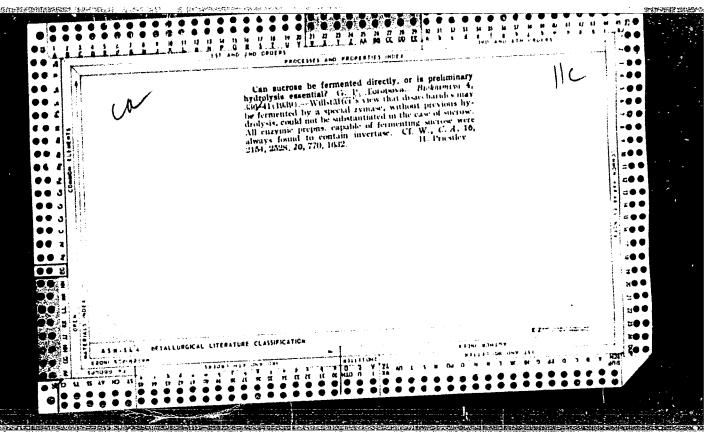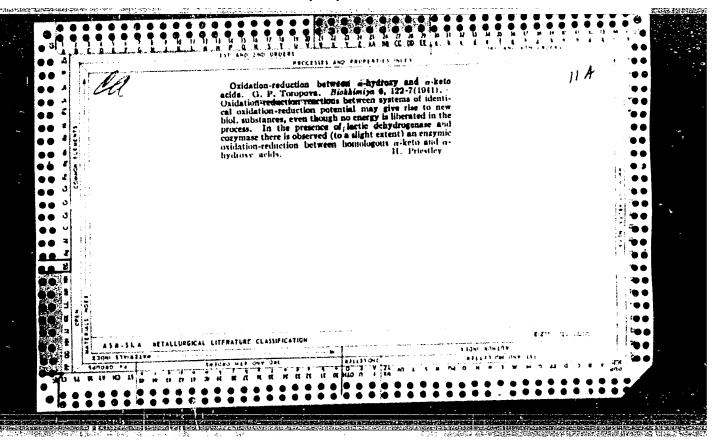LIVSHITS, G.L., kand.tekhn.nauk; TORPANOVA, G.A., kand.tekhn.nauk
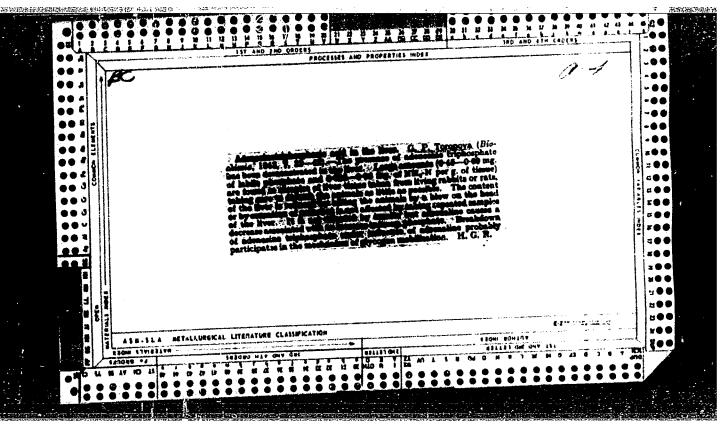
New types of structural steel. Sbor. trud. TSNIICHM no.17:103-106
'60.   (MIRA 13:10)

(Steel, Structural)

PROCESSES AND PROPERTIES INDEX

Can sucrose be fermented directly, or is preliminary hydrolysis essential? G. P. Lorotowa. Biokhimiya 4, 680-41 (1939).—Willstätter's view that disaccharides may be fermented by a special zymase, without previous hydrolysis, could not be substantiated in the case of sucrose. All enzyme preps. capable of fermenting sucrose were always found to contain invertase. Cf. W., C. A. 16, 2154, 2528, 20, 770, 1832.   H. Priestley

METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

11 A

Oxidation-reduction between α-hydroxy and α-keto acids. G. P. Toropova. *Biokhimiya* 6, 122-7(1941). - Oxidation-reduction reactions between systems of identical oxidation-reduction potential may give rise to new biol. substances, even though no energy is liberated in the process. In the presence of lactic dehydrogenase and cozymase there is observed (to a slight extent) an enzymic oxidation-reduction between homologous α-keto and α-hydroxy acids.   H. Priestley

A.S.M.-S.L.A   METALLURGICAL LITERATURE CLASSIFICATION

USSR/Medicine - Nutrition   FD-3288

Card 1/1   Pub. 141 - 3/19

Author   : Toropova, G. P. (Moscow)

Title   : Protein metabolism in the tissues and organs of white rats of various
               age

Periodical : Vop. pit., 12-14, Jul/Aug 1955

Abstract   : Studied the rate of renewal of aminoacid composition in individual organs
               and tissues of growing and adult rats using tracer atoms (S^{35} from methi-
               onine). Established that proteins in the tissues of young, growing rats
               renew their aminoacid composition at a faster rate than in adult, full-
               grown rats, and therefore, the intensity of protein metabolism is de-
               pendent on the age of the organism. Three references (all USSR; two
               since 1940). Four graphs.

Institution :

Submitted   :

USSR/Human and Animal Physiology (Normal and Pathological).   T-15
          Effects of Physical Factors. Ionizing Radiation.

Abs Jour   : Ref Zhur - Biol., No 11, 1958, 51446

Author   : Toropova, G.P.

Inst   : Academy of Sciences USSR

Title   : X-ray Effects on Nucleic Liver Metabolism.

Orig Pub   : Dokl. AN SSSR, 1957, 114, No 1, 82-83.

Abstract   : The number of nuclei, their content of nucleic proteids and
               desoxyribonucleic acid (DNA), as well as chemical composi-
               tion of DNA were determined in liver tissues of rats killed
               during various stages of radiation sickness. The nuclei
               were extracted by a fragmentation of the liver in a high-
               speed fragmentator with a 0.75 percent citric solution.
               The nuclei were separated from the obtained cytoplasm by
               centrifugation of the resulting suspension over a 10

Card 1/3

USSR/Human and Animal Physiology (Normal and Pathological).   T-19
            Effects of Physical Factors. Ionizing Radiation.

Abs Jour   : Ref Zhur - Biol., No 11, 1958, 51446

percent sucrose solution. The nuclei of irradiated ani-
mals proved to be larger and had a granular structure.
One hour after irradiation, the nuclei decreased by 12
percent in number, and 3 hours after irradiation by 30
percent. After 3 days the weight of the liver increased
by 11 percent. The absolute quantity of the nuclei also
increased, but their appearing expressed in percentages of
tissue weight was subnormal until the end of the experi-
ment. The absolute weight of nucleic proteids changed in
proportion to absolute quantity changes of the nuclei,
yet according to percentages the nucleic proteid content
in the nuclei was low at all times during the experiment.
DNA decreases in the nuclei took place immediately after
irradiation, and reached their maximum (by 21 percent) 3
hours after irradiation was completed. Later, it again
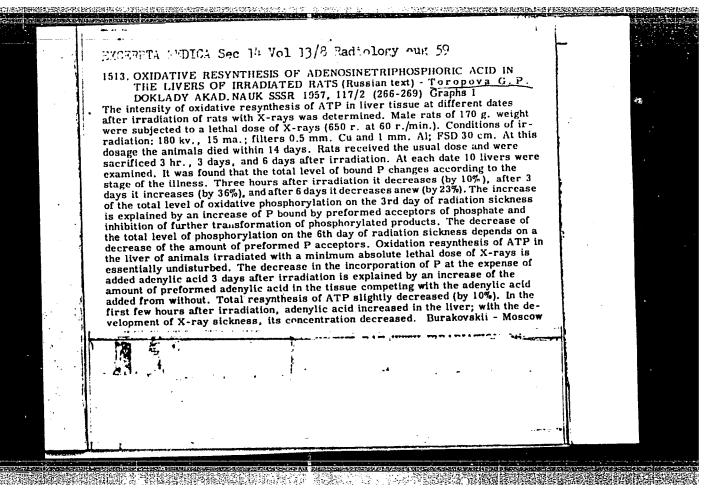became normal. Simultaneously, N content in DNA

Card 2/3

- 155 -

USSR/Human and Animal Physiology (Normal and Pathological)   T-15
          Effects of Physical Factors: Ionizing Radiation.

Abs Jour   :   Ref Zhur - Biol.; No 11, 1958, 51446

          decreased. The author explains this latter phenomenon
          by the fact that purines were destroyed and that as a
          result their content in DNA was diminished.   -- Ye. A.
          Abaturova.

Card 3/3

1513. OXIDATIVE RESYNTHESIS OF ADENOSINETRIPHOSPHORIC ACID IN
    THE LIVERS OF IRRADIATED RATS (Russian text) - Toropova G. P.
    DOKLADY AKAD. NAUK SSSR 1957, 117/2 (266-269) Graphs 1

The intensity of oxidative resynthesis of ATP in liver tissue at different dates
after irradiation of rats with X-rays was determined. Male rats of 170 g. weight
were subjected to a lethal dose of X-rays (650 r. at 60 r./min.). Conditions of ir-
radiation: 180 kv., 15 ma.; filters 0.5 mm. Cu and 1 mm. Al; FSD 30 cm. At this
dosage the animals died within 14 days. Rats received the usual dose and were
sacrificed 3 hr., 3 days, and 6 days after irradiation. At each date 10 livers were
examined. It was found that the total level of bound P changes according to the
stage of the illness. Three hours after irradiation it decreases (by 10%), after 3
days it increases (by 36%), and after 6 days it decreases anew (by 23%). The increase
of the total level of oxidative phosphorylation on the 3rd day of radiation sickness
is explained by an increase of P bound by preformed acceptors of phosphate and
inhibition of further transformation of phosphorylated products. The decrease of
the total level of phosphorylation on the 6th day of radiation sickness depends on a
decrease of the amount of preformed P acceptors. Oxidation resynthesis of ATP in
the liver of animals irradiated with a minimum absolute lethal dose of X-rays is
essentially undisturbed. The decrease in the incorporation of P at the expense of
added adenylic acid 3 days after irradiation is explained by an increase of the
amount of preformed adenylic acid in the tissue competing with the adenylic acid
added from without. Total resynthesis of ATP slightly decreased (by 10%). In the
first few hours after irradiation, adenylic acid increased in the liver; with the de-
velopment of X-ray sickness, its concentration decreased. Burakovskii - Moscow

TOROPOVA, G.P., YERMOLAYEVA, N.V.

Physicochemical changes in desoxyribonucleic acid in tissues of irradiated animasl [with summary in English]. Med.rad. 3 no.5: 24-29 S-O '58 (MIRA 11:12)

(LIVER, eff. of radiations,
 x-rays on desoxyribonucleic acid metab. (Rus))
(INTESTINES, SMALL, eff. of radiations,
 same (Rus))
(ROENTGEN RAYS, eff.
 on liver & small intestine desoxyribonucleic acid
 metab. (Rus))
(DESOXYRIBONUCLEIC ACIDS, metab.
 liver & small intestine, eff. of x-rays (Rus))

USSR/Human and Animal Physiology (Normal and Pathological).   T-13
        Effect of Physical Factors. Ionizing Reaction.

Abs Jour   : Ref Zhur - Biol., No 16, 1958, 75283

Author   : Toropova, G.P.
Inst   : -
Title   : Role of Hunger in Metabolism of Glycogen of the Liver
              During Radiation Sickness of Animals.

Orig Pub   : Vopr. pitaniya, 1958, 17, No 1, 50-54

Abstract   : Rats (4) were subjected to a general single roentgen expo-
              sure of 650-1000 r. In the liver of the exposed rats there
              was less glycogen (G) accumulated than in those not expo-
              sed; the degree of decrease of quantity of G depended on
              the size of the dose and the stage of the illness. On an
              empty and during full hunger in the liver of the exposed
              rats there was contained more G than in those not exposed.
              The content of G depends in the first place on hunger.

Card 1/1

- 109-

TOROPOVA, G.P. (Moskva)

Glycogen content of the rat liver in the first hours after the irradiation. Med. rad. 4 no.5:89-90 My '59.   (MIRA 12:7)
 (ROENTGEN RAYS, eff.
    on liver glycogen content during 1st hours after ir-
    radiation in rats (Rus))
 (GLYCOGEN, metab.
    liver content during 1st hours after x-irradiation in
    rats (Rus))
 (LIVER, metab.
    glycogen content during 1st hours after x-irradiation
    in rats (Rus))

TOROPOVA, I. G.

42324   TOROPOVA, I. G. , AGEYENKOV, V. G. , DASHKOVA, M. F. - Uskorennyye sposoby
opredeleniya kadmiya v tsikovykh kontsentratakh i zavodskikh produktakh.
Trudy Sev.-kavk. Gorno-metallurg. in-ta, VIP 5, 1948, s. 114-24.

SO: Letopis' Zhurnal'nykh Statey, Vol. 47, 1948.

SERGEYEV, L.A.; SHAPIROVSKIY, N.I. [deceased]; BABAYEV, D.Kh.; GANBAROV, Yu.G.;
       AKHUNDOV, I.D.; TAGIYEV, Z.B.; TAGIYEV, A.I.; ISMAYLOVA, R.I.;
       UMANOVA, V.A.; GUSEYNOVA, N.N.; ALIZADE, Kh.A.; CHURLIN, V.V.;
       TOROPOVA, K.M.

First results of the use of the seismic method for the direct
prospecting of oil and gas pools in the sea. Dokl. AN Azerb.
SSR 20 no.9:27-31 '64.   (MIRA 18:1)

1. Institut geologii i razrabotki goryuchkikh iskopayemykh
AN SSSR i Azerbaydzhanskiy nauchno-issledovatel'skiy institut
po dobyche nefti.

BELOZEROV, P.; TOROPOVA, M.; MAKRIDIN, V.; BELOVA, T., redaktor; TREBUKHOV, N.,
   redaktor.

[Plant and animal life of Kostroma Province] Rastitel'nost' i zhivotnyi
mir Kostromskoi oblasti. [Nerekhta] Kostromskoe obl. izd-vo, 1949. 123 p.
                                                 (MLRA 7:1)
       (Kostroma Province—Botany) (Botany—Kostroma Province)
       (Kostroma Province—Zoology) (Zoology—Kostroma Province)

GRACHEV, S.A.; MEL'NIKOV, V.N.; RYUKHIN, Yu.A.; TOROPOVA, M.A.

Isolation of Cd^{109} without a carrier from a cyclotron target.
Radiokhimiia 3 no.1:116-118 '61.   (MIRA 14:3)
          (Cadmium—Isotopes)

NEFEDOV, V.D.; RYUKHIN, Yu.A.; TOROPOVA, M.A.

Study of isotope effects taking place in the course of the
β-decay of natural lead isotopes. Radiokhimiia 2 no.4:458-463
'60.   (MIRA 13:9)
                          (Lead—Isotopes)

SHIPOV, V.D.; TOROPOVA, M.A.; PHILATOV, V.Ye.; KOMAROV, A.N.

Synthesis of some α-naphthyl derivatives of potassium. Radio-
khimiia 7 no.2:203-207 '65.   (MIRA 18:5)

NEFEDCV, V.D.; ZHURAVLEV, V.Ye.; TOROPOVA, M.A.; GRACHEVA, L.N.;
LEVCHENKO, A.V.

p-Anisyl derivatives of polonium. Radiokhimiia 7 no.2:245-246
'65.   (MIRA 18:6)

L 18945-65   EWT(m)/EPF(c)/EWP(j)   Pc-4/Pr-4   AS(mp)-2   RM

AUTHOR: Nefedov, V. D.; Zhuravlev, V. Ye.; Toropova, M. A.

TITLE: Some organopolonium compounds

TOPIC TAGS: polonium, organopolonium compound, phenylpolonium, organotellurium compound, Grignard reagent, chromatography

ABSTRACT: The object of the work was to study the preparation of certain phenyl derivatives of polonium by means of a method developed for the corresponding compounds of tellurium. Tellurium-polonium tetrachloride, $Te(Po)Cl_4$, was used as the starting material for the synthesis of all the compounds. The organic derivatives of polonium were identified by means of partition paper chromatography from the α activity of Po^{210} and β and γ activity of Te^{127}, the isotope with which tellurium was labeled. The yield of organic compounds of polonium and tellurium was determined by comparing the activities of these elements in the initial and final compounds. Tellurium polonium triphenyl chloride, $Te(Po)(C_6H_5)_3Cl$, was prepared by means of a Grignard reagent reacted with $Te(Po)Cl_4$. R_f values for $Te(Po)(C_6H_5)_3$ type compounds were determined for the developing systems used in the chromatographic identification. Diphenylpolonium and polonium diphenyl dichloride

Card 1/2

L 18945-65
ACCESSION NR: AP4043469

were prepared, also by means of a Grignard reagent. The chlorination of diphenyl-tellurium-polonium is described. R_f values are also given for $PoOCl_2$, $PoCl_4$, $Te(Po)(C_6H_5)_2$, $Te(C_6H_5)_2Cl_2$, and $Po(C_6H_5)_2Cl_2$. Finally, the interaction of di-phenyltellurium-polonium with tellurium diphenyl dichloride is elucidated. Orig. art. has: 5 figures and 4 tables.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 05Jul63   ENCL: 00   SUB CODE: OC, IC

NO REF SOV: 002   OTHER: 004

Card 2/2

TOROPOVA, M. A., MELNIKOV, V. N., Li-Chi-Min, NEFEDOV, V. D., RYUKHIN, Yu. A.   (USSR)

"Study of Isotope Effects in Beta-Decay of Natural Isotopes of Lead".

paper submitted for the Symposium on the Chemical Effects of ~~Natural Isotopes of~~
Nuclear Transformation (IAEA) Prague, 24-27 Oct. 1960.

NEFEDOV, V.D.; SINOTOVA, Ye.N.; SMIRNOV, V.M.; TOROPOVA, M.A.

Enrichment of radiophosphorus by means of triphenylphosphine
oxide. Radiokhimiia 1 no.2:236-238 '59.   (MIRA 12:8)
     (Phosphorus--Isotopes) (Phosphine oxide)

NEFEDOV, V.D.; TOROPOVA, M.A.

   Employing carbonyls for the separation of radioisotopes Cr^{51}, Mo^{99}, W^{187}, Tc^{99m} and Re^{188}. Zhur. neorg. khim. 3 no.1:175-180 Ja '58.
      (Radioisotopes)   (Carbonyl compounds)   (MIRA 11:3)

L 29279-66   EWP(j)/EWT(m)/T   RM

ACC NR: AP6019319   SOURCE CODE: UR/0079/65/035/008/1436/1440

AUTHOR: Nefedov, V. D.; Zhuravlev, V. Ye.; Toropova, M. A.; Grachev, S. A.;   50
Levchenko, A. V.   B

ORG: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

TITLE: Synthesis of some p-tolyl derivatives of polonium

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1436-1440

TOPIC TAGS: organic synthetic process, polonium compound, bismuth, tellurium,
chemical precipitation, chromatography, bromination, iodinated organic compound,
organometallic compound, radioisotope, radiation chemistry

ABSTRACT: Po^{210} was separated from irradiated Bi by coprecipita-
tion with Te from an HCl solution, using $SnCl_2$. A mixture of $TeCl_4$
and $PoCl_4$ was then prepared by chlorination of elemental Te con-
taining Te^{127} and Po^{210}. Starting with $Te(Po)Cl_4$. p-tolyl deriva-
tives of Po were prepared together with the analogous derivatives
of Te by conventional chemical methods. $Te(Po)(p\text{-}MeC_6H_4)_2$, the
initial organoelemental compound from which $Po(p\text{-}MeC_6H_4)_2Hal_2$
(Hal = F, Cl, Br, I), $Po(p\text{-}MeC_6H_4)_3Hal(Hal = Cl, I)$, and
$Po(p\text{-}MeC_6H_4)_3Cl \cdot HgCl_2$ were prepared, could not be separated into

Card 1/2   UDC: 547.559

L 29279-66

ACC NR: AP6019319   O

the Po and Te derivatives by chromatography, because the R_f values
of the two compounds were practically the same. For the separation
of the other derivatives, distribution chromatography on paper
was applied, using suitable mixtures of solvents. The alpha-acti-
vity of Po^{210} and the beta and gamma-activities of Te^{127} were then
determined on the chromatograms. Bromination and iodination of
$Te(Po)(p-MeC_6H_4)_2$ to prepare the dihalides $Te(Po)(p-MeC_6H_4)Hal_2$
was carried out by means of $Te(p-MeC_6H_4)_2Hal$ (Hal = Br, I) in a
benzene solution; treatment of $Te(Po)(p-MeC_6H_4)_2$ with Br_2 or I_2
resulted in an impoverishment of crystals of the mixed compound
in the organometallic derivative of Po because of the low tendency
of the latter to crystallize. To convert $Te(Po)(p-MeC_6H_4)_2$ to the
difluoride, $Bi(p-MeC_6H_4)_3F_2$ was applied in an analogous reaction.
The R_f value of every Po and Te compound prepared was determined
for the solvents used in the chromatographic analysis. Orig. art. has:
5 figures, 3 formulas, and 1 table. /JPRS/

SUB CODE: 07, 18 / SUBM DATE: 15May64 / ORIG REF: 002 / OTH REF: 002

Card 2/2   RC

NEFEDOV, V.D.; NORSEYEV, Yu.V.; SAVLEVICH, Kh.; SINOTOVA, Ye.N.; TOROPOVA,
M.A.; KHALKIN, V.A.

Synthesis of some heteroorganic derivatives of polyvalent
astatine. Dokl.AN SSSR 144 no.4:806-809 Je '62. (MIRA 15:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
Predstavleno akademikom A.N.Nesmeyanovym.
                         (Astatine)

NEFEDOV, V.D.; ZHURAVLEV, V. Ye.; TOROPOVA, M.A.

Some organopolonium compounds. Zhur. ob. khim. 34 no.11:
3719-3723 N '64   (MIRA 18:1)

1. Leningradskiy gosudarstvennyy universitet.

TOROPOV

Enrichment of chromium radioactive isotopes by hexacarbonyl. Zhur. neorg. khim. 2 no.5:1201-1204 My '57.   (MLRA 10:8)
              (Chromium--Isotopes)   (Carbonyls)

NEFEDOV, V.D.; ZHURAVLEV, V.Ye.; TOROPOVA, M.A.; LEVCHENKO, A.V.

Chemical changes during β-decay of Bi^{210}(Ra E) in pentaphenylbismuth crystals. Radiokhimiia 6 no.5:632 '64.   (MIRA 18:1)

POPOVA, M. A., Master Chem Sci - (diss) "The production of radioactive preparations Cr^{51}, Mo^{99}, W^{107}, Tc^{99m}, Re^{188} by a method based on the changing chemical conditions during nuclear transformations." Leningrad, 1957, 9 pp, (Leningrad University im. A. A. Zhdanov), 100 copies.   (KL, No 40, 1957, 90)

TOROPOVA, M.A.

STARIK, I.Ye.; RATNER, A.P. [deceased]; GROSHKOV, G.V.; MURIN, A.N.;
STARIK, A.S.; GREBENSHCHIKOVA, V.I.; KLOKMAN, V.P.; NEFEDOV, V.D.;
LUR'YE, B.G.; ISHINA, V.A.; SMIRNOV, L.A.; YEFIMOVA, Ye.I.;
TOROPOVA, M.A.; SIMONYAK, Z.N.; FRENKLIKH, M.S.; SHCHEMELEVA, Ye.V.,
redaktor; VODOLAGINA, S.D., tekhnicheskiy redaktor

[A collection of practical studies in radio chemistry] Sbornik
prakticheskikh rabot po radiokhimii. [Leningrad] 1956. 210 p.
(MIRA 10:1)

1. Leningrad. Universitet.
   (Radiochemistry)

NEFEDOV, V.D.; ZAYTSEV, V.M.; TOROPOVA, M.A.

Chemical changes taken place during the processes of β-decay.
Usp.khim. 32 no.11:1367-1396 N '63.

(MIRA 17:3)

1. Leningradskiy gosudarstvennyy universitet imeni Zhdanova.

NEFEDOV, V.D.; TOROPOVA, M.A.; KRIOKHATSKAYA, I.V.; KESAREV, O.V.

Separation of phenyl derivatives of arsenic and germanium by
means of partition paper chromatography. Radiokhimiia 6
no. 1:112-113 '64.   (MIRA 17:6)

AUTHORS: Grachev, S.A., Mel'nikov, V.N., Ryukhin, Yu.A., Toropova, M.A.

TITLE: Separation of Cd^{109} without a carrier from a cyclotron target

PERIODICAL: Radiokhimiya, v 3, no 1, 1961, 116-118

TEXT: The radioactive isotope Cd^{109} is formed when irradiating silver in a cyclotron according to the reaction: Ag^{109}(d, 2n) Cd^{109}. The Cd^{109} decays by K-capture with a half-life of 470 days. The energy of the monochromatic gamma-emission E = 87 kev. In addition to Cd^{109} the long-lived isotope of silver Ag^{110m} (T=270 days) is also formed according to the reaction Ag^{109}(d,p)Ag^{110m}. The problem of separating Cd^{109} without a carrier is reduced to the separation of micro-quantities of Cd from larger quantities of silver and copper. Reference is made to certain other methods of Cd separation from silver, such as the thiocyanate method (Ref 1), the ditison method (Refs 2-4), the diethylcarbamate method (Ref 5), and it is pointed out that all these methods are unsuitable for the separation of Cd^{109} without a

Card 1/5

23085

S/186/61/003/001/020/020
A051/A129

Separation of Cd^{109} without a carrier ...

carrier in the presence of very large quantities of copper and silver. The authors recommend the following method of Cd^{109} separation without a carrier: The target on which the silver was placed was submerged into concentrated nitric acid and the silver layer was dissolved. After washing the target with distilled water, the combin . solutions (nitric acid and aqueous) were transferred to a triple-mouth flask (Fig 1). The solution was heated. The silver iodide and copper semi-iodide were precipitated by adding a 10% solution of HI, while mixing. The solution was separated from the precipitate through a porous quartzite filter with a pore size of 20-35 into a separating funnel. The precipitate was washed 2-3 times with a 1% solution of HI, after which the solution was poured into a quartzite container through the lower tap of the separating funnel and was evaporated until dry. The precipitate was processed twice with distilled concentrated HCl with subsequent evaporating until dry, and was dissolved in 10 ml of 2n HCl. The further purification of Cd^{109} from copper and traces of silver was conducted by using an ion-exchange column. The column with a diameter of 10 mm and a length of 70 mm was submerged in AB-17 (AB-17) resin with a grain size of 50-100 . The resin was washed eliminating iron and transferred to a Cl-con-

Card 2/5

Separation of Cd^{109} without a carrier ...

S/186/61/003/001/020/020
A051/A129

tainer. The initial solution was passed through a column at a rate of 0.15 ml per minute. Then the column was rinsed with 70-80 ml of 2 n HCl, whereby traces of copper were removed. Cd^{109} was evaporated to the required volume. The radiochemical purity of the obtained sample was checked by taking the gamma-spectrum using a scintillation gamma-spectrometer with automatic registering of the gamma spectra. A NaI crystal was used as the scintillator, having a counting efficiency of the gamma quanta with a 100 kev energy equalling 18%. Fig 2 shows the gamma-spectrum of the initial nitric acid solution containing Cd^{109} and Ag^{110m}. The 87 kev energy peaks belong to Cd^{109}, and the 447, 883, 936 and 1382 kev peaks belong to Ag^{110m}. Fig 3 is the gamma-spectrum of the AgI precipitate. The gamma-spectrum of the Cd^{109} sample formed without a carrier is shown in Fig 4. The presence of the only line with an energy of 87 kev in the spectrum indicates the radiochemical purity of the Cd^{109} sample obtained. The integral change of the activity of all the gamma-lines with an energy over 100 kev proved that the radioactive contaminations of the sample are much below 0.1%. There are 3 graphs, 1 diagram and 7 references: 3 Soviet-bloc, 4 non-Soviet-bloc.

Card 3/5

TOROPOVA, M. A   IV

PHASE I BOOK EXPLOITATION   SOV/5404

Murin, A. N., V. D. Nefedov, and V. P. Shvedov, eds.

Radiokhimiya i khimiya yadernykh protsessov (Radiochemistry and the Chemistry of Nuclear Processes) Leningrad, Goskhimizdat, 1960. 784 p. Errata slip inserted. 13,000 copies printed.

Ed.: P. Yu. Rachinskiy; Tech. Ed.: Ye. Ya. Erlikh.

PURPOSE : This textbook is intended for students of physical chemistry or radiochemistry at universities and schools of higher education. It may also serve as a handbook for scientific workers and technical personnel in the radiochemical industries and other related branches.

COVERAGE: The textbook deals with problems in modern radio-chemistry, including adsorption, cocrystallization, isotope exchange in radioactive elements, the chemistry of nuclear processes, and methods of preparing radioactive isotopes and labeled compounds. Special attention has been given to chemical processes caused by radioactive transformations and radiation. In the main the book was compiled by person-

Card 1/16

SOV/5404

Radiochemistry and the Chemistry (Cont.)

nel of the Radiochemistry Department, Leningradskiy gos-
udarstvennyy universitet imeni A. A. Zhdanova (Leningrad
State University imeni A. A. Zhdanov), and the Department of
the Technology of Artificial Radioactive Isotopes, Lenin-
gradskiy tekhnologicheskiy institut imeni Lensoveta (Lenin-
grad Technological Institute imeni Lensovet). No person-
alities are mentioned. References accompany individual
chapters.

Card 2/16

Radiochemistry and the Chemistry (Cont.)   SOV/5404

Card 7/16

Radiochemistry and the Chemistry (Cont.)   SOV/5404

Toropova, M. A.

USSR/Organic Chemistry - Theoretical and General Questions   E-1
                on Organic Chemistry

Abs Jour   : Referat Zhur - Khimiya, No 2, 1957, 4234

Author   : Nefedov, V.D., Toropova, M.A., Skul'skiy, I.A.
Title   : Use of C^{14} in the Study of the Mechanism of Catalytic
             Formation of Asymetrical Ketones

Orig Pub   : Zh. fiz. khimii, 1955, 29, No 12, 2236-2243

Abstract   : Investigation of the reaction of catalytic formation of
             ketones over ThO_2 at 430-450° from mixtures of the fol-
             lowing composition: A) phenyl acetic acid (C^{14}) + ace-
             tic acid; B) acetic acid (C^{14}) + phenyl acetic acid;
             C) benzoic acid (C^{14}) + acetic acid; D) isobutyric
             acid + acetic acid (C^{14}); E) valeric acid +acetic acid
             (C^{14}); F) capronic acid + acetic acid (C^{14}). Activity
             a of the ketones thus formed was determined directly in
             the liquid by means of a special attachment to the end-
             window counter. Per cent a of ketones obtained from

Card 1/2   - 17 -

USSR/Organic Chemistry - Theoretical and General Questions   E-1
            on Organic Chemistry

Abs Jour   :   Referat Zhur - Khimiya, No 2, 1957, 4234

            mixtures A - F was, respectively, 51.0, 49.0, 102.0,
            49.0, 18.3, 35.0. It is shown that in the formation
            of the carbonyl groups of asymmetrical ketones can
            take part the carboxyl carbon atoms of both acids, but
            the extent of this participation is not the same and
            depends upon the strength of the R-COCH and R'-COOH
            bonds as well as on the stability of R and R' radicals.
            On the basis of a comparison of the data so obtained
            with those of Li and Spinks /both transliterated/ rela-
            tive to radioactivity of letones obtained by dry distilla-
            tion of Cu-salts of the corresponding acids (RZhKhim,
            1954, 28706), the authors make the assumption that the
            mechanism of this reaction and of the catalytic reaction
            are identical.

Card 2/2   - 18 -

S/079/63/033/001/001/023
D403/D307

AUTHORS: Nefedov, V. D., Toropova, M. A., Grachev, S. A., and Grant, Z. A.

TITLE: Chemical changes during the ß-disintegration of RaE and their utilization for the synthesis of p-tolyl derivatives of polonium

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 15-18

TEXT: A discussion is first given of the possibility of using the chemical changes occurring during the disintegration of RaE compoundsm particularly aromatic organometallics, for the synthesis of Po derivatives, proposing that the nature of the parent molecule should exert a strong effect on the character of chemical changes during the ß-disintegration. Confirmation of this proposition and application of the above chemical changes to synthesis of the organometallic compounds of Po, At, Fr, etc. were the chief objects of this work. The compounds studied were $Bi(RaE)Tol_3$ and $Bi(RaE)-Tol_3Cl_2$, where Tol=tolyl, using paper chromatography to separate

Card 1/2

Chemical changes during ...

S/079/63/033/001/001/023
D403/D307

and identify the Po derivatives formed. Analogous Te compounds were used as carriers for the Po derivatives. The best eluents were found to be MeOH-H$_2$O and (CH$_3$)$_2$CO-MeOH-H$_2$O, taken respectively in the proportions of 3:1 and 4:3:2 by volume. The following new compounds were found: Po($\underline{p}$-Tol)$_2$, ($\underline{p}$-Tol)$_2$PoCl$_2$, ($\underline{p}$-Tol)PoCl$_3$ and ($\underline{p}$-Tol)$_3$PoCl, as well as some inorganic Po. The relative proportions of these products confirmed that the nature and properties of the parent compound strongly affect the chemical changes. The advice and assistance of G. A. Razuvayev and A.N. Murin is acknowledged. There are 3 figures and 2 tables.

SUBMITTED: February 26, 1962

Card 2/2

NEFEDOV, V.D.; ZHURAVLEV, V.Ye.; TOROPOVA, M.A.; GRACHEV, S.A.; LEVCHENKO,
A.V.

Synthesis of some p-tolyl derivatives of polonium.   Zhur. ob.
khim. 35 no.8:1436-1440 Ag '65.   (MIRA 18:8)

1. Leningradskiy gosudarstvennyy universitet.

7 (Aau I C I U, /.. A

TOROPOVA, M.N.; MOLDAVSKAYA, V.D.; KONTOROVSKAYA, T.M.

Pathohistological changes in experimental malaria in chicks infected
with blood and P.gallinaceum sporoziotes. Med.paraz. i paraz.bol.
supplement to no.1:33 '57.
(MIRA 11:1)

1. Iz Ukrainskogo instituta malyarii i meditsinskoy parazitologii
i TSentral'noy psikhonevrologicheskoy bol'nitsy Ministerstva putey
soobshcheniya
(MALARIAL FEVER IN BIRDS)

GURFINKEL', M.M.; TOROPOVA, M.N.

     Clinical aspects of cerebral cysticercosis. Zhur. nevr. i psikh.
     54 no.6:572-578 Je '54.   (MLRA 7:7)

     1. TSentral'naya klinicheskaya psikhonevrologicheskaya i neyro-
     khirurgicheskaya bol'nitsa Ministerstva putey soobshcheniya SSSR.
          (BRAIN, diseases,   (CYSTICERCOSIS,
            *cysticercosis)   *brain)

TOROPOVA, M.N.,

      Work of the Kharkov Province Society of Pathoanatomists during
      1953. Arkh. pat. 18 no.3:138-139 '56   (MIRA 11:10)

    1. Skretar' Khar'kovskogo obshchestva patologoanatomov.
        (ANATOMY, PATHOLOGICAL-SOCIETIES)

Toropova, M.N.

USSR/Morphology of Man and Animals - (Normal and Pathologic)   S-5
               Pathologic Anatomy.

Abs Jour   : Ref Zhur - Biol., No 3, 1958, 12482

Author   : Nechayevakaya, M.P., Toropova, M.N., Petrenko, M.D.
Inst   : -
Title   : Changes in Tissues and Organs Caused by Cl. gangraenae
             rubrae

Orig Pub   : Sb. tr. Khar'kovsk. n.-i in-ta vaktsin i syvorotok, 1955,
             21, 109-112

Abstract   : A study was made of the tissues and organs of 25 guinea
             pigs that died after an intramuscular injection of a Cl.
             gangraenae rubrae culture. The site of injection was
             bright red. The muscles, that were a rich red in color,
             had a small amount of fluid between their fibers. The
             liver was enlarged and brown on cut surface. Degenerati-
             ve changes characterized by swollen ganglion cells, smoot-
             hed out contours and chromatolysis were found in the brain.

Card 1/2

TIRASPOL'SKAYA, M.M.; TOROPOVA, M.N. (Khar'kov)

Glycogen content of tumors of the central nervous system.
Arkh. pat. 25 no.3:34-38 '63.   (MIRA 17:12)

1. Iz TSentral'noy psikhonevrologicheskoy i neyrokhirurgicheskoy
bol'nitsy Ministerstva putey scobshcheniya.

KAPLAN, D.A.; EPSHTEYN, TS.A.; RUTSHTEYN, P.V.; TOROPOVA, M.N.

Viral etiology of multiple sclerosis. Zhur. nevr. i psikh.
64 no.3:368-369 '64.   (MIRA 17:5)

1. TSentral'naya klinicheskaya psikhonevrologicheskaya i
neyrokhirurgicheskaya bol'nitsa (nachal'nik V.M. Yushtin)
Ministerstva putey soobshcheniya, Khar'kov.

TOROPOVA, M.N.; TIRASPOL'SKAYA, M.M.

Cytologic diagnosis of tumors of the central nervous system during surgery. Lab. delo 7 no.10:12-15 0 '61. (MIRA 14:10)

1. TSentral'naya klinicheskaya psikhonevrologicheskaya i neyro-khirurgicheskaya bol'nitsa Ministerstva putey soobshcheniya SSSR, Khar'kov.

(NERVOUS SYSTEM—TUMORS)

TOROPOVA, M.N.

Work of the Kharkov Province Society of Pathoanatomists in 1954.
Arkh.pat. 18 no.5:136-138 '56. (MIRA 9:12)

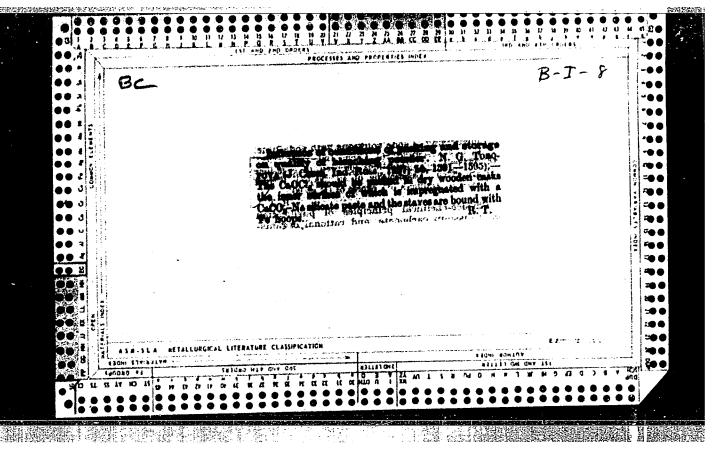1. Sekretar' Khar'kovskogo oblastnogo obshchestva patologoanatomov.
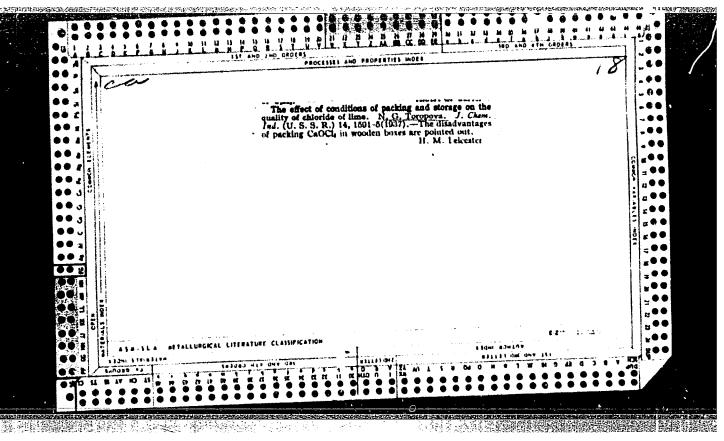(ANATOMY, PATHOLOGICAL)

EPSHTEYN, TS.A.; KAPLAN, D.A.; RUTSHTEYN, P.V.; TOROPOVA, M.N.

Diagnosis and treatment of multiple sclerosis. Vest. AMN SSSR 16 no.6:53-57 '61. (MIRA 15:1)

1. TSentral'naya psikhonevrologicheskaya i neyrokhirurgicheskaya bol'nitsa Ministerstva putey soobshcheniya.
            (MULTIPLE SCLEROSIS)   (ENCEPHALOMYELITIS)

Bc

B-I-8

PROCESSES AND PROPERTIES INDEX

ASM-SLA   METALLURGICAL LITERATURE CLASSIFICATION

The effect of conditions of packing and storage on the quality of chloride of lime. N. G. Toropova. *J. Chem. Ind.* (U. S. S. R.) 14, 1501-5(1937).—The disadvantages of packing CaOCl₂ in wooden boxes are pointed out.

H. M. Leicester

KOKOVIN, G.A.; TOROPOVA, N.K.

Roentgenometric constants of WO_2Br_2, $WOBr_4$, WBr_6, and WBr_5.
Zhur. neorg. khim. 10 no.2:560-561 F '65.   (MIRA 18:11)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN
SSSR. Submitted Dec. 23, 1963.

TOROPOVA, N.V.

Method for artificial feeding of puppies in the early postnatal
period. Zhur. vys. nerv. deiat. 11 no.4:763-765 Jl-Ag '61.
(MIRA 15:2)

1. Laboratory of Comparative Ontogenesis of Higher Nervous Activity,
Pavlov Institute of Physiology, U.S.S.R. Academy of Sciences, Leningrad.
(CONDITIONED RESPONSE)   (DOGS AS LABORATORY ANIMALS)

TOROPOVA, N.V.

Formation of a conditioned motor reflex to a thermal stimulant
in baby rats in the early postnatal period. Nauch.soob. Inst.
fiziol. AN SSSR no.3:157-160 '65.   (MIRA 18:5)

1. Laboratoriya sravnitel'nogo ontogeneza vysshey nervnoy
deyatel'nosti (zav. - G.A.Obraztsova) Instituta fiziologii
imeni Pavlova AN SSSR.

SIROTKINA, Ye.Ye.; TOROPOVA, R.G.

 Quantitative determination of nitrogen in organic no oxygen-containing
 compounds. Izv. TPI 126:87-90 '64.   (MIRA 18:7)

TOROPOVA, R.I., vrach; TRAPEZNIKOVA, G.S., sestra-narkotizator (L'vov).

Training and work of nurse-anesthetists. Fel'd. i akush.
27 no.12:45-47 D'62.   (MIRA 16:7)
                (NURSES AND NURSING—STUDY AND TEACHING)
                         (ANESTHETISTS)

BLANK, G.I.; ADAMYANTS, P.P.; TOROPOVA, S.I.

Consolidated norms of capital investments in oil field production
on land. Trudy AzNII DN no.9:320-325 '60.   (MIRA 14:5)
        (Oil fields--Production methods)
        (Capital investments)

MAMEDOV, M.K.; BLANK, G.I.; SARKISYAN, B.M.; TOROPOVA, S.I.

Periodic exploitation of considerably flooded pools. Azerb.
neft. khoz. 41 no.12:28-30 D '62.   (MIRA 16:7)

(Apsheron Peninsula—Oil field flooding)

BARANSKIY, A.D.; ZININA, A.T.; TOROPOVA, T.A.

Sulfur in a primary tar of certain coals of the Irkutsk Basin.
Izv. Fiz.-khim. nauch.-issl. inst. Irk. un. 5 no.1:36-42 '61.
(MIRA 16:8)

(Irkutsk Basin—Coal—Carbonization)
(Sulfur—Analysis)

AGEYENKOV, V.G., professor; TOROPOVA, T.G., Inzhener.

On zinc ferritization. TSvet.met. 29 no.5:50-54 My '56.

(MLRA 9:8)

1. Severo-Kavkazskiy gorno-metallurgicheskiy institut.
     (Zinc--Metallurgy) (Hydrometallurgy)

137-58-4-6846

Translation from. Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 76 (USSR)

AUTHOR: Toropova, T. G.

TITLE: Carbon Reduction of Zinc Ferrite (O vosstanovlenii ferrita
tsinka uglerodom)

PERIODICAL: Sb. nauchn. tr. Severo-Kavkazsk. gornometallurg. in-t,
1957, Nr 14, pp 205-208

ABSTRACT: ZnO can be liberated by carbon reduction of Zn ferrite at 800-
900°C. Depending upon the amount of C, the temperature, and
the length of contact, as much as 85-88% of the Zn may be lib-
erated from the ferrite. When carbon decomposition of Zn fer-
rite is performed with the object of subsequent leaching, the
temperature should not be increased beyond 900°, as otherwise
reduction of a portion of the Zn to the metallic form will occur.
G.S.

1. Zinc ferrites--Carbon reduction

Card 1/1

AUTHORS: Bereslavtseva, L. F., Toropova, T. G.

TITLE: On the Problem of Removal of Cu From an Ni Electrolyte (K
            voprosu ob ochistke nikelevogo elektrolita ot medi)

PERIODICAL: Tr. Sev.-Kavkazsk. gornometallurg. in-ta, 1957, Nr 15, pp
             307-310

ABSTRACT: The possibility of employing CaS for purposes of removing Cu from
          an Ni electrolyte was investigated. The advantages offered by this
          method include rapid and complete precipitation of Cu, as well as
          the absence of any accumulation of extraneous ions in the solution,
          owing to the fact that all products of the reaction are precipitated out.
          The experiments were conducted with a solution of industrial type,
          the Cu concentration of which amounted to 1 g/liter. The following
          conclusions were reached: 1) The purification of an Ni solution
          from the Cu contained in it is complete when the CaS consumption
          amounts to 100%; this exceeds the theoretically required amount in
          accordance with the reaction between Cu and CaS. 2) The reaction
          occurs at a temperature of 40°C and the precipitation is complete

Card 1/2

SOV/137-59-1-500

On the Problem of Removal of Cu From an Ni Electrolyte

within one hour. 3) Owing to the presence of a crystalline precipitate of $CaSO_4$, the filtration proceeds entirely satisfactorily. 4) In the case of a solution containing Cu in an amount equivalent to a concentration of 1 g/liter, the precipitation amounts to 8-9 g/liter if a CaS with an activity of 68.2% is used. The precipitate contains 11-18% Cu and 5-6% Ni.

N. P.

Card 2/2

VANYUKOV, V.A. [deceased]; VANYUKOV, A.V.; TOROPOVA, T.G.

Decomposition of zinc ferrate by sulfur dioxide and sulfur trioxide.
Izv.vys. ucheb. zav.; tsvet. met. no.3:66-67 ' 58. (MIRA 11:11)

1. Moskovskiy institut tsvetnykh metallov i zolota. Severokavkasskiy
gornometallurgicheskiy institut.
            (Zinc ferrates) (Sulfur oxides)

BERESLAVTSEVA, L.F.; TOROPOVA, T.G.

Solubility of indium hydroxide. Izv. vys. ucheb. zav.; tsvet.
met. 2 no.2:97-100 '59.   (MIRA 12:7)

1.Severokavkazskiy gornometallurgicheskiy institut, Kafedra
obshchey, fizicheskoy i analiticheskoy khimii.
                    (Indium--Metallurgy) (Leaching)

ACCESSION NR: AR4015633   S/0081/63/000/022/0055/0055

SOURCE: RZh. Khimiya, Abs. 22B330

AUTHOR: Toropova, T. G.; Pogorely*y, A. D.

TITLE: Determination of the dissociation pressure of indium and thallium oxides
and the constants of the reduction of indium oxide by carbon monoxide

CITED SOURCE: Tr. Severokavkazsk. gornometallurg. in-ta, vy*p. 17, 1961, 38-45

TOPIC TAGS: indium oxide, thallium oxide, dissociation pressure, indium oxide
dissociation, thallium oxide dissociation, indium oxide reduction, isobaric
potential

TRANSLATION: The dissociation pressures of indium oxide at temperatures of
650-950C and of thallium oxide at 200-700C were determined. The apparatus and
experimental methods are described. At 650-950C In_2O_3 is practically nonvolatile,
and in this temperature range the dissociation of indium oxide is insignificant,
if it takes place at all. The relationship between the partial pressure of
oxygen and the temperature of the dissociation reaction $Tl_2O_3 \rightleftharpoons Tl_2O + O_2$ is
given by the equation $\lg P_{O_2}$ (mm Hg) $= 1.125 \cdot 10^3/T + 2.27$. Measuring the partial

Card 1/2

ACCESSION NR: AR4015633

pressure of oxygen while lowering the temperature of the system did not lead to consistent results. This may be explained by the formation of a continuous series of solid solutions of $Tl_2O_3 - Tl_2O$, leading to changes in dissociation pressure. The equilibrium constant of the reaction $In_2O_3 + 3CO \rightleftarrows 2In + 3CO_2$ was determined at 600-900C by the circulation method. The apparatus and methods are described. Values of the isobaric potential for the reduction of indium oxide by carbon monoxide and for the formation of In_2O_3 are calculated from the reduction constants obtained. At 700C, Δz_f (In_2O_3) = 145.7 kcal. V. Baybuz

DATE ACQ: 07Jan64   SUB CODE: CH   ENCL: 00

Card 2/2

TOROPOVA, T.P.

Study of aureoles near the sun. Trudy Astrofiz.inst.AN Kazakh.
SSR 3:31-44 '62.

Measuring light polarization in fog.   144-148 (MIRA 16:11)

L 19310-63   EWP(q)/EWT(m)/BDS   ASD/AFFTC   JD
ACCESSION NR: AR3006898   S/0137/63/000/007/A006/A007

SOURCE: RZh. Metallurgia, Abs. 7A29

AUTHOR: Toropova, T. G.; Pogorelyy, A. D.

TITLE: Determination of the dissociation pressure of indium and thallium oxides and reduction constants of indium oxide with carbon monoxide

CITED SOURCE: Tr. Severokavkazsk. gornometallurg. in-ta, vy*p. 17, 1961, 38-45

TOPIC TAGS: indium oxide, dissociation pressure, equilibrium constant, carbon monoxide

TRANSLATION: The dissociation pressure of In_2O_3 was determined by a manometric method under vacuum. It was observed that it practically does not dissociate at 650-950C. For Tl_2O_3, $\log P_{O_2} = -\dfrac{1.125 \cdot 10^3}{T} + 2.27$. The temperature dependence of equilibrium constant of the reaction $In_2O_3 + 3CO \rightarrow 2In + 3CO_2$ was also studied experimentally by passing a mixture of CO and CO_2 above the oxide, followed by an analysis of the gas mixture. The equilibrium constant of the reduction of indium
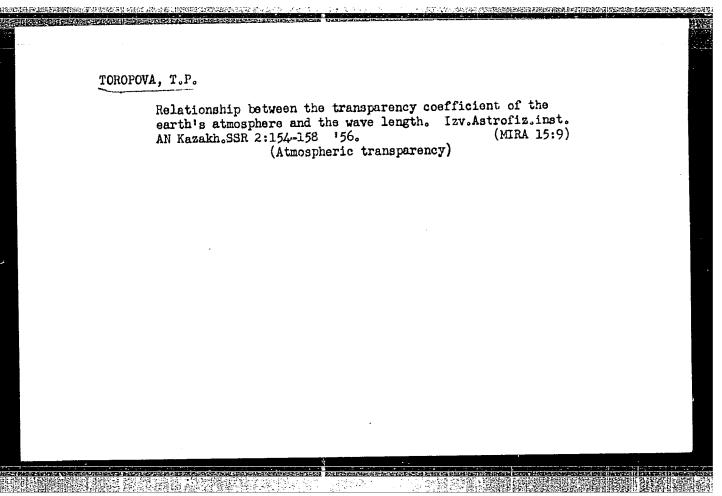
L 19310-63
ACCESSION NR: AR3006898

oxide by CO was determined in the range 600-900C. Coincidence of the calculated and experimental values of Δz for the formation of In_2O_3 was noted (for 700C $\Delta z = 145.7$ kcal). A. Vertman.

DATE ACQ: 12Aug63   SUB CODE: CH   ENCL: 00

TOROPOVA, T.P.

Relationship between the transparency coefficient of the earth's atmosphere and the wave length. Izv.Astrofiz.inst. AN Kazakh.SSR 2:154-158 '56.   (MIRA 15:9)
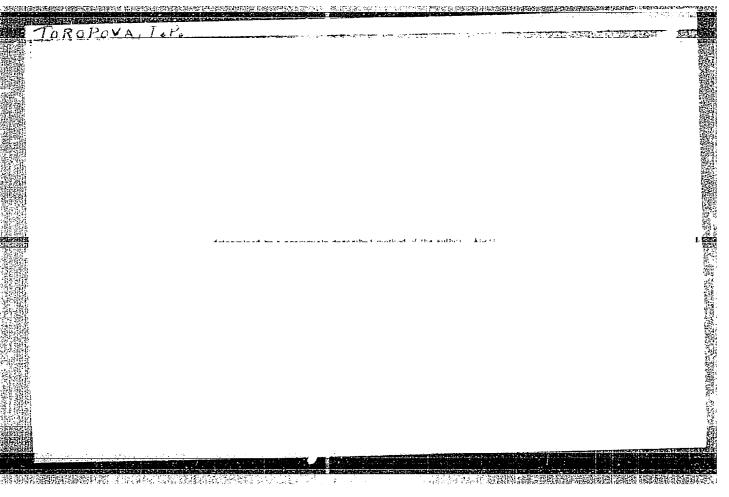
                    (Atmospheric transparency)

KAZACHEVSKIY, V.M.; TOROPOVA, T.P.

Comparison of atmospheric transparency at altitudes of 1450 and
3200 meters. Astron.zhur. 33 no.2:241-245 Mr-Ap '56.   (MIRA 9:8)

1. Astrofizicheskiy institut Akademii nauk Kaz. SSR.
                         (Atmospheric transparency)

TOROPOVA, I.P.

Determined by a comparate description method of the author. Atur.

TOROPOVA, T. P. Cand Phys-Math Sci -- (diss) "Study of the role of various factors in the attenuation of light by a green atmosphere." Alma-Ata, 1957. 8 pp (Acad Sci Kazakh SSR. Astrophysical Inst), 200 copies (KL, 5-58, 100)
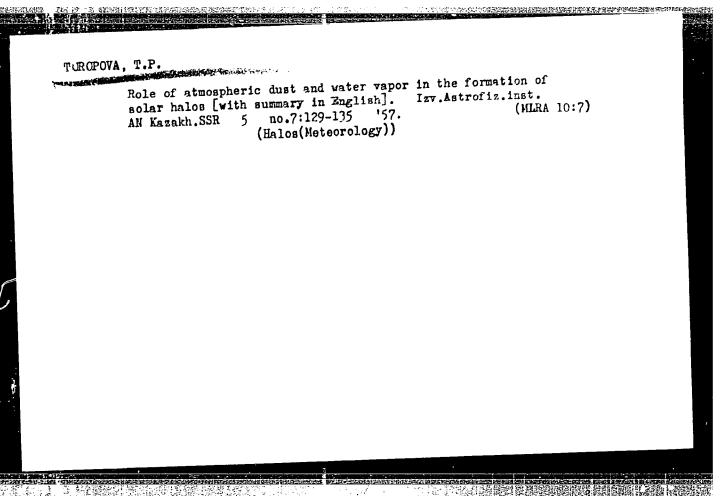
-4-

TOROPOVA, T. P.

"Dependence of the Terrestrial Atmospheric Transparency Coefficient on Wave Length," by T. P. Toropova, Izv. Astrofiz. in-ta AN KazSSR, No 2, 1956, pp 154-158 (from Referativnyy Zhurnal -- Astronomiya, Geodeziya, No 3, Mar 57, Abstract No 1963 by N. B. Divari)

Monochromatic transparency coefficients of the terrestrial atmosphere within wave lengths of 410 to 1010 mu were measured. The observations were carried out in the fall of 1952 and 1954 at the Astrophysical Observatory of the Kazakh SSR by means of a solar Spectrograph with glass optics silver sulfite photocell with a stopping layer as radiation receiver. The resulting monochromatic transparency coefficients agreed within 1 to 2% with those obtained by N. I. Ovchinnikov by means of an aureole photometer with filters. (U)

Sum. 1360

TUROPOVA, T.P.

Role of atmospheric dust and water vapor in the formation of
solar halos [with summary in English].   Izv.Astrofiz.inst.
AN Kazakh.SSR   5   no.7:129-135   '57.   (MLRA 10:7)
                    (Halos(Meteorology))

24(4), 3(7)   SOV/2o-124-4-2o/67

AUTHORS: Boyko, P. N.,   Lifshits, G. Sh.,   Toropova, T. P.

TITLE: Photoelectric Measurements of the Dispersion Factor
             in the Lowest Layer   of the Atmosphere (Fotoelektricheskiye
             izmereniya indikatris rasseyaniya v prizemnom sloye atmos-
             fery)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 4, pp 803-805
             (USSR)

ABSTRACT: The authors carried out the investigations mentioned in the
             title by means of projector-measurements in 1957 and 1958
             at the Astrofizicheskiy institut Akademii nauk KazSSR (Astro-
             physics Institute of the Academy of Sciences, Kazakhskaya SSR).
             The brightness of the light dispersed by the air (which was
             illuminated by a search-light beam) in   various directions
             was measured by means of a photoelectric photometer construct-
             ed especially for this purpose. The photometer was turned at
             various angles θ in the direction of the direct beam. By means
             of this photometer the authors determined the relative and
             absolute indicatrices of light dispersion. A formula for the
             determination of the absolute indicatrix is written down. Ac-
             cording to the results obtained by measurements of the relative
Card 1/2   dispersion indicatrix the latter's longitudinal shape varies

SOV/2o-124-4-2o/67

Photoelectric Measurements of Dispersion Factor in the Lowest Layer of
the Atmosphere

from day to day. A figure shows examples of such indicatrices.
Also in winter rather long-stretched dispersion indicatrices
may be observed. A table shows the results obtained by de-
termining the absolute indicatrices for some dispersion angles.
From the data contained in the table it may easily be seen
to what extent the dispersion of light in the lower layers of
the real atmosphere differs from Rayleigh dispersion. Some
numerical data are given. There are 1 figure, 1 table, and
2 Soviet references.

ASSOCIATION: Astrofizicheskiy institut Akademii nauk KazSSR
(Astrophysics Institute of the Academy of Sciences, Kazakh-
skaya SSR)

PRESENTED: October 24, 1958, by V. G. Fesenkov, Academician

SUBMITTED: October 24, 1958

Card 2/2

80358

SOV/169-59-4-3834

3.9000

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 4, p 95 (USSR)

AUTHOR: Toropova, T.P.

TITLE: On the Problem of the Role of the Various Factors in the
             Extinction of Light by the Earth's Atmosphere

PERIODICAL: Izv. Astrofiz. in-ta AS KazSSR, 1958, Vol 6, pp 3 - 73
             (Engl. Res.)

ABSTRACT: The measurements of the spectral transparency of the atmosphere
             in the range from 420 to 1010 mμ and, moreover, the measure-
             ments of the water vapor content in the entire thickness of the
             atmosphere are described; the measurements were carried out by
             the author in the Astrofizicheskiy institut AN KazSSR (Astro-
             physical Institute of the AS KazSSR) during the time from 1951
             to 1954. Spectrograms of the sun in the afore-mentioned spectrum
             range were obtained directly by measurements of various zenith
             distances of the sun and were used for determining the mono-
             chromatic coefficient of transparency by the prolonged Buger
Card 1/3   method. The ρ band in the spectrogram was used for determining

80398

SOV/169-59-4-3834

On the Problem of the Role of the Various Factors in the Extinction of Light by the Earth's Atmosphere

the content of water vapor. The devices, the investigation results, the evaluation of the measurement accuracy, and the methods of controlling the steadiness of the optical properties of the atmosphere are briefly described. The results of the transparency measurements are given in tables of transparency values for different wave lengths and for the different days of observations during the morning and afternoon hours. Moreover, a graph of the mean annual spectral transparency values is given for the individual years. The results of about 600 cases are given in which the water vapor content was determined. Some conclusions are drawn on the daily and seasonal variations of the water vapor content and, moreover, on the correlation of the quantity of the water vapor in the entire thickness of the atmosphere and the absolute humidity near the earth's surface. The extinction of light by the earth's atmosphere out of the zone of absorption is divided into components caused by the molecular dispersion, the extinction by water vapor, and by the aerosol dispersion. The first component was computed while the second component was determined by the Foule method with known water vapor content and using the

Card 2/3

80398

SOV/169-59-4-3834

On the Problem of the Role of the Various Factors in the Extinction of Light
by the Earth's Atmosphere

spectral coefficients of extinction obtained by Foule. It was discovered
that the aerosol component of the light extinction has three types of de-
pendence on the wave length: 1) the neutral course; 2) the decrease of the
optical density with increasing wave length; 3) the extremum course with a
maximum of extinction in the interval from 460 to 520 mμ. It is attempted
to prove each of these forms of the dependence by analyzing the state of the
atmosphere at the moment of the observation.

Ye.M. Feygel'son

Card 3/3

TOROPOVA, T. P.

"On the Role of Different Factors in the Attenuation of Light in
the Atmosphere."
report presented at the Symposium on Radiation Int'l Assn. of Meteorology and
Atmospheric Physics, IUGG, 19-25 July 1959. Oxford, UK.

23934
S/035/61/000/006/016/044
A001/A101

3,1510

Boyko, P.N., Livshits, G.Sh., Toropova, T.P.

TITLE: Projector studies of scattering indicatrices

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 6, 1961, 27, ab-
              stract 6A232 ("Izv. Astrofiz. in-ta AN KazSSR", 1959, v. 8, 98-107,
              Engl. summary)

TEXT: The authors describe the results of studies of light scattering in-
dicatrices at a wavelength of λ 5200 in the atmosphere layer near the ground,
which were performed at the observatory of the Astrophysical Institute, AS KazSSR,
(1,450 m above sea level). Equipment consisted of a projector installation pro-
ducing a uniform parallel light beam and an electric photometer for determining
scattered light at various angles. The optical diagram of the installation is
presented. In measuring scattered beams, the brightness of a standard screen with
known albedo illuminated by direct light from the projector was determined (this
permitted determinations of absolute scattering indicatrices). Observations have
shown that elongation degree of indicatrices varies considerably, even from day to
day. A table of indicatrices is presented determined at different meteorological

Card 1/2

Projector studies of scattering indicatrices

23934
S/035/61/000/006/016/044
A001/A101

conditions, which shows deviation of light scattering from the Rayleigh law. Deviations are most pronounced at small scattering angles (angle between directions of direct and scattered light). Thus for scattering angle $\vartheta = 10^\circ$ intensity of scattered light in the real atmosphere exceeded the Rayleigh one by a factor of 5 on April 29, 1957, and on January 22, 1958, by 29 times, whereas at $\vartheta = 90^\circ$ intensity of scattered light on April 29 differed very slightly from the Rayleigh one and on January 22 it was only 7 times as high as the latter.

G. Livshits

[Abstracter's note: Complete translation]

Card 2/2

89786

S/169/61/000/003/002/022
A005/A005

6.3000 (1155, 1114 only)
6.4780
Translation from: Referativnyy zhurnal, Geofizika, 1961, No. 3, pp. 47-48,# 3B411

AUTHOR: Toropova, T. P.

TITLE: Some Results From Measurements of the Coefficients of Scattering and Polarization of Light in the Lowest Atmosphere Layer

PERIODICAL: "Izv. Astrofiz. in-ta AN KazSSR", 1959 (1960), Vol. 9, pp. 108-117
            (English summary)

TEXT: The author reports on measurements of intensity and polarization of
the light scattered by the atmosphere. The measurements were carried out by the
aid of a photoelectric photometer with light filter and polaroid by observation
under various angles of the searchlight beam. The latter was obtained by placing
two 500 w kinobulbs near the focus of the condenser lens with a focus distance of
3.42 m. The intensity of the current feeding the searchlight was controlled with
an accuracy up to 0.5%. The errors caused by the reception assembly (photomulti-
plier, amplifier) were evaluated by the author to 1-0.2%. The total error amounts
to no more than 3%. The effective wavelength was 520 mμ at the initial measure-
ments and 495 mμ at the subsequent ones. The scattering angle (θ) was varied

Card 1/3

ь9786

S/169/61/000/003/002/022
A005/A005

Some Results From Measurements of the Coefficients of Scattering and Polarization
of Light in the Lowest Atmsophere Layer

from $10°$ to $160°$ in intervals of $10°$. The coefficient of the directed light-
scattering $\mu(\theta)$ for given θ was determined by numerical integration (with extra-
polation) of $\mu\theta$ with respect to θ. The "asymmetry coefficient" η, i. e., the
ratio of the power scattered forward and the power scattered backward was deter-
mined by integration of $\mu(\theta)$ with respect to the front and back hemispheres, $\times$
which served as characteristics of extension of the scattering coefficient. The
substraction of the effects caused by molecular scattering permitted the deter-
mination of the scattering coefficient and the asymmetry separately for the
aerosol component of the atmosphere. The measurements were carried out by the
mountain observatory of the Astrophysical Institute of the Academy of Sciences
of the Kazakhskaya SSR (at an altitude of 1,450 m). The scattering coefficient
(expressed in deals of the molecular scattering coefficient) was varied from 1.5
to 15, i. e., from 60 to 94% of the power of scattered light was referred to the
deal of the aerosol component. The asymmetry coefficient was varied from 1.57 to
8.75 for total scattering, and from 1.69 to 13.37 for the aerosol component,
whereat no correlation between the value η and the scattering coefficient was
detected. For the polarization measurements, the irradiating beam was depolarized,

Card 2/3

Some Results From Measurements of the Coefficients of Scattering and Polarization of Light in the Lowest Atmosphere Layers

and the intensity of the scattered light was measured for three different positions of the polaroid which was put on the electrophotometer. The error in the measurements of the polarization degree is estimated to 5%. It is noted that the polarization degree (P) under an angle of $\theta = 90^{\circ}$ varies from 33 to 70%. The dependence of $P(\theta)$ on the angle is variable. Sometimes, it is a continuous curve with a maximum at about 90°; the curve is approximate to about $\sin^2\theta$. In other events, the symmetry is violated. In particular, a decrease of P in the region of θ near $20^{\circ} - 60^{\circ}$ and shifts of the maximum to the side of larger angles are noted. The angle dependences of the intensities of the s- and p-components of scattered light are exemplified.

G. Rozenberg

Translator's note: This is the full translation of the original Russian abstract.

Card 3/3

29656
S/169/61/000/005/010/049
A005/A130

3.5150

AUTHOR: Toropova, T.P.

TITLE: Measuring the light scattering indicatrices near the ground
            for two spectral ranges

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 45, abstract 5
            B 386. (Izv. Astrofiz. in-ta. AN KazSSR, 1960, 10, 71-77
            (English summary))

TEXT: Scattering indicatrices near the ground were measured by the
gornaya observatoriya astrofizicheskogo instituta AN KazSSR (Mountain Ob-
servatory of the Astrophysical Institute of the Academy of Sciences of
the KazSSR). The intensity of scattered light was measured within the
range of 10-160° from the direction of the light beam of the projector
for λ = 428, 495 and 560 mμ. The measurement results are given. On the
average, the asymmetry of the indicatrix increases with increasing wave-
length. Increase in asymmetry of the indicatrices with increasing λ was
also discovered by Pyaskovska-Fesenkova during observations of the bright-

Card 1/2

29656
S/169/61/000/005/010/049
A005/A130

Measuring the light scattering indicatrices ...

ness of the day sky. The author shows that the effect of increase of in-
dicatrix asymmetry with increasing λ cannot be caused by secondary scatter-
ing. In order to estimate the role of light scattering by aerosol par-
ticles in the lower atmospheric layer, the absolute indicatrices (α) were
determined. The author shows that scattering coefficients near the ground
exceed the Rayleigh values by 4.65-34.4 times for $\lambda = 560$ mμ and by
4.2-22.4 times for $\lambda = 428$ mμ. In some cases, the dependence of lgα on
lg λ can be represented by any straight line, from the inclination of
which the average dimensions of the scattering particles are determined.

V. Golikov

[Abstractor's note: Complete translation.]

Card 2/2

29655
S/169/61/000/005/008/049
A005/A130

3,5/10 (1114)

AUTHOR: Toropova, T.P.

TITLE: The applicability of exponential law to zones of absorption of water vapor

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 30-31, abstract 5 B 287. (Izv. Astrofiz. in-ta. AN KazSSR, 1960, 10, 78-82 (English summary)

TEXT: The Astrofizicheskiy institut AN KazSSR (Astrophysical Institute of the Academy of Sciences of the Kazak SSR) in 1951-54 conducted spectroscopic measurements of water vapor content through the entire thickness of the atmosphere in the   belt with maximum absorption at 0.94 . On the basis of these results the author studied the applicability of a logarithmic law of absorption to the ρ belt. Comparing the absorption coefficients calculated from the logarithmic law with the quantity of water vapor in centimeters of precipitated water (W), the author corroborated the dependence of the coefficients on the mass of the absorbing substance.

Card 1/2