugoslavia

Co(II)-complexes 1,2-diaminocyclopentane-\(N,N,N',N'\)-tetracetic acid, resolution of Optically active ligands, complexes with
Potentiometric Determination of Stability Constants of Formato,
Glycolato and Chloroacetato Complexes of Nickel, Cadmium
and Lead

T. Matusinović

Laboratory of Inorganic Chemistry, Faculty of Technology,
University of Zagreb, Zagreb, Croatia, Yugoslavia

Stability consts. of formato, glycolato and chloroacetato complexes of nickel, cadmium and lead have been detd. by the potentiometric method. The change of concn. of the hydrogen ions in the monocarboxylate buffer has been measured. Stability const. have been obtained graphically using Fronaeus' method and by means of a digital computer applying the Gauss Z programme devised by R. S. Tobias.

All measurements were performed at the temp. of 25 ± 0.1°C except those in chloroacetate buffers where it was 18 ± 0.1°C in order to avoid the hydrolysis of the chloroacetate. The ionic strength of investigated solutions was kept const. at 2 M.

From the values of the first stability const. it can be seen that the stability of the monoligand complexes increases for all investigated systems in the series:

Formato complexes:  \( \text{Ni}^{2+} < \text{Cd}^{2+} < \text{Pb}^{2+} \)

Glycolato complexes:  \( \text{Cd}^{2+} < \text{Ni}^{2+} < \text{Pb}^{2+} \)

Chloroacetato complexes:  \( \text{Ni}^{2+} < \text{Cd}^{2+} < \text{Pb}^{2+} \)

The stability of monocarboxylato complexes of nickel, cadmium and lead, increasing in the order: \( \text{Ni} < \text{Cd} < \text{Pb} \) (with exception of glycolato complexes), is in agreement with their tendency to polarization (i.e. with the mobility of electrons), because \( H \) increases in the same order (\( 6.7 \times 10^{-4}, 0.96 \) and 4.34 cm³).

With regard to the ligand component, for all investigated metal ions, except lead ion, the observed orders of complex stability are in agreement with the order of ligand basicity, with the exception of glycolato complexes. The highest stability of glycolato complexes, except those of lead, is due to the presence of the OH group in the glycolate ion which is bonded to the metal ion as well. In the lead glycolato complexes such a bond does not probably exist because the position of glycolato complexes in the above stability order corresponds to the basicity of the glycolate ion with regard to the other monocarboxylate ions. A markedly higher stability of the lead chloroacetato complexes is in contradiction with the basic properties of this ligand and the explanation of this phenomenon cannot be given as yet.

Examiners: Prof. I. Filipović, Prof. B. Lovreček and Prof. M. Herak.


Thesis deposited at the University Library, Zagreb and Faculty of Pharmacy and Biochemistry, University of Zagreb.

(138 pages, 36 tables, 37 figures, 61 references, original in Croatian).

T. MATUSINOVIĆ
**MCC-39**

1. Potentiometric Determination of Stability Constants of Formato, Glycolato and Chloroacetato Complexes of Nickel, Cadmium and Lead

I. Matusinović T.

II. Laboratory of Inorganic Chemistry, Faculty of Technology, University of Zagreb, Zagreb, Croatia, Yugoslavia

<table>
<thead>
<tr>
<th>Cadmium(II) complexes</th>
<th>Chloroacetate, metal complexes with Formate, metal complexes with Glycolate, metal complexes with Lead(II) complexes</th>
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<tr>
<td>Nickel(II) complexes</td>
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</table>
Spectrophotometric Determination of Stability Constants of Formato, Acetato, Propionato, Butyrate, Glycolato and Chloroacetato Complexes of Cobalt, Nickel and Copper

B. Grabaric

Laboratory of Inorganic Chemistry, Faculty of Technology, University of Zagreb, Zagreb, Croatia, Yugoslavia

Stability constants of Co(II), Ni(II) and Cu(II) complexes with ligands: formate, acetate, propionate, butyrate and chloroacetate were detd. spectrophotometrically, using Bjerrum's method of corresponding solns. Investigations were performed in the visible spectral region and the absorbance was measured at following wavelengths: 520, 670 and 760 nm for cobalt, nickel and copper resp. All investigated systems had a constant ionic strength of 2 (NaClO4) and a following constant ratio carboxylic acid/salt = 1:2 for formate and glycolate, 1:8 for chloroacetate, 5:1 for acetate and 6:1 for propionate and butyrate solns. The absorbance was recorded at room temp. (20–25°C), except for chloroacetate which was recorded at 10°C (because of the hydrolysis of chloroacetate at higher temps.).

Stability constants of the complexes were evaluated using Fronaeus' graphical method and these values were then refined according to R. S. Tobias' computer programme (Inorg. Chem 2 (1963) 1307) for weighted non-linear least squares procedure.

From the values of the first stability constants, it can be seen that the stability of the monoligand complexes increases for all investigated systems in the series:

\[
\text{Co} < \text{Ni} < \text{Cu} < \text{ClAc} < \text{Form} < \text{Ac} \leq \text{But} < \text{Prop} < \text{Glyc}
\]

The first series is in agreement with the order established by H. Irving and R. J. P. Williams (J. Chem. Soc. 1933, 3192). The second series, with the exception of glycolate, is in agreement with the order of ligand basicities (measured by pKₐ value). The greater stability of glycolato complexes probably is due to the interaction metal ion-OH group. Chloroacetato complexes of nickel are so weak that their presence, under our expl. cond., could not be detected.

Examiners: Prof. I. Filipovic, Prof. K. Weber and Prof. M. Herak


Thesis deposited at the University Library, Zagreb and Faculty of Pharmacy and Biochemistry, University of Zagreb.

(133 pages, 56 tables, 54 figures, 49 references, original in Croatian)

B. GRABARIC
1. Spectrophotometric Determination of Stability Constants of Formate, Acetato, Propionato, Butyrate, Glycolato and Chloroacetato Complexes of Cobalt, Nickel and Copper

I. Grabarić B.

II. Laboratory of Inorganic Chemistry, Faculty of Technology, University of Zagreb, Zagreb, Croatia, Yugoslavia

Acetate, metal complexes with Butyrate, metal complexes with Chloroacetate, metal complexes with Cobalt(II) complexes Copper(II) complexes Formate, metal complexes with Glycolate, metal complexes with Nickel(II) complexes Propionate, metal complexes with
MCC-41 (Univ. Zagreb)  
Master of Science Thesis  


**Thermochemistry of Rare-Earth Complexonates**  

N. Ivićić  

*Laboratory of Analytical and Physical Chemistry, Institute for Medical Research, Yugoslav Academy of Sciences and Arts, Zagreb, Croatia, Yugoslavia*

An isoperibolic reaction calorimeter was tested with regard to its accuracy and precision. This instrument has been found to have a satisfactory precision (about 0.7%) and a small systematic error (about 1.4%) so that it was found suitable for studying the complex formation in soln.

Co-ordination enthalpies of tripositive lanthanide ions (except Pm³⁺) with ligand trans-1,2-diaminocyclopentane-N,N,N',N'-tetraacetic acid (CPDTA) were detd. using above-mentioned calorimeter. From the experimental ΔHº data and the literature ΔGº values the co-ordination entropies were calcd. Besides the irregular dependence of either ΔHº or ΔSº on r⁻¹, very significant correlations of ΔSº with Sº(Ln³⁺) and ΔHº were observed and discussed.


*Examiners:* Dr. Vl. Simeon, Prof. B. Težak, and Prof. M. Herak  
*Oral examination:* October 5, 1970.  
*Degree conferred:* October 31, 1970.  

Thesis deposited at the Central Chemical Library, Zagreb and Institute of Medical Research, Zagreb.  

(75 pages, 9 tables, 10 figures, 58 references, original in Croatian)

N. IVIĆIĆ
MCC-41

1. Thermochemistry of Rare-Earth Complexonates
I. Ivicic N.
II. Institute for Medical Research, Yugoslav Academy of Sciences and Arts, Zagreb, Croatia, Yugoslavia

Calorimetry
Lanthanides, complexes of Polyaminopolycarboxylic acids trans-1,2-diaminocyclopentane-N,N,N',N'-tetraacetic acid
π-Participation and Secondary Deuterium Isotope Effects.
Cholesteryl System

M. Tarle

Institute »Ruder Boskovic«, Zagreb, Croatia, Yugoslavia

Solvolyis of cholesteryl derivs. is assisted by homoallylic participation which results in a 100 fold increase in reactivity with respect to the cholestanyl system.

α-Deuterium isotope effect of the cholesteryl-3α-d1 tosylate \( k_H/k_0 = 1.130 \) was of normal magnitude and equal to the effect measured on the satd. compd. This shows that α-effects are not a sensitive probe for the participation of neighboring double bond.

In the opposite sense the β-deuterium effect in the solvolysis of cholesteryl-4β-d1 tosylate was inverse \( k_H/k_0 = 0.989 \). This can be explained by a drastically reduced possibility for hyperconjugation in the transition state due to the formation of the mesomeric cation (and possibly by induction). The satd. analogue gave a normal β-isotope effect \( 1.20 \).

The δ-effect in the solvolysis of cholesteryl-6δ-tosylate was inverse, \( k_H/k_0 = 0.937 \), indicating a change of the covalency at the carbon atom 6 in the transition state.

The α-effects of cholesteryl-3α-d1 tosylate \( 1.13 \) and epicholesteryl-3β-d1 tosylate \( k_H/k_0 = 1.104 \) were compared. The solvolysis of the latter is presumably assisted by C–H bond participation. From the above comparison it can be concluded that the distance between the internal nucleophile and the reaction center, which dets. the degree of bridging in the transition state, influences the magnitude of α-effect regardless of the rate acceleration produced by the electrons of the participating group. The significance of these results has to be tested on the similar systems.

On the basis of these results it can be concluded that in heterolytic reactions secondary β-isotope effects are very sensitive towards participation, while δ-effects in such systems are significant for rehybridization which occurs on the top of the potential energy barrier.

Examiners: Prof. D. E. Sunko, Prof. S. Ašperger, and Prof. D. Fleš.


Thesis deposited at the University Library.

(89 pages, 16 tables, 49 figures, 104 references, original in Croatian).

M. TARLE
MCC-42

1. \( \pi \)-Participation and Secondary Deuterium Isotope Effects. Cholesteryl System

I. Tarle M.
II. Institute «Ruder Bošković», Zagreb, Croatia, Yugoslavia

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<th>Compound</th>
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<tr>
<td></td>
<td>6(^{-})d-tosylate ester</td>
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<tr>
<td>Epicholesterol</td>
<td>3(^{+})d-tosylate ester</td>
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Isotopic effects by deuterium in solvolysis of cholesteryl tosylate in solvolysis of epicholesteryl tosylate
MCC-43 (Massachusetts Institute of Technology)  
Master of Science Thesis  
Sorption of Some Volatile Organic Compounds on Cellulose  
M. Bošković  
Dept. of Nutrition and Food Science, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.

A system for temp. control of saturators and column thermostat baths was designed, assembled and incorporated into an existing expzl. app. for measurement of vapor-solid sorption at low sorbate concns.

Surface areas of microcrystalline Whatman CC 31 cellulose were measured by phys. adsorption of nitrogen at liquid nitrogen temps. ("B-point method"). Nitrogen-specific B.E.T. surface areas for 0.4, 1.35, and 5.75 g. columns were 2.13, 4.83 and 2.30 m²/g. Incongruency of sorption isotherms measured with these columns was ascribed to differences in available surface areas, caused by packing procedures. Isotherms were measured for hexane, acetone and ethanol on microcrystalline cellulose at 23°C. At a const. activity of $10^{-4}$ the ratio of amts. of three vapors adsorbed were 1 : 6 : 7.8, indicating more interaction of acetone and ethanol with the sorbent surface.

Room temp. (23°C) sorption isotherms of ethanol vapors on the same sorbent were measured, in the partial pressure range 10 to 1500 mtorr and 1 to 1200 mtorr for 5.8 and 0.4 g columns, respectively. The corresponding activity range was $2 \times 10^{-6}$ to $3 \times 10^{-2}$. Isotherm curves were concave to the pressure axis, their curvature decreasing with activity increase. Isotherm shape is consistent with both type II and type IV isotherms (after classification introduced by Brunauer et al., 1940), and suggests sorbate-sorbent interaction, possibly with surface hydroxyl groups of the sorbent. Amounts adsorbed were in the range of $\gamma$ sorbate per g. sorbent. The frontal curves measured for ethanol at 0° and for hexanol at 23° and 0°C exhibited steps. A discussion of alcohol sorption on cellulose is included stressing the possibility of stepwise adsorption (type IV isotherm) as an operative mechanism.

Thesis Supervisor: Phillip Issenberg, Assoc. Prof. of Food Science, Dept. of Nutrition and Food Science, Massachusetts Institute of Technology


Thesis deposited at: M.I.T. Library, Dept. of Nutrition and Food Science at M.I.T., and at Faculty of Technology, Univ. of Zagreb

(ix + 187 pages, 9 tables, 13 figures, 102 references, original in English)

M. BOŠKOVIC

Present address: Fruit and Vegetable Laboratory, Dept. of Biotechnology, Faculty of Technology, Univ. of Zagreb, Zagreb Yugoslavia
**MCC-43**

<table>
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<th>I. Sorption of Some Volatile Organic Compounds on Cellulose</th>
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<td>I. Bošković M.</td>
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<td>II. Fruit and Vegetable Laboratory, Dept. of Biotechnology,</td>
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<tr>
<td>Faculty of Technology, Univ. of Zagreb, Pierottijeva 6,</td>
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<td>Zagreb, Croatia, Yugoslavia</td>
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1968

BCC-852
K. Adamić
Zagreb (Yugoslavia)
ESR Study of Free Radical Transformation in Gamma-Irradiated Starch
Stärke 20 (1968) 3.

1969

BCC-853
K. Adamić, J. A. Howard, and K. U. Ingold
Division of Applied Chemistry, National Research Council of Canada, Ottawa, Canada
Absolute Rate Constants for Hydrocarbon Autoxidation. XVI. Reactions of Peroxy Radicals at Low Temperatures

BCC-854
A. Baric and M. Branica
Center for Marine Research, Institute »Ruder Bošković«, Zagreb, Yugoslavia
Behaviour of Indium in Sea Water

BCC-855
M. J. S. Dewar and N. Trinajstić
Department of Chemistry, University of Texas, Austin, Texas 78712, USA
Ground States of Conjugated Molecules. XIV. Redox Potentials of Quinones

BCC-856
M. J. S. Dewar, A. J. Harget, and N. Trinajstić
Department of Chemistry, University of Texas, Austin, Texas 78712, USA
Ground States of Conjugated Molecules. XV. Bond Localization and Resonance Energies in Compounds Containing Nitrogen or Oxygen

BCC-857
J. N. Herak and V. Galogaja
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
Radical Transformation in Irradiated DNA and its Constituents

BCC-858
J. N. Herak, V. Galogaja, and A. Dulčić
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
Electron Spin Resonance of Hydrogen Addition Radicals in an Irradiated Single Crystal of Cytosine
BCC-859
J. A. Howard, K. Adamić, and K. U. Ingold
Division of Applied Chemistry, National Research Council of Canada, Ottawa, Canada
Absolute Rate Constants for Hydrocarbon Autoxidation.
XIV. Termination Rate Constants for Tertiary Peroxy Radicals

BCC-860
B. Kamenar and D. Grdenič
Laboratory of General and Inorganic Chemistry, Faculty of Science, The University, Zagreb, Yugoslavia
The Crystal Structure of Mercury(II) Acetamide

BCC-861
V. Katović, L. T. Taylor, and D. H. Busch
Department of Chemistry, The Ohio State University, Columbus, Ohio 43210
Application of the Coordination Template Effect to Prepare Five-Coordinate Nickel(II) and Copper(II) Complexes Containing a »Basket-Like« Polycyclic Ligand

BCC-862
A. Kornhauser and D. Keglević
Tracer Laboratory, Institute »Ruder Bošković«, Zagreb, Yugoslavia

BCC-863
J. Mašek, M. G. Bapat, B. Ćosović, and J. Dempire
J. Heyrovsky Institute of Polarography, Czechoslovak Academy of Sciences, Prague I
Polarographic Studies of Nitrosyl Compounds. IV. Reversibility and Kinetic Parameters of the Nitroprusside Ion Reduction

BCC-864
V. Mikuličić, K. Conki, and K. Weber
Zavod za sudsku medicinu i kriminalistiku Medicinskog fakulteta, Zagreb
Djelovanje soli teških kovina na kemiluminiscenciju luminola
Arhiv Hig. Rada Toksikol. 20 (1969) 275.

BCC-865
Z. Proso and Z. Pučar
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
Preparation of Carrier-Free Radionuclides from Cyclotron Targets by Continuous Electrophoresis. I. Separation of 55Fe from Manganese, 54Mn and 58,57,56Co from Iron, 65Zn from Copper, and 109Cd from Silver Target

BCC-866
Z. Proso and Z. Pučar
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
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Hydropyrimidines. Part VIII. Reactions of Some Dihydropyrimidines and Their Thioderivatives with Nucleophiles

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V. Škarić, L. Stuhne, Dj. Škarić, and V. Turjak-Zebić
Institute «Ruder Bošković», Zagreb, Croatia, Yugoslavia
4,5,6,7-Tetrahydro-3-oxo-2H-Indazolecarboxylic Acids. Part V. Isomers and Their Dimerisations

BCC-870
M. Sljukić, B. Matković, B. Prodić, and D. Anderson
Institute «Ruder Bošković», Zagreb, and Washington State University, Pullman, Washington
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Z. Stefanac, M. Tomašković, and Z. Raković-Tresić
Institute for Organic Chemistry and Biochemistry, University of Zagreb, Yugoslavia
Spectrophotometric Method of Assaying Urease Activity

BBC-872
B. Tomažić, V. Žutić, and M. Branica
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Preipitation and Complex Solubility of Uranium(VI) in Lithium Hydroxide Solutions

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M. Topić and B. Prodić
Institute «Ruder Bošković», Zagreb, Croatia, Yugoslavia
Ferroelectric Properties of NaU₂(PO₄)₃ Single Crystals

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M. Topić, B. Prodić, and M. Sljukić
Institute «Ruder Bošković», Zagreb, Croatia, Yugoslavia
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Division of Chemistry, National Research Council of Canada, Ottawa 7, Canada
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Division of Chemistry, National Research Council, Ottawa, Canada
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BCC-879
F. C. Anson and J. Čaja
Gates and Crellin Laboratories of Chemistry, California Institute of Technology, Pasadena, California
The Adsorption of Vanadium(III) on Mercury from Thio cyanate Solutions and its Electrochemical Consequences

BCC-880
N. Blažević and F. Kajfež
Compagnia di Ricerca Chimica SA. Chiasso and Faculty of Pharmacy and Biochemistry, University of Zagreb
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Chemical-Pharmaceutical Research Institute, Cluj, Romania and Department of Chemistry, University of Texas at Austin, Austin, Tex. 78712
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Research Department »Pliva« Pharmaceutical and Chemical Works, Zagreb, Yugoslavia
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T. Cvitaš and J. M. Hollas
Chemistry Department, The University, Reading, England
Rotational Band Contour Analysis in the 2710 Å System of p-Difluorobenzene
BCC-884
T. Cvitaš and J. M. Hollas
Chemistry Department, University of Reading, Reading, England
Rotational Band Contour Analysis in the 280 Å System of p-Dichlorobenzene

BCC-885
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Zavod za kemiju i biokemiju, Medicinski fakultet, Zagreb
Spektrofotometrijsko određivanje arsena. II.

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R. Despotović, M. J. Herak, M. Mirnik, and Z. Selir
Department of Physical Chemistry, Institute «Ruder Bošković», Zagreb, Yugoslavia
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Dj. Deur-Siftar and V. Švob
INA-Institute for Research and Development, Zagreb (Yugoslavia)
Characterization of Polypropylene by Pyrolysis Gas Chromatography

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M. J. S. Dewar and N. Trinajstić
University of Texas, Department of Chemistry, Austin, Texas 78712, USA
Triplet States of Aromatic Hydrocarbons

BCC-890
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Resonance Energies of Some Compounds Containing Nitrogen or Oxygen

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University of Texas, Department of Chemistry, Austin, Texas 78712, USA
Quantum Chemical Data. I. SCF Molecular Orbitals for Benzenoid Hydrocarbons

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M. J. S. Dewar and N. Trinajstić
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Quantum Chemical Data. II. SCF Molecular Orbitals for Non-Benzenoid Hydrocarbons
BCC-893
M. J. S. Dewar and N. Trinajstić
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Ground States of Conjugated Molecules. XVIII. Azepine and Oxepine

BCC-894
M. J. S. Dewar and N. Trinajstić
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Ground States of Conjugated Molecules. XX. SCF MO Treatment of Compounds Containing Bivalent Sulphur

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M. J. S. Dewar, A. J. Harget, N. Trinajstić, and S. D. Worley
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Ground States of Conjugated Molecules. XXI. Benzofurans and Benzopyrroles

BCC-896
M. J. S. Dewar, J. A. Hashmall, and N. Trinajstić
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Ground States of Conjugated Molecules. XXII. Polarographic Reduction Potentials of Hydrocarbons

BCC-897
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Department of Biocolloidal Chemistry, Andrija Stampar School of Public Health, Faculty of Medicine, University of Zagreb, and Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
Light Scattering in Dense Media — its Theory and Practice

BCC-898
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Laboratory of Biocolloidal Chemistry, Andrija Stampar School of Public Health, Faculty of Medicine, University of Zagreb, and Institute »Ruder Bošković«, Zagreb, Croatia (Yugoslavia)
Preparation of Monodisperse Polystyrene Latices

BCC-899
M. Dikšić, P. Strohal, G. Peto, P. Bornemisza, I. Hunyadi, and J. Kerolyi
Institute »Ruder Bošković«, Zagreb, Yugoslavia
Contribution to (n, gamma) Reactions Studies at 3 MeV

BCC-900
C. Djordjević and V. Katović
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Co-ordination Complexes of Niobium and Tantalum. VIII Complexes of Niobium(IV), Niobium(V), and Tantalum(V) with Mixed Oxo, Halogens, Alkoxy, and 2,2'-Bipyridyl Ligands
BCC-901
A. Gertner and V. Grdinić
Zavod za kemiju Farmaceutsko-biokemijskog fakulteta, Zagreb,
Kompleksometrijsko ultramikro-određivanje aluminijuma

BCC-902
A. Gertner, V. Grdinić, and M. Parag
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Kompleksometrijsko određivanje kisika u vodenim otopinama

BCC-903
V. Grdinić and A. Gertner
Institut für Chemie, Fakultät für Pharmazie und Biochemie, Zagreb
Eine Apparatur für die kontinuierliche Extraktion von extrem kleinen Proben und der ringförmigen Zonen auf dem Filterpapier

BCC-904
Lj. Grlić
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Differentiation combinée au spectrophotomètre de cannabis de types chimiques divers

BCC-905
Lj. Grlić
Jugoslovenski leksikografski zavod, Zagreb
Suvremene laboratorijske metode za otkrivanje toksikomanija

BCC-906
Lj. Grlić
Laboratory for Addictive Drugs, Office of Chief Medical Examiner,
New York City, U.S.A.
A Highly Sensitive Chromatographic Detection of Cannabis Constituents by Means of Silica Gel Sheets Treated with Silver Nitrate

BCC-907
Lj. Grlić
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New York City, N. Y. (U.S.A.)
A Simple Thin-Layer Chromatography of Cannabinoids by Means of Silica Gel Sheets Treated with Amines

BCC-908
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New York City, USA
A Highly Sensitive Chromatographic Detection of Cannabis Constituents by Means of Silica Gel Sheets Treated with Silver Nitrate

BCC-909
Lj. Grlić
Yugoslav Lexicographical Institute, Zagreb
Some New Possibilities of Separation of Cannabinoids by Means of Thin Layer Chromatography on Silica Gel Precoated Plastic Sheets
O. Hadžija
Tracer Laboratory, Institute »Ruder Bošković«, Zagreb, Yugoslavia
Lead Dioxide in Simultaneous Microdetermination of Carbon, Hydrogen and Halogens or Sulphur

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Radiation-Induced Conformation Changes of the Pyrimidine Ring in a Single Crystal of Dihydrothymine

M. Herceg and R. Weiss
Institute »Ruder Bošković«, Zagreb (Yugoslavia) and Laboratoire de Cristallographie, Institut de Chimie, B.P. 296 / RS, Strasbourg, France
The Structure of a Macrocyclic Copper(II) Complex; Dichloro(1,7,10,16-Tetraoxa-4,13-Diazacyclooctadecane) Copper(II)

B. Hrastnik, I. Basar, M. Dikšič, K. Ilačovac, V. Kos, and A. Ljubičić
Institute »Ruder Bošković«, Zagreb, Yugoslavia
Directional Correlation Studies in the Decay of 177mLu

K. Humski, R. Malojčić, S. Borčić, and D. E. Sunko
Institute »Ruder Bošković«, Zagreb, Yugoslavia
Thermodynamic and Kinetic Secondary Isotope Effects in the Cope Rearrangement

B. Kamenar and C. K. Prout
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Crystal and Molecular Structures of Dichloro(oxo)-2,2'-Bipyridylethoxyniobium(V) and Tetraphenylarsonium Oxopentathiocyanatoniobate(V)

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Tracer Laboratory, Institute »Ruder Bošković«, Zagreb, Yugoslavia
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B. Kunst and S. Sourirajan
Division of Chemistry, National Research Council of Canada, Ottawa, Canada
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B. Lovreček and S. Lipanović
Institute of Electrochemistry and Electrochemical Technology, Zagreb, Yugoslavia

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T. Lovrić, Z. Sablek, and M. Bošković
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Z. Majerski, S. H. Liggero, P. R. Schleyer, and A. P. Wolf
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The Degenerate Isomerization of adamantane


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Department of Chemistry, Princeton University, Princeton, New Jersey 08540 and Department of Chemistry, Brookhaven National Laboratory, Upton, New York

Stereochemical Inhibition of Intramolecular 1,2-Shifts. Mechanistic Evidence for Skeletal Rearrangement During Apparent 1,2-Methyl Shifts of Adamantane


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Tautomerism of Phenols; A Theoretical Study


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Institute «Ruder Bošković», Zagreb and Institute for Inorganic and Analytical Chemistry, Zagreb, (Yugoslavia)

The Crystal Structure of Thorium Carbohydrides. Part II. Hexagonal Thorium Carbohydride

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Die Kristallstruktur von Zn(NO₃)₂ • 4 H₂O

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Catalysis of Olefin Isomerizations by Boron Trifluoride

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Utilisation des chlorures métalliques in statu nascendi comme catalyseurs de sulfu action. Sulfures d’halogéno-aryles

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Thio-Analogues of 5,6-Dihydrouridine

M. Sljukić, B. Ribar, F. Gabela, T. Ribar, M. Glavaš, and B. Matković
Physics and Chemical Institute, Sarajevo and Institute »Ruder Bošković«, Zagreb

Crystal Data for ZnCl₂ • 2 CH₃CON(CH₃)₂, ZnCl₂ • 2 HCON(CH₃)₂ and ZnCl₂ • 4 (CH₃)₂SO

B. Tomazić
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia

Extraction of Traces of Cerium, Europium, Terbium and Lutetium from Uranium(VI) Solutions with Di-2-Ethylhexyl Phosphoric Acid

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Extraction of Traces of Rare-Earth Elements from Aqueous Solutions of Nitric Acid with Toluene Solutions of Di-2-Ethylhexyl Phosphoric Acid 0.02 M in Uranium(VI)

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Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia

AgTh₂(PO₄)₃ — a New Case of the Non-Hydrogen Bonded Phosphate Ferroelectric
A. Velenik, T. Zivković, W. H. de Jen, and J. N. Murrell
School of Molecular Sciences, University Sussex, Brighton
The Hydrogen Atom in the Presence of the Fermicontact Interaction

M. Vlatković and E. Willard
Department of Chemistry, University of Wisconsin, Madison, Wisconsin
Radiation Chemistry of $^{129}$I Produced by the $^{127}$I (n,γ) $^{129}$I Process from Alkyl Iodides in Hydrocarbons

K. Weber, Z. Gašparec, and P. Spasić
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Die Wirkung des Myoglobins auf die Chemilumineszenz des Luminols

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O fluorescenciји berberina u otopinama i adsorbatima

F. M. Zado and J. Fabečić
Institute »Ruder Bošković«, Zagreb, Yugoslavia
The Physico-chemical Fundamentals of Gas Chromatographic Retention on porous Polymer Columns: Porapak Q and T

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Center for Marine Research, Institute »Ruder Bošković« Zagreb, Yugoslavia
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Division of Chemistry, National Research Council, Ottawa 7, Canada
Kinetic Applications of Electron Paramagnetic Resonance Spectroscopy. I. Self-Reactions of Diethyl Nitroxide Radicals

L. H. Allen, E. Matijević, and L. Meites
Institute of Colloid and Surface Science and Department of Chemistry, Clarkson College of Technology, Potsdam, N.Y. 13676.
Exchange of Na+ for the Silanolic Protons of Silica
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V. C. Armstrong, Z. Katović, and A. M. Eastham
National Research Council of Canada, Ottawa, Canada
**Surface Effects in Cationic Polymerizations**

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N. Avdalović, and G. Sachs
Department of Physiology, Faculty of Medicine, University of Zagreb, Zagreb (Yugoslavia) and Division of Gastroenterology, Department of Medicine, University of Alabama in Birmingham, Ala. 35233 (U.S.A.)
*(Na⁺—K⁺)-ATPase in the Kidney of Normal and Castrated Mice*

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I. Baćić, N. Radaković, and P. Strohal
Faculty of Pharmacy and Biochemistry, University of Zagreb and Institute »Ruder Bošković«, Zagreb (Yugoslavia)
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**Quantitative Analysis of Tropane Alkaloids in Pharmaceutical Preparations**

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H. Bilinski, B. Pokrić, and Z. Pučar
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Z. Binenfeld, A. Šakić, D. Rakin, and A. Damanski
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Z. Binenfeld, B. Bošković, D. Rakin, and M. Ćosić
Institute of Technical and Medical Protection, Belgrade
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V. Bonačić and M. Randić
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
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Lj. Brečević and H. Füredi-Milhofer
Department of Physical Chemistry, Ruder Bošković Institute, Zagreb, Croatia, Yugoslavia
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Co-ordination Complexes of Niobium and Tantalum. XI.
Crystalline Malato Complexes of Niobium(V)

BCC-960
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Institute »Ruder Bošković«, Zagreb (Yugoslavia) and College of William and Mary, Williamsburg, Va. 23185 (U.S.A.)
Co-ordination Complexes of Niobium and Tantalum. XII.
Preparation and Properties of Oxy-Hydroxy-bis-Oxalato Niobic Acid and its Salts

BCC-961
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A Partial Analysis of Rotational Structure in the 2710 Å System of p-Fluorotoluene

BCC-962
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Method of Determination of pH Values of Certain Low Solubility Organic Amines

BCC-963
M. J. S. Dewar, D. H. Lo, D. B. Patterson, N. Trinajstić and G. E. Peterson
Department of Chemistry, University of Texas at Austin, Austin, Texas 78712 and Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey 07971
MINDO/2 Calculations of Nuclear Quadrupole Coupling Constants of the Chlorobenzenes

BCC-964
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Cyclobutadiene and Diphenylcyclobutadiene

BCC-965
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Semiempirical SCF-MO Treatment of Excited States of Aromatic Compounds

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Latex Particle Agglutination in the Immunochemical System Human Serum Albumin-Anti-Human Serum Albumin Rabbit Serum
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N. Deželić, H. Bilinski, and R. H. H. Wolf
Department of Biocolloidal Chemistry, «Andrija Stampar» School of Public Health, Faculty of Medicine, Zagreb, Yugoslavia, Department of Physical Chemistry, Institute «Ruder Bošković», Zagreb, Yugoslavia, Laboratory of Physical Chemistry, Faculty of Science, University of Zagreb, Zagreb, Yugoslavia
Precipitation and Hydrolysis of Metallic Ions. IV. Studies on the Solubility of Aluminium Hydroxide in Aqueous Solution

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A. Dulčić and J. N. Herak
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Crystal Structure Dependence of Radiation—Induced Radicals in Thymine: an ESR Study

BCC-969
M. Eckert-Maksić, Z. Majerski, S. Borčić and D. E. Sunko
Institute «Ruder Bošković», Zagreb, Croatia, Yugoslavia
Competitive Reactions of Nucleophiles-II

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Halucinogena sredstva

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Carbonylation of Pentacyanocobaltate(III)

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Thermodynamics of Formation of Lanthanide Complexes with 1,2-Diaminocyclopentane-\(N,N',N'N'\)-Tetra Acetic Acid


BCC-977
V. Jagodić and M. J. Herak
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Solvent Extraction Study of Manganese (II) and Iron (III) by Aminophosphonic Acids


BCC-978
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Solvent Extraction Study of Lanthanum and Europium by Acidic Esters of Aminophosphonic Acids


BCC-979
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Chromium (II)-Catalysed Aquation of Hexacyanochromate (III) to Pentacyanomonohydroxychromate (III)


BCC-980
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Kvantitativno mjerenje imunoglobulina tehnikom radijalne monodifuzije. I. Standardizacija imunoglobulina G i hiperimunog anti-IgG seruma kunića


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Nickel (II) and Copper (II) Complexes Containing New Monocyclic and Polycyclic Ligands Derived from the Cyclotetrameric Schiff Base of \(o\)-Aminobenzaldehyde


BCC-982
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Kritički osvrt na vrijednosti glukoze u krvi određene s pomoću redukcijskog i enzimatskog GOD-ABTS (GOD-Perid) principa


BCC-983
L. Klasin and N. Trinajstić
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Theoretical Study of Iso-Condensed Thienopyrroles

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Studies in the Sphingolipids Series. XXXI. Preparation and Column Separation of Ceramide Mixtures from Bovine and Horse Brain Cerebrosides

BCC-985
B. Kojić-Prodić, B. Matković, and S. Šćavničar
Institute »Ruder Bošković«, Zagreb, Yugoslavia
The Crystal Structure of Hydrazinium (+2) Hexafluorotitanate (IV), \( \text{N}_2\text{H}_6\text{TiF}_6 \)

BCC-986
B. Kojić-Prodić, S. Šćavničar, and B. Matković
Institute »Ruder Bošković«, Zagreb, Yugoslavia
The Crystal Structure of Hydrazinium (+2) Hexafluoro-zirconate (IV), \( \text{N}_2\text{H}_6\text{ZrF}_6 \)

BCC-987
Z. Kućan, J. N. Herak, and I. Pečevsky-Kućan
Institute »Ruder Bošković«, Zagreb, Yugoslavia
Functional Inactivation and Appearance of Breaks in RNA Chains Caused by Gamma-Irradiation of Escherichia Coli Ribosomes

BCC-988
O. Lahodny-Šarc and J. L. White
Institute of Physical Chemistry, Technological Department, University of Zagreb, Zagreb Yugoslavia and Department of Agronomy, Purdue University, Lafayette, Indiana 47907
Infrared Study of Aluminium -Deficient Zeolites in the Region 1300 to 200 cm\(^{-1}\)

BCC-989
Department of Chemistry, Princeton University, Princeton, New Jersey 08544
Preparation of Ring Labelled Adamantane Derivatives. 2-Adamantanone-2-carbon-14, Adamantane-2-carbon-14 and 1-Methyl adamantane-2- or 4-carbon-14
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B. Lovreček, Z. Vajtner, and J. Hranilović
Institute of Electrochemistry and Electrochemical Technology, Faculty of Technology, University of Zagreb, and Pliva, Pharmaceutical and Chemical Works, Zagreb
The Electrochemical Reduction of 2-Nitrobutanol (1)

BCC-991
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Institute of Electrochemistry and Electrochemical Technology, Faculty of Technology, University of Zagreb, Zagreb, Savska c. 16/1, Yugoslavia
Investigation of Barrier Layers on Aluminium
BCC-992
V. Magnus, S. Iskrić, and S. Kveder
Institute »Ruder Bošković«, Zagreb, Yugoslavia
Indole-3-methanol. Metabolite of Indole-3-acetic Acid in Pea Seedlings

BCC-993
V. Mahalec and M. Orhanović
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The Kinetics of the Mercury (II)-Catalysed Aquation of the Azidopentaaquochromium (III) Ion

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Z. Majerski and P. von R. Schleyer
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BCC-995
Z. Maksić, M. Eckert-Maksić, and M. Randić
Institute »Ruder Bošković«, Zagreb, Croatia, Yugoslavia
Correlation Between C—H and C—C Spin-Spin Coupling Constants and s Character of Hybrids Calculated by the Maximum Overlap Method

BCC-996
R. Mason, L. Randaccio, and M. Randić
Department of Chemistry, University of Sheffield, Sheffield S3 7HF
Hybridisation, Centroids of Overlap Density and the Lengths of Certain Carbon-Hydrogen Bonds

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E. Matijević, F. J. Mangravite, Jr., and E. A. Cassell
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**Solvent Extraction of Zirconium and Hafnium — I. Extraction with Di-\(n\)-butylmethylenebisphosphonic Acid**


BCC-1001
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**Adsorption of Phenol and Kinetics of Electrode Processes on the Bi Amalgam Electrode**


BCC-1002
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**Precipitation and Electron Microscopy of Calcium- and Barium-Oleate Sol**


BCC-1003
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**Preparation of Bridgehead Alkyl Derivatives by Grignard Coupling**


BCC-1004
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**Directional Dependence of Exposure Measurements and the Evaluation of Effective Energies of Medium Energy X-Rays by Film Badges**


BCC-1005
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**Stability and Stereochemistry of Cobalt(II) Complexes with Stereoisomeric, 1,2-Diaminocyclopentane Tetraacetic Acids**


BCC-1006
M. Petek, T. E. Neal, and R. W. Murray
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**Spectroelectrochemistry. Application of Optically Transparent Minigrid Electrodes under Semi-Infinite Diffusion Conditions**


BCC-1007
D. Petranović, I. Pečevsky-Kućan, and Z. Kućan
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**Comparison of the Direct Effect of Gamma Rays on Escherichia Coli Ribosomes and Bacteriophage**

BCC-1008

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Electrophoresis and Tyndallometric Studies on the Hydrolysis of Zinc in Aqueous Solutions

BCC-1009

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Biochemie der Kohlenwasserstoffe. II. Ein Beitrag zur Kenntnis der Xantholipide

BCC-1010

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Department of Organic Chemistry and Biochemistry, »Ruder Bošković« Institute, Zagreb (Yugoslavia) and National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Public Health Service, U.S. Department of Health, Education and Welfare, Bethesda, Maryland 20014 (U.S.A.)

The Oxidation of 2-Acetamido-2-deoxyaldoses with Aqueous Bromine. Two Diastereoisomeric 2-Acetamido-2,3-dideoxyhex-2-enono-1,4-lactones from 2-Acetamido-2-deoxy-D-glucose, -D-mannose, and -D-galactose

BCC-1011

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Hybridization in Fused Strained Rings by the Maximum-Overlap Method. I. Biphenylene and Benzol [1,2 : 4,5] dicyclobutane

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Logarithmic Analysis of two Overlapping D.C. Polarographic Waves. III. Very Close Waves with Equal Slopes

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Redox Processes of Uranium (VI), (V), (IV) and (III) in Acetate Buffers

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Improved Technique of Direct Oxygen Microdetermination by Static Flash Combustion Pyrolysis

BCC-1019
A. Sakić, D. Rakin, M. Orlov and Z. Binefeld
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Spectrophotometric Determination of Niobium with 4-(2-Pyridylazo) Resorcinol and Colored Complexes Separated from Oxallic and Tartaric Acid Systems

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Vanadium and Niobium Complexes with 4-(2-Pyridylazo) Resorcinol (PAR)

BCC-1022
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Temperature and Concentration Dependence of the Paramagnetic Induced Shifts in Proton Magnetic Spectroscopy

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BCC-1025
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BCC-1026
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Hybridization in 2,5-Dimethyl-7,7-dicyanonorcaradiene by the Maximum Overlap Approximation

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Suvremene optičke metode u detekciji i identifikaciji otrova

BCC-1030
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Chelation of Some Bivalent Metal Ions by Racemic and Enantiomeric Forms of Tyrosine and Tryptophan

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Tryptamine, 5-Hydroxytryptamine and 5-Hydroxytryptophan Complexes of Proton and Some Divalent Metal Ions
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Molecular Weight Distribution of Clinical Samples of Dextran

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Transformation Properties of Hermite-Gaussian Functions

BCC-1035
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Finite Analytical Expressions for Two-Centre Exchange Integrals Between Slater Orbitals Having the Same Exponents