

SOV/122-58-5-3/26

AUTHORS: Zimin, A.I., Professor and Dobrinskiy, N.S., Candidate  
of Technical Sciences

TITLE: Elastic Deformation in Hydraulic-press Systems (Uprugaya  
deformatsiya v sistemakh gidravlicheskih pressov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 5,  
pp 19 - 23 (USSR)

ABSTRACT: The energy stored in the hydraulic system of a heavy  
press is computed by analyzing separately the contributions  
of the change of volume due to the elastic deformation of its  
several elements, and the compressibility of the fluid. In a  
worked-out numerical example, the compressibility accounts  
for 2/3 of the total. In some practical instances, the stored  
energy is of the same order as the useful work. A criterion  
of adequate stiffness is the ratio of the useful work (expended  
on the plastic deformation of the workpiece) to the energy  
stored in the hydraulic and mechanical systems. Different  
press operations such as hot pressing, briquetting, straight-  
ening, rubber press work and blanking are considered with  
special emphasis on presses with a short working stroke.  
Production processes have different specific pressures exerted

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Elastic Deformation in Hydraulic-press Systems

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on the worked material ranging from 2 - 40 kg/mm<sup>2</sup>. The hydraulic pressure should be as near as possible to the working pressure. The use of accumulators is the more important the lower the stiffness of the press system. There are 6 figures.

Card 2/2 . 1. Hydraulic presses--Analysis

DUNAYEV, Petr Aleksandrovich; ZIMIN, A.I., prof., retsentsent; PODREZ,  
S.A., insh.; MEYLAKH, G.I., insh., red.; FOMICHEV, I.V., insh.,  
red.; DUGINA, N.A., tekhn.red.

[Pneumatic hammers] Pnevmaticheskie moloty. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 190 p.

(MIRA 12:7)

(Pneumatic machinery) (Hammers)

LYUBVIN, Vladimir Ivanovich; ZININ, A.I., prof., doktor tekhn.nauk, retsenzent;  
GRUSHEVSKAYA, G.M., red.izd-va; MODEL', B.I., tekhn.red.

[Manufacture of parts by rotary reduction] Obrabotka detalei  
rotatsionnym obshatiem. Moskva, Gos.nauchno-tekhn.izd-vo mashino-  
stroit.lit-ry, 1959. 194 p. (MIRA 12:4)  
(Metal work)

ZIMIN, A.I.; BOCHAROV, Yu.A.

Hydraulic screw-press hammer. Kuz.-shtan. proizv. 1 no.8:15-17  
Ag '59. (MIRA 12:12)

(Forging machinery)

Zimin, A.I.

SOV/3955

PHASE I BOOK EXPLOITATION

Moscow. Vyssheye tekhnicheskoye uchilishche

Mashiny i tekhnologiya obrabotki metallov davleniyem; sbornik statey (Machinery and Processes for the Pressworking of Metals; Collection of Articles) Moscow, Mashgiz, 1960. 246 p. (Series: Its: Trudy, vyp. 98) Errata slip inserted. 3,500 copies printed.

Ed.: A.I. Zimin, Doctor of Technical Sciences, Professor; Ed. of Publishing House: O.V. Chernyakh; Tech. Ed.: T.F. Sokolova; S.Ya. Golovin, Engineer.

PURPOSE: This collection of articles is intended for workers in scientific research institutions and in die-forging shops, and for engineering students.

COVERAGE: The book contains papers from the Department of Machines and Processes for the Pressworking of Metals of the MVU (Moscow Higher Technical School imeni N.E. Bauman). The papers deal with

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Machinery and Processes (Cont.)

SOV/3955

theoretical and practical aspects of metal pressworking and with the theory and practice of forging machine and press design. These papers deal with machine hydraulics (selection of drives of presses, pressure in cylinders). A design of a hydraulic power-screw type "press-hammer", which can work as a percussion press or forging press, is presented. Problems of the theory of plastic deformation in forging, upsetting, and forming are also analysed. 17 reference cards (Nos. 33 to 49) are appended to explain problems pertaining to the state of stress of plastically deformed metal. These cards are the continuation of cards presented in collection No. 79 of the MVTU, 1957. No personalities are mentioned. References accompany most of the articles.

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Zimin, A.I., Doctor of Technical Sciences, Professor. Hydraulically Operated Power-Screw Press-Hammer 3

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- Zimin, A.I., Doctor of Technical Sciences, Professor. Mechanics of Plastically Deformed Bodies 127
- Popov, Ye.A., Doctor of Technical Sciences, Professor. Determination of Hole Sizes in Burring [Hollow] Cylindrical Blanks 136
- Popov, Ye.A., Doctor of Technical Sciences, Professor. On the Problem of the Shape of the Focus of Deformation During Forging in Dies With Gutter. 141
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Development of the Soviet Pressforging Industry 208

Zimin, A.A., (Editor). Reference Cards on the Theory of Plastic  
Deformations; Cards 33-49. 217

AVAILABLE: Library of Congress

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VK/rem/jb  
7-27-60

ZALESKIY, Vladimir Iosifovich, prof.; ZIMIN, A. I., doktor tekhn.  
nauk, prof., retsenzent; KLIMOV, I.V., doktor tekhn.  
nauk, prof., retsenzent

[Equipment of forging power-press shops] Oborudovanie  
kuznechno-pressovykh tekhnov. Moskva, Vysshaya shkola,  
1964. 598 p. (MIRA 18:1)

1. Kafedra mashin i tekhnologii obrabotki metallov davle-  
niem Moskovskogo vysshago tekhnicheskogo uchilishcha (for  
Zimin).

ZIMIN, A.I., doktor tekhn.nauk, prof.; KAGARMANOV, A.F., inzh.

Experimental hydraulic impulse equipment. Trudy MVTU no.111:51-55  
1964. (MIRA 17:9)

ACC NR: AP6029079

SOURCE CODE: UR/0413/65/000/011/0112/0112

INVENTORS: Zimin, A. I.; Kagarmanov, A. F.; Sverchkov, Yu. S.

ORG: none

TITLE: A hydraulic impulse forge press. Class 58, No. 184131

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 142

TOPIC TAGS: hydraulic equipment, forge press, valve

ABSTRACT: This Author Certificate presents a hydraulic impulse forge press with its power system provided with a hydroaccumulator. The latter propels the working liquid through an impulse valve onto the plunger. To produce the opposite movement of another working plunger, the hydroaccumulator is connected to another closed hydraulic power system with an impulse valve (see Fig. 1). The sizes of both hydraulic power systems are selected to satisfy the condition that the opposite

Card 1/2

UDC: 621.226:621.974.4

ACC NR: AP6029079

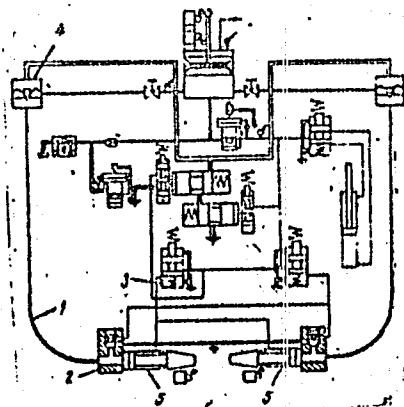


Fig. 1. 1 - working pipe conduit; 2 - valve; 3 - directing valve; 4 - impulse valve; 5 - cylinder with piston

movement of the working plungers occurs simultaneously. Orig. art. has: 1 figure.

SUB CODE: 13/

SUBM DATE: 12May64

Card 2/2

ZIMIN, A.I., doktor tekhn.nauk, prof.; SAIDOV, M.G., inzh.; Prinsipal uchastiyet  
BOBROV, A.S., inzh.

Pilot plant equipment for rubber pad forming processes. Trudy  
MVTU no.111:112-117 '64. (MIRA 17:9)

BROVKOVICH, D.A.; POPOV, A.A.; ZIMIN, A.I.; KOMAROV, G.V.;  
ABROSKIN, P.I.; ZAV'YALOVA, A.N., red.; GERASIMOVA, Ye.S.,  
tekhn. red.

[Industrial planning in an economic region; practice of the  
Rostov Economic Council] Planirovanie promyshlennosti v ekonomicheskom raione; opyt Rostovskogo sovnarkhoza. Moskva, Ekonomizdat, 1962. 187 p. (MIRA 15:7)

(Rostov Province--Economic policy)



ZIMIN, A.I., doktor tekhn.nauk, prof.

Notice on the dynamics of two-disk friction screw hammers (presses).  
Vest. mash. 41 no. 5:54-55 My '61. (MIRA 14:5)  
(Forging machinery)

ZIMIN, A.I.

PHASE I BOOK EXPLOITATION

80W/5799

Unksov, Ye.P., Doctor of Technical Sciences, Professor, Ed.

Sovremennoye sostoyaniye kuznechno-shtampovochnogo proizvodstva (Present State of the Pressworking of Metals) [Moscow] Mashgiz, 1961. 434 p. 5000 copies printed.

Ed. of Publishing House: A.I. Sirotin; Tech. Ed.: B.I. Medel'; Managing Ed. for Literature on the Hot Working of Metals: S.Ya. Golovin, Engineer.

Title: Kuznechno-shtampovochnoye proizvodstvo v SSSR (The Pressworking of Metals in the USSR) by: A.V. Altykis, D.I. Berezhkovskiy, V.F. Volkovitskiy, I.I. Girsh (deceased), L.D. Gol'man, S.P. Granovskiy, N.S. Dobrinskiy, A.I. Zimin, S. L. Zlotnikov, A.I. Kagalovskiy, P.V. Lobachev, V.N. Martynov, Ye.N. Moshnin, G.A. Navrotskiy, Ya.M. Okhrimenko, G.N. Rovinskiy, Ye.A. Stosha, Yu.L. Rozhdestvenskiy, N.V. Tikhomirov, Ye.P. Unksov, V.F. Shcheglov, and L.A. Shofman; Eds: Ye.P. Unksov, Doctor of Technical Sciences, Professor, and B.V. Rozanov.

Title: Kuznechno-shtampovochnoye proizvodstvo v ChSSR (The Pressworking of Metals in the Czechoslovak SR) by: S. Burda, F. Hrazdil, F. Drastik, F. Zlatohlávek

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Present State of the (Cont.)

SOV/5799

Z. Kejval, V. Krauz, F. Kupka, F. Majer, K. Marvan, J. Novák, J. Odehnal, K. Paul, B. Scammer, M. Honz, J. Částka, V. Šindelár, and J. Šolc; Eds.: A. Nejeřsa and M. Vlk.

PURPOSE: This book is intended for engineers and scientific personnel concerned with the pressworking of metals.

COVERAGE: Published jointly by Mashgiz and SNTL, the book discusses the present state of the pressworking of metals in the USSR and the Czechoslovak Socialist Republic. Chapters were written by both Soviet and Czechoslovak writers. No personalities are mentioned. There are 129 references: 98 Soviet, 16 English, 8 German, 5 Czech, and 2 French.

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- Ch. X. The Manufacturing Process and Organization in the Stamping of Bodies at the Automobile Plant "National Enterprise (AZNP) Mladá Boleslav" [Z. Kejval, AZNP, Mladá Boleslav] 397
- Ch. XI. The Mechanization of Obsolete Enterprises as a Means of Increasing Labor Productivity [B. Sommer, Vítkovice Metallurgical Plant imeni Klement Gottwald, Ostrava] 410
- Ch. XII. The Initial Pressworking of FeAl Alloys and Large FeCrAl Castings [F. Majer and J. Šolc, Scientific Research Insti-

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stitute of Iron, Prague]

SOV/5799

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VK/wrc/bc  
12-7-61

ZIMIN, A.I.; YEZZHEV, A.S.

Equipment for continuous compression molding of thermosetting plastic. Kuz.-shtam. proizv. 3 no.6:32-37 Je '61.

(MIRA 14:6)

(Plastics--Molding)

S/182/61/000/002/004/009  
A161/A133

AUTHORS: Zimin, A.I., Yezzhev, A.S.

TITLE: The productivity of pressing equipment for plastics

PERIODICAL: Kuznechno-shtampovoechnoye proizvodstvo, no. 2, 1961, 20 - 23

TITLE: The article contains general considerations of possible ways to raise the productivity of presses producing plastic parts, and detailed description of a new press design that has been developed for the automatic continuous production of balls from thermo-setting plastics. The unit includes two presses, a step-by step conveyer, and molds on the conveyer. One press opens the mold, the other closes it again after filling. The plastic in the mold remains under pressure during its travel on the conveyer and arrives to the opening press when the balls have solidified. The special mold design is shown in a detailed schematic. Pellets are charged into it after opening, then the press slide exerts pressure on the top plate. The grips move apart, and dish springs are compressed. Then, at a certain position, the grips close again, and the press slide can be retracted. The mold remains closed. The dish springs produce pressure and compensate the insignificant contraction of the

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The productivity of pressing equipment for plastics

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A161/A133

plastic during the setting. The conveyer has four work positions - mold opening, ejection and removal of ready balls, filling and closing. In the opening position the press makes one work stroke to compress the dish springs and release the holding grips. Then hold-down devices exert pressure on the short arms of the mold grips moving them apart, and levers on the press slide take and lift the top mold plate. The mold moves one step to the next position where the ejector pushes the ready balls upward into the open space between the top and bottom mold portion, and a stripping device enters to remove them. The ejector is lowered and the stripping device blows out and oils the mold sockets, then retracts. The mold is conveyed to position for filling. The pellets move from the hopper through a guiding device into the feeder leading into a space between the heating plates connected to a high-frequency current generator. The pellets are already preheated at the moment when the mold arrives. The feeder moves forward into the open mold, and the hot pellets fall into the mold sockets, then the feeder retracts. In the last position the second press presses the balls and automatically closes the mold. The mold moves onto the step-by-step conveyer and travels along with it. At the end of the first conveyer line the mold is conveyed onto a transverse table transporting it to the second conveyer

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The productivity of pressing equipment for plastics

S/182/61/000/002/004/009  
A161/A133

line that brings in again to the opening position. Electric heaters in the mold are supplied with current from a trolley and sliding contacts. A heat relay maintains constant temperature. Conclusions: 1) The applied pressing method with the use of hydraulic presses cannot give high output in mass production of parts; 2) The "carried-out" (vynosnaya) mold method makes it possible to increase the productivity of pressing equipment by a factor of 10. 3) Automatic lines with such molds can be used for pressing different parts at a time. There are 3 figures.

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ALTYKIS, A.V.; BEREZHKOVSIIY, D.I.; VOLKOVITSIIY, V.F.; GIRSH, I.I. [deceased];  
GOL'MAN, L.D.; GRANOVSKIY, S.P.; DOBRINSKIY, N.S.; ZIMIN, A.I.; ZLOT-  
NIKOV, S.L.; KAGALOVSKIY, A.I.; LOBACHEV, P.V.; MARTINOV, V.H.; MOSE-  
NIN, Ye.N.; NAVROTSKIY, G.A.; OKHRIMENKO, Ya.M.; ROVINSKIY, G.N.;  
STOSHA, Ye.A.; ROZHDESTVENSIIY, Yu.L.; TIKHOMIROV, N.V.; UNKSOV, Ye.P.,  
doktor tekhn. nauk, prof.; SHEGLOV, V.F.; SHOIFMAN, L.A.; SIROTIN, A.I.,  
red. izd-va; MODEL', B.I., tekhn. red.

[Present state of the forging industry] Sovremennoe sostoianie kuznechno-  
shtampovogo proizvodstva. By Kollektiv sovetskikh i chekhoslovat-  
skikh avtorov. Moskva, Mashgiz; Prague, SNTL, 1961. 434 p.

(MIRA 14:8)

(Forging)

ZIMIN, A.I.; YEZZHEV, A.S.

Performance of compression molding equipment for plastics. Kus,-  
shtam. prozv. 3 no. 2:20-23 F '61. (MIRA 14:1)  
(Plastics—Molding) (Hydraulic presses)

15.8420

22067  
S/182/61/000/006/005/007  
D038/D112AUTHORS: Zimin, A.I., Yezhev, A.S.

TITLE: Continuous press unit for thermoset plastic articles

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 6, 1961, 32-37

TEXT: A new method for pressing plastics with the use of a mobile press mold was suggested in no. 2, 1961 of this periodical. An automatic unit (Fig. 1) designed for pressing thermoset plastic ball bearings, which may be considered as an example of the method, is described in the present work. The system comprises two presses, a discharging and a charging unit, press molds; a step-by-step conveyer, a hydraulic drive and electric equipment. The press mold (Fig. 2) consists of a top (1) and bottom (6) platen bearing a punching set (4) and bed die set (5). The punch set is connected with the top platen through packets of dished springs (11) whose total effort is sufficient for pressing four parts. The bed die set is heated by three built-in electric heaters (12) with leads connected with slide contacts (15). A TP-200 (TR-200) thermorelay (13) and an PNT-100 (RPT-100) intermediate relay (14) maintain the mold temperature with  $\pm 5$  C accuracy. Pressure in the articles is maintained after moving press molds away from the presses.

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D038/D112

Continuous press unit for thermoset ...

The molds move along the horizontal endless conveyer with a step-by-step motion. The following consecutive operations are performed on the presses, whilst the conveyer is stopped: opening the mold, discharging, greasing the seats, charging the pellets and closing. The conveyer has four work positions, the remaining positions are used for keeping the molds under pressure. The bottom platen has an ejector platen (8) for pushing out the ready balls. The ejector is retracted by a spring. The top and bottom platens are interconnected by grips (2) on axes (7) and are moved together on guide posts (9) and bushings (10). A stop (3) is used for keeping the mold open. The two presses have one table. The first press is used for the opening of press mold, and the second for closing it. The output of the new unit is 4 times higher than in the presses with one position, and 21 times higher than in the old method. The production rate is 760 parts per hour. It is suggested that manufacture of fast semi-automatic lines for the production of a greater number of articles is possible, and that the first units will start working in 1961. The unit was designed, at the Department of "Mashiny i tekhnologiya obrabotki metallov davleniyem" (Machines and the Technology of Treatment of Metals by Pressure), MVTU Im. Bauman, by chief designer A.S. Yezhev. There are 7 figures.

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Continuous press unit for thermoplastic ...

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S/182/61/000/006/005/007  
D038/D112

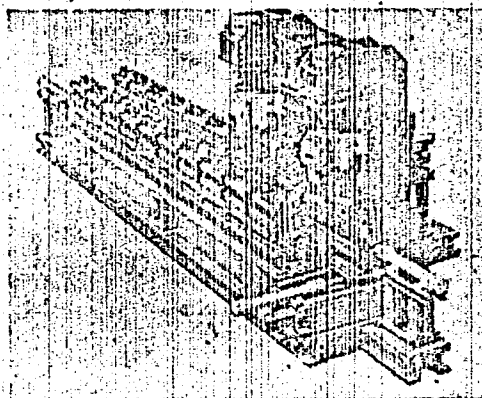


Fig. 1. Model of an automatic installation for pressing plastic parts

Рис. 1. Модель автоматической установки для прессования пластмассовых деталей.

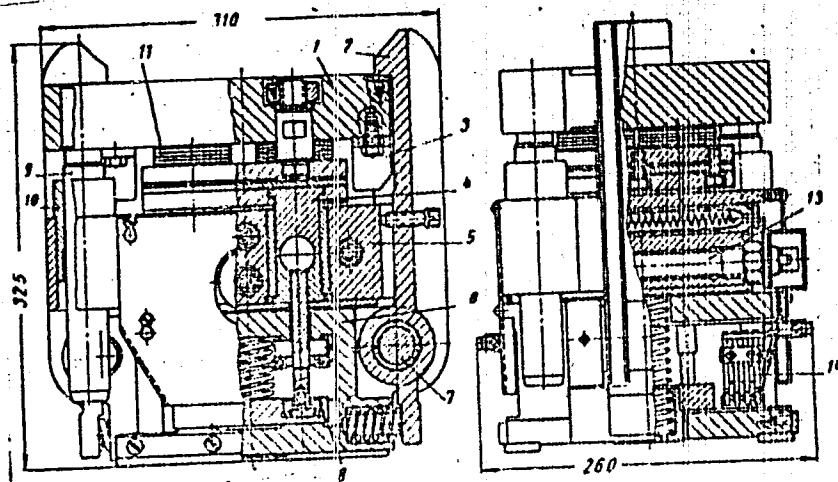
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D038/D112

Continuous press unit for thermoset ...

Fig. 2. Press mold



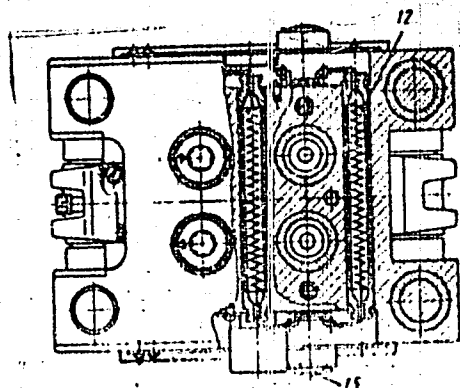
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Continuous press unit for thermometer ...

Fig. 2. Press mold (cont'd)



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S/137/61/000/001/012/043  
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, p. 22, # 1D194

AUTHOR: Zimin, A.I.

TITLE: Analysis and Future Problems in the Design of Forging Machines

PERIODICAL: V sb. "Osnovn. vopr. razvitiya kuznechno-stamp. proiz-va", Moscow, 1958, pp. 343-356

TEXT: Information is given on future problems directly affecting the quality of designing forging machines and first measures are indicated to promote the rapid solution of these problems. The problems are applied to established groups of standard forging machines, such as hammers, crank devices, hydraulic presses and rotation machines. Their characteristic features are taken into account.

Ye. M.

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

Card 1/1

ZIMIN, A.I., prof., doktor tekhn.nauk, red.; CHERNYAK, O.V., red.izd-va;  
SOKOLOVA, T.F., tekhn.red.

[Machines and processes in the press forging of metals] Mashiny  
i tekhnologiya obrabotki metallov davleniem; sbornik statei.  
Pod red. A.I.Zimina. Moskva, Gos.nauchno-tekhn.izd-vo mashino-  
stroit.lit-ry, 1960. 246 p. (MIRA 13:11)

1. Moscow. Moskovskoye vysshaye tekhnicheskoye uchilishche.  
(Forging)

S/182/60/000/002/012/012  
A161/A029

AUTHORS: Zimin, A.I.; Kuz'mintsev, V.N.

TITLE: All-Poland Conference on Plastic Metalworking

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 2, pp. 47 - 48

TEXT: Information is given on a conference on November 25 - 26, 1959, in Poznan', organized by the Polish engineers and mechanics union section for plastic metalworking. It is stated in introductory remarks that production of presses is new in Poland. It is concentrated in Chenstokhov, Poznan', at the Forging Machine Works at El'blot and Warsaw, Hydraulic Press Works at Krakov, Nissa and other towns. A Central Design Bureau exists in Warsaw, a Central Laboratory for Plastic Metalworking in Poznan', and an Iron and Steel Institute and a Design Bureau for Metallurgical Machines in Glivice. (All towns and personal names in Russian transliteration). More than 200 delegates from the USSR, Czechoslovakia, Hungary, East Germany, France and West Germany were present. Professor A.I. Zimin and Candidate of Technical Sciences P.V. Kamev represented the Tsentral'noye pravleniye Nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti SSSR (Central Board of the Scientific-Technical Association of the

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All-Poland Conference on Plastic Metalworking

S/182/60/000/002/012/012  
A161/A029

Machine Building Industry of the USSR). Nineteen reports were heard. K. Bo-syatskiy, Director of the Polish Central Design Bureau for Presses, spoke in his report "Development of Industrial Hot and Cold Plastic Metalworking Methods" of the success of Polish specialists and outlined the planned ways in equipment design, stressed the necessity to use more extensively the new production processes (rolling, forging in horizontal machines and mechanical presses), electric heating of metal, mechanization and automation of work and to take measures for work safety. Professor T. Pel'chinskiy, head of the department of "Fundamentals of Pressure Working" of the Warsaw Polytechnic Institute, read a report on "Evaluation of Technological Plasticity of Materials". In cold pressing four properties must be known: resistance to deformation, resistance to compression, relative reduction of the neck cross section area and the nature of rupture. Docent V. Gashek (Czechoslovakia) reported on the investigation of the effect of elevated temperature on oxidation of metal and changes of metal structure in forgings. Professor P. Vashyunik of the Krakov Mining Academy gave practical recommendations for production of bushings in horizontal forging presses. The report by Engineer T. Rut (of Central Laboratory for Plastic Metalworking, Poznan') concerned blanking with the use of forging rollers. Two reports concerned the heating of metal: Professor P. Bukovskiy (of Warsaw Polytechnic Institute), "An In-

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vestigation of the Productivity of Forging Shop Furnaces", with practical recommendations, and Engineer Ts. Malak (Poznan', Central Laboratory for Plastic Metalworking), "High Productivity of a Forging Shop Furnace is a Source of Fuel Economy". Two reports read in the cold-working conference section were "Mechanical Presses for Stamping" by Engineer H. Schmidt, German Federal Republic, and "Machines for Sheet Metal Products" by Engineer T. Golatovskiy of the Warsaw Central Design Bureau for Presses. Process technology was treated in reports made by Engineers M. Ol'shevskiy (Central Laboratory, Poznan'), "Some Problems of Cold Welding of Metals", Engineer I. Gruin (Aviation Institute, Warsaw), on making and investigating tools made from plastics for stamping sheet metal, and Engineer L. Kushch (Iron and Steel Institute, Glivice), on lubricants for cold stamping. It is mentioned that many of the Polish technicians are using Soviet technical literature (e.g., works by N.N. Davidenkov, S.I. Gubkin, V.D. Kuznetsov) and some visited the USSR during scientific and technical missions. The Soviet delegation (Professor A.I. Zimin, Candidate of Technical Sciences P.V. Kamnev, Engineer V.N. Kuz'mintsov) participated actively in the conference. Professor A.I. Zimin, in his report "Some Problems of Metalworking by Pressure", outlined briefly the fundamentals of the forging machine designing and suggested to test and use some new principles. He informed on work in progress in this

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All-Poland Conference on Plastic Metalworking

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field at MVTU (development of a hydraulic press-hammer, of pulse hammer designs and presses utilizing the effect of hydraulic impact). Engineer V.N. Kuz'mintsev informed on research work at Otdel obrabotki metallov davleniyem TsNIITMASH (Section of Metalworking by Pressure of TsNIITMASH), and the basic results of works conducted by Ye.P. Unksov, B.N. Bagatov, V.N. Martynov, L.G. Stepankiy, A. V. Altykis, V.A. Kuroyedov and himself. Kuz'mintsev stressed the necessity of investigations to find optimum compositions of lubricants and die steel. P.V. Kamnev, Chairman of the Sektsiya obrabotki metallov davleniyem Leningradskogo otdeleniya NTO Mashproma (Section of Metalworking by Pressure of Leningrad Branch of NTO Mashprom), reported on "The Modern State of Hot Stamping Technology", analyzing the foreign and Soviet experience. During three days after the conference, the Soviet delegation visited the Machine Plant im. Tsegel'skogo (imeni Tsegelski) in Poznan'. The Plant produces forging equipment, different metal cutting machine tools including automatic tools, ship engines of up to 6,000 hp and railroad coaches. At the Central Design Bureau for Presses and Hammers in Warsaw, it was noticed that Soviet and other foreign experience is utilized. The Bureau designs mechanical and automatic presses, forging and stamping steam-air hammers, horizontal forging presses and other equipment. It was founded 11 years ago and has completed 150 new forging equipment designs and published a book.

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All-Poland Conference on Plastic Metalworking

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"Forging Presses". At the department "Fundamentals of Pressure Working" of the Warsaw Polytechnic Institute, it was stated that extensive research work is being done. Soviet delegates visited also the Metallurgical Combine Novaya Huta im. Lenina and the Sheet Stamping Works "Artigraf" in Krakov specializing in the production of tin containers. Decision was taken that each delegation should apply to their respective administrations for organization of an international association of specialists of pressure working (like the existing associations of foundrymen, welding engineers and other).

Card 5/5

L 9458-66

ACC NR: AP5025068

SOURCE CODE: UR/0286/65/000/016/0122/0122

AUTHORS: Zhuchenko, A. N.; Zimfn, A. L.; Grayfar, A. Kh.

ORG: none

TITLE: High speed pneumatic hammer. Class 49, No. 174056

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 122

TOPIC TAGS: forging hammer, pneumatic hammer, forging press, metalworking, PNEUMATIC DEVICE, FORGING MACHINERY

ABSTRACT: This Author Certificate presents a high speed pneumatic hammer which operates at high pressures with a cylinder open at the bottom and with the hammer acting as the piston (see Fig. 1). To provide reliable holding of the hammer at the cylinder top and to provide fast automatic release when high pressure air is introduced, the upper part of the piston-hammer and the lid of the cylinder form mating circular surfaces, the lid part of which deforms elastically in the radial direction when pressurized air is introduced. To simplify hammer construction and to eliminate loss of compressed air during the return stroke, a second feature is provided by the use of a vacuum pump which reduces the pressure above the piston during the return stroke.

23  
B

Card 1/2

UDC: 621.733.544-184.4

L 9458-66

ACC NR: AP5025068

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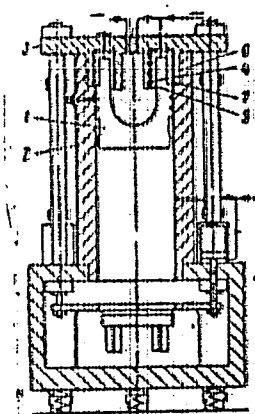


Fig. 1. 1 - Piston-hammer; 2 - cylinder;  
3 - lid; 4 to 7 - circular mating surfaces.

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 04Jul62

Card 2/2) W)

S/124/63/000/003/054/065  
D234 0308

1. The following information was obtained from a review of the file:

1.1. The following information was obtained from a review of the file during rolling on two and three-roller reduction mills:

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Card 1/2

... area with ... internal ...

S/133/62/000/007/009/014  
A054/A127

AUTHORS: Shevchenko, A.A., Doctor of Technical Sciences; Gulyayev, G.I.,  
Candidate of Technical Sciences; Zimin, A.K., Engineer

TITLE: The effects of the heating temperature and chemical composition on  
the changes in the wall-thickness of tubes during reduction

PERIODICAL: Stal', no. 7, 1961, 632 - 633

TEXT: At the UkrNITI tests were carried out with 180-mm long and 50-mm ex-  
ternal diameter machined tubes of 10 (10) and 1X 18Г9Т (1Kh18N9T) steels with  
heating in an electric furnace in an argon atmosphere and reduction on a 7-stand  
double-roll mill (with 160-mm diameter rolls). After reduction the tubes were  
immersed in water, scale could therefore develop only for a short time, i.e.,  
during feeding to the mill and rolling (25 - 45 sec). At 50 mm from the tube end  
annular notches were made on which the wall thickness was marked (at six points  
before and 12 points after reduction). The tests were carried out at 800, 900,  
1,000, 1,100 and 1,200°C. The effect of the chemical composition was studied on  
tube branches 50 mm long, with a wall-thickness of 4.5 mm, while reducing them

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The effects of the....

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A054/A127

to a diameter of 38.5 mm. Before reduction, the tubes [made of the 1Kh18N9T, U1X 15 (ShKh15), 45, 17.5 (St.5), 10 steel grades] were heated in an argon atmosphere to 9800C. Both test series proved that neither temperature (in the conventional temperature range) nor chemical composition had a marked effect on the changes in wall-thickness, which did not exceed 0.66 mm (relating to a 23% reduction) at the above-mentioned temperatures. However, if heating takes place, in the furnaces used at present for this purpose, scaling on the tube surface cannot be avoided. Scaling is directly related to the heating temperature and heating time; it also depends on the grade of steel. Calculations of the changes in tube wall-thickness will, therefore, have to include corrections for scale-formation. There is 1 figure.

ASSOCIATION: UkrNITI

Card 2/2

SHEVCHENKO, A.A., doktor tekhn.nauk; GULYAYEV, G.I., kand.tekhn.nauk;  
ZIMIN, A.K., inzh.

Effect of the temperature of heating and chemical composition  
of the metal on changes in pipe wall thickness during their  
reduction. Stal' 22 no.7:632-633 JI '62. (MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut.  
(Pipe mills)

ZIMIN, A.K., inzh.

Comparing pipe deformation by reduction mills with various  
grooving. Met. i gornorud. prom. no.4:42-44 JI-Ag '62. (MIRA 15:9)

1. Ukrainskiy truvnyy institut.  
(Pipe mills)  
(Deformations (Mechanics))

ZIMIN, A.L., prof.; DOBRINSKIY, N.S., kand. tekhn. nauk.

Elastic deformations in hydraulic press systems. Vest. mash. 38  
no.5:19-23 Ky '58. (MIRA 11:5)

(Hydraulic presses)

ZIMIN, A.N.

Determination of alcoholic intoxication. Probl. sud. psikh.  
no. 12:202-207 '62. (MIRA 16:4)

(ALCOHOLISM)

ZIMIN, A.N., inzhener.; MELAMUT, D.L., kandidat tekhnicheskikh nauk.

Filling in the bed of the Terek River in connection with building  
the Kargalinskaya hydraulic development. Gidr. i mel. 8 no.11:  
25-35' N '56. (MIRA 10:4)  
(Terek River---Dams) (Earthwork)

AIMIN, A. P.

Practical advice on the prevention of failure and the repair of the motor and gas-generating system of the tractor CHTZ SG-65. Moskva, Gosl'estekhnizdat, 1943. 104 p.

DA

ZIMIN, A. P. and CHERNISHEVSKIY, A. P.

Practical Advice on Repair of Engines, Tractor CG-65, Moscow 1942.

~~XXXXXXXXXX~~, 22 Oct 1952, ~~XXXXXXXXXX~~



ZIMIN, A.P.; IGNATOV, A.V.; KOKLOV, K.G., inzh.; retsenzent; BUBYAKIN, N.S.,  
inzh., retsenzent; DUGINA, N.A., tekhn.red.

[Technical manual for supervisors in the machinery industry]  
Tekhnimum kontrolera mashinostroitelia; posobie dlia kontrolerov  
mekhanicheskikh tsekhov, Moskva, Gos.nauchno-tekhn.izd-vo mashino-  
stroit. lit-ry, 1951. 252 p. (MIRA 10:12)  
(Machinery industry)

ZIMIN, A.P.

Theoretical substantiation of the increase of tractive capacity of rope-driving friction elements by the use of tightening rollers. Teor. mash. i mekh. no. 94/95:5-14, 163. (MIRA 16:11)

ZIMIN, Arkadiy Pavlovich; IGUMOV, Aleksey Vasil'yevich; KOZLOV, K.G.,  
inzh., rtsensent; DUGINA, N.A., tekhn.red.

[Inspecting engineer; textbook for inspectors of mechanical  
shops] Kontroler-mashinostroitel'; posobie dlia kontrolerov  
mekhanicheskikh tsekhov. Izd.4, ispr. i dop. Moskva, Gos.  
nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 327 p.

(MIRA 13:7)

(Mechanical engineering)

(Mensuration)

ZIMIN, Arkadiy Pavlovich; IGNATOV, Aleksey Vasil'yevich; RYABOV, A.N.,  
inzhener, retsenzent; YERMAKOV, N.P., tekhnicheskii redaktor

[Technical essentials for supervisors of machine manufacturing;  
manual for inspectors in machine shops] Tekhminimum kontrolera-  
mashinostroitelia; posobie dlia kontrolerov mekhanicheskikh tsekhov.  
Izd. 3-e, ispr. 1 dop. Moskva, Gos.nauchno-tekhn.isd-vo mashino-  
stroit.lit-ry, 1957. 319 p. (MIRA 10:7)  
(Machine-shop practice)

ZIMIN, A.P., dots.

Expanding the field of use of single rope mine hoists with friction plates and increasing the reliability and safety of their performance. *Izv.vys.ucheb.zav.; Por.zhur. no.4:105-113 '58.*

(MIRA 11:11)

1. Sverdlovskiy gornyy institut.  
(Mine hoisting--Safety appliances)

ZIMIN, A.P., dotsent; Prinsipal; uchastiye; AKHLYUSTIN, V.K., kand.tekhn. nauk; DOBROBORSKIY, G.A., starshiy prepodavatel'; IGUMNOV, Yu.A., assistant; GORSHKOVA, N.G., inzh.

Investigating the performance of industrial specimens of dump skips without skip drums tracks in the general mine hoisting systems; static analysis. Izv.vys.ucheb.zav.; gor.zhur. no.6:115-126 '59. (MIRA 13:4)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva. Rekomendovana kafedroy gornoy mekhaniki. (Mine hoisting)

ZIMIN, A.P., dotsent

Selecting a safety margin for the slipping of mine hoists with pulleys and friction drums. Izv.vys.ucheb.sav.; gor.zhur. no.8: 74-81 '59. (MIRA 13:5)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva.  
Rekomendovana kafedroy prikladnoy mekhaniki.  
(Mine hoisting--Safety appliances)

ZIMIN, A.P., dotsent

Wear and increased efficiency of grip rollers on rope-friction  
mine hoists. Izv. vyi. ucheb. zav.; gor. zhur. no.11:117-122  
1959. (MIRA 14:5)

1. Sverdlovskiy gornyy institut imeni V. V. Vashrushova.  
Rekomendovana kafedroy prikladnoy mekhaniki.  
(Mine hoisting)



ZIMIN, A.P., dotsent

Investigating the performance of an industrial, dump skip, test unit without skip dump tracks in the over-all mine hoisting system; dynamic analysis. Izv. vys. ucheb. zav.; gor. zhur. no. 12:94-104 '59. (MIRA 14:5)

1. Sverdlovskiy gornyy institut imeni V.V. Vakhrusheva.  
Rekomendovana kafedroy obshchey elektrotexniki.  
(Mine hoisting)

ZIMIN, A.P., dotsent

Theoretical basis for increasing the haulage capacity of rope-driving drums and sheaves of friction in mine hoists by using pressure rollers. Izv. vys. ucheb. zav.; gor. zhur. no.3:110-115 '60. (MIRA 14:5)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva. Rekomendovana kafedroy gornoy mekhaniki.  
(Mine hoisting)

ZIMIN, A.P., dotsent

Providing for reliability in the loading and unloading operations of a mine hoist with a drum with friction rope guides. Izv. vys. ucheb.zav.; gor. zhur. no.5:115-122 1960. (MIRA 14:3)

1. Sverdlovskiy gornyy institut imeni V. V. Vakhrusheva. Rekomendovana kafedroy gornoy mekhaniki.  
(Mine hoisting) .. (Winches)

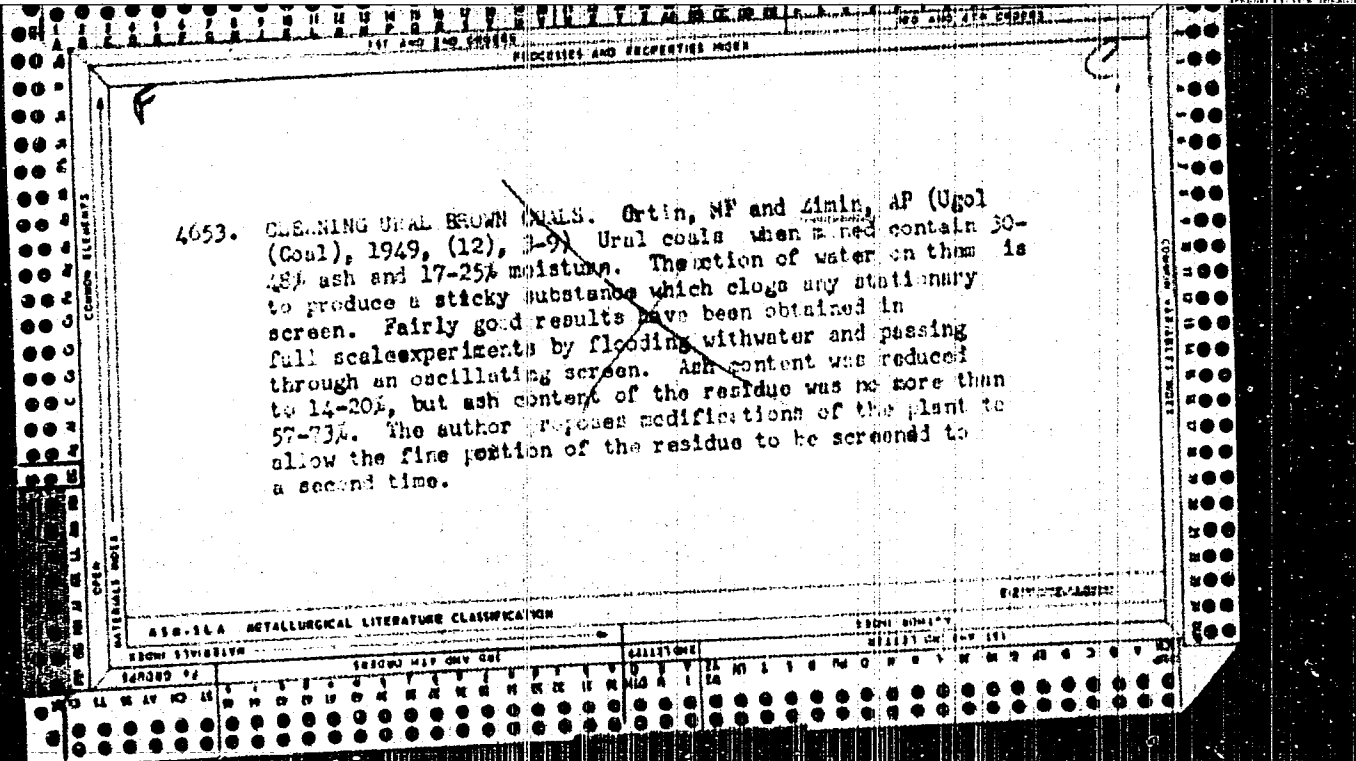
BYKOV, V.L.; ZIMIN, A.P., red.

[Collection of problems on the theory of mechanisms and machines] Sbornik zadach po teorii mekhanizmov i mashin . Sverdlovsk, Sverdlovskii gornyi insitut im. V.V.Vakhrusheva. Pt.1. 1964. 93 p. (MIRA 18:1)

ZIMIN, A. Ye.

Drug resistance of Mycobacterium tuberculosis and the properties  
of drug-resistant strains. Akt. vop. tub. no.2:60-68 '63.

(MIRA 17:9)



GADALIN, V.N.; ZIMIN, A.S.; FILUGANOVA, E.A.

Investigating kinematic parameters of the SKhS-1,2 cotton  
harvesting machine. Trakt. i sel'khoz mash. 31. no.6:27-30  
Je '61. (MIRA 14:6)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro po  
khlopkouberke.  
(Cotton-picking machinery)

ZIL'BERMAN, P.I., inzh.; ZIMIN, A.S., inzh.; REYFMAN, L.S., inzh.

*a* Selecting the optimal parameters for the harvesting belt of an apparatus for picking up raw cotton from the ground. Trakt. i sel'khoz mash. no.9:35-37 - '65. (MIRA 18:10)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro po mashinam dlya khlopkovodstva.



ZIMIN, A.V.

47-58-2-12/30

AUTHORS: Zimin, A.V., Radziyevskiy, V.V. and Sokolov, S.A.

TITLE: Device for Determining the Ephemerides of an Earth Satellite  
(Pribor dlya opredeleniya efemeridy sputnika)

PERIODICAL: Fizika v Shkole, 1958, Nr 2, pp 59 - 61 (USSR)

ABSTRACT: This device consists of globe with its axle fixed in a box which contains the activating mechanism. The angle of inclination of the earth axis is equal to the angle of inclination of the sputnik's orbit to the equator. On the vertical plane, the orbit of the sputnik is fixed with a bent wire. This wire turns around the earth with the help of a handle and cog system. There is 1 figure.

ASSOCIATION: Pedagogicheskiy Institut, Gor'kiy (The Pedagogical Institute Gor'kiy)

AVAILABLE: Library of Congress

Card 1/1 1. Satellite vehicle trajectories-Determination 2. Satellite vehicle models-USSR

117 AND 118 STREETS  
PROCESSES AND PROPERTIES INDEX

ZIMIN, B. V. A

BC

Heating of active charcoal in an oxygen atmosphere. N. A. Blom and A. V. Zimin. *Phys. Chem. Russ.* 1937, 10, 761-765. Catalytic observations are reported. Charcoal heated at 600° in H<sub>2</sub> is positive in H<sub>2</sub>O and becomes more positive if treated with O<sub>2</sub>. In presence of O<sub>2</sub>, but not in presence of H<sub>2</sub>, the charcoal is made negative by NaOH. J. J. B.

A.S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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PRECEDENTS AND PROPERTIES INDEX

2

ZIMIN, A.V.  
CA

Electrochemistry of platinum sols. IV. The particle charges of hydrosol platinum sols. A. V. Zimin and N. A. Bakht. *Physicochim. U. R. S. S. R.* 11, 1-26 (1969) (for Eng. transl.).—Exptl. data on the cond. and its change on coagulation and the properties of various Pt-Pt sols are given in 18 figs. and tables. The sols are acidoid. The av. radius of particles is 2-2.5  $\mu$ , the total charge is  $1.73 \times 10^9$  e. s. u. (for 100 mg. per l., the charge is  $3.1 \times 10^8$  e. s. u./mg. sol.); cond. is due to the individual sol particles, the cataphoretic velocity is 3.4  $\mu$ /sec. per v./cm. at the min. in the Ba(OH)<sub>2</sub> curve and 0.7  $\mu$  in the NaOH min., 5.0  $\mu$  in pure sols independent of their concn. The values of  $\zeta$  calcd. from ultramicroscopic counts ( $\approx 14.7 \mu$ ) is much too large. Complete replacement of H<sup>+</sup> by Na<sup>+</sup> takes place at pH = 8.8. F. H. Rathmann

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON VARIABLE'S INDEX

COMMON ELEMENTS

OPEN

NATIONAL'S INDEX

1ST AND 2ND LETTERS

3RD AND 4TH LETTERS

5TH AND 6TH LETTERS

7TH AND 8TH LETTERS

9TH AND 10TH LETTERS

11TH AND 12TH LETTERS

13TH AND 14TH LETTERS

15TH AND 16TH LETTERS

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99TH AND 100TH LETTERS

ZIMIN4A8V8

600

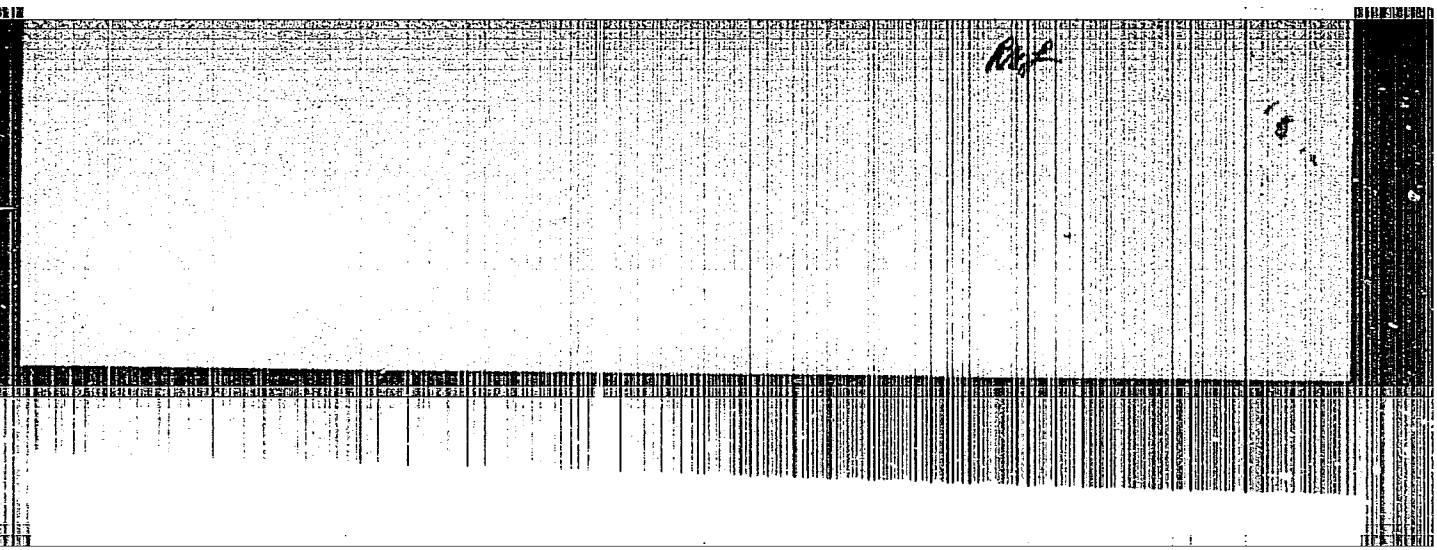
1. ZIMIN, A. V.; BAKH, Nataliya
2. USSR (600)

"The Electrochemistry of Platinum Sols," Part LV. "The Charge of Particles in Hydrogenous Platinum Sols," Zhur. Fiz. Khim., 13, No 8, 1939. Moscow, Physico-Chemical Inst imeni L. Ya. Karpov, Laboratory of Superficial Phenomena. Received 15 February 1939.

9. ~~U-1615~~ Report U-1615, 3 Jan. 1952.

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065210008-7



APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R002065210008-7"

AUTHORS: Sidorova, L. P., Zimin, A. V.,  
Proskurnin, M. A. SOV/78-3-12-30/36

TITLE: The Effect of  $\gamma$ -Radiation From  $Co^{60}$  on Aqueous Solutions  
of Tin and Titanium (Deystviye  $\gamma$ -izlucheniya  $Co^{60}$  na vodnyye  
rastvory soley olova i titana)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 12,  
pp 2793-2797 (USSR)

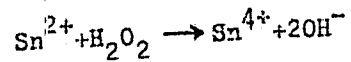
ABSTRACT: The radiolysis of aqueous solutions of  $Sn^{2+}$ ,  $Ti^{3+}$ ,  $Ti^{4+}$  and  
suspensions of  $Sn(OH)_2$  and  $Ti(OH)_3$  was investigated.  $Co^{60}$  was  
used as the source of the gamma radiation. The relationship  
between the generation of hydrogen and the variation in the  
 $Sn^{2+}$ -ion concentration upon the amount of energy absorbed was  
investigated. It was found that a change in the sulfuric acid  
concentration from 1-4 N did not influence the yield of hydrogen.  
The addition of  $Fe^{2+}$  ( $10^{-3}$  and  $10^{-2}$  mole) did not interfere with  
the yield of hydrogen. In the radiolysis of aqueous solutions  
of  $Sn^{2+}$  mainly water and  $Sn^{2+}$ -ions arise, and these latter are

Card 1/3

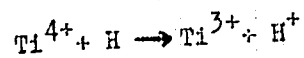
The Effect of  $\gamma$ -Radiation From  $\text{Co}^{60}$  on  
Aqueous Solutions of Tin and Titanium

SOV/78-3-12-30/36

further oxidized to  $\text{Sn}^{4+}$  according to the following reactions:



In the irradiation of the suspension of  $\text{Sn}(\text{OH})_2$  in weakly alkaline solution the reduction to metallic tin proceeds more quickly and intensively than it does in weakly acidic solution. In irradiating  $\text{Ti}^{3+}$  solution it was found that in the region of concentration of 1-4 N HCl and  $\text{H}_2\text{SO}_4$  no significant change in the hydrogen generation occurs. With an increase in the  $\text{Ti}^{4+}$  concentration the yield of molecular hydrogen decreases as a result of the interaction of the  $\text{Ti}^{4+}$ -ions with atomic hydrogen according to the equation:



In irradiating  $10^{-2}$  molar  $\text{Ti}^{4+}$  solutions in 4N HCl hydrogen and

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The Effect of  $\gamma$ -Radiation From  $\text{Co}^{60}$  on  
Aqueous Solutions of Tin and Titanium

SOV/78-3-12-30/36

oxygen form with the following yields: -

$G_{\text{H}_2} \sim 0.2$  moles/100eV and  $G_{\text{O}_2} \sim 0.05$  moles/100eV

No metallic titanium forms as a result of irradiating a suspension of  $\text{Ti}(\text{OH})_3$ .

It was found that in  $10^{-2}$  and 0.1m solutions of  $\text{Ti}^{3+}$  in hydrochloric acid solution the radiolysis of the water amounts to 5.0 mole/100eV and in sulfuric acid solution to 4.2 mole/100eV. There are 6 figures, 1 table, and 16 references, 8 of which are Soviet

SUBMITTED: February 1, 1958

Card 3/3



Zimin, A.V.

PLATE I BOOK EXCITATION 507/1386

Moscow. Fiziko-khimiicheskii Institut

Preliminary Scientific Council; Study, Vol. 2 (Problems in Physical Chemistry: Instructions of the Institute, no. 2). Moscow, Gostkhimizdat, 1979. 202 p. 1,000 copies printed.

Editorial Board: Ya. M. Yanchevskiy, Doctor of Chemical Sciences; G. S. Zil'ber, Doctor of Chemistry; M. V. A. Kargin, Assistant; Ya. M. Kholovskiy, Doctor of Chemical Sciences; (Assoc. Ed.); S. S. Medvedev, Assistant; S. Ya. Pechenkin, Doctor of Chemical Sciences; V. M. Chesnokov, Candidate of Chemical Sciences; V. S. Chvaloviy (Editorial Secretary); M. I. V. G. Soguk.

PREFACE: This collection of articles is intended for physical chemists.

CONTENTS: This collection is the second issue of the Transactions of the Scientific Research Institute of Physical Chemistry named L. Ya. Karpov. It contains 17 articles which review

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MAKSIMOV, M.P.; ZIMIN, A.Y.; ZHEGATSPANYAN, R.V.

Radiochemical chlorination of benzene. Probl.fiz.khim.  
no.2:169-176 '59. (MIRA 13:7)

1. Laboratoriya radiatsionnoy khimii Nauchno-issledovatel'-  
skogo fiziko-khimicheskogo instituta imeni L.Ya.Karpova.  
(Benzene) (Chlorination) (Gamma rays)

5(2) SOV/20-126-4-26/62  
AUTHORS: Zimin, A. V., Churmanteyev, S. V., Gubanova, A. V.,  
Verina, A. D.  
TITLE: Simultaneous Estimation of C, H, F and Cl in Halogenized  
Hydrocarbons by Means of Microanalysis (Odnovremennoye  
opredeleniye C, H, F i Cl v galoidirovannykh uglevodorodakh  
metodom mikroanaliza)  
PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 4, pp 784-786  
(USSR)  
ABSTRACT: Much work is dedicated to the problem of estimating in the  
described hydrocarbons the % content of the elements men-  
tioned in the title (Refs 1-3). The suggested method of de-  
termining F is complicated, and results apt for being re-  
produced can hardly be achieved. In the present article it  
was proved that the simultaneous estimation of all mentioned  
elements by means of defining the increase of weight in  
absorption apparatus, is practically possible. Figure 1  
shows a general scheme of the plant used for this purpose.

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SOV/20-126-4-26/62

Simultaneous Estimation of C, H, F and Cl in Halogenized Hydrocarbons  
by Means of Microanalysis

The combustion process of the weighed amount has a considerable effect on the results of the analysis. The results apt best for being reproduced, are achieved by subjecting the weighed amount first to a gradual pyrolysis by means of a gas burner (Figs 1, 5) and then burning the carbonized rest by means of a soldering burner. For the purpose of a more exact indication of the increase of weight, the absorption apparatus are tared. Their gross weight does not exceed 12-14 g. The results of analyzing some substances are shown in table 1. As may be seen, the suggested method can be applied for all substances boiling above 47°. Further possibilities of application are given. Professor K. A. Kocheshkov, Corresponding Member of the AS USSR, and Ye.M. Panov co-operated in this work. There are 2 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut  
im. L. Ya. Karpova  
(Scientific Research Institute of Physics and Chemistry

Card 2/3

SOV/20-126-4-26/62

Simultaneous Estimation of C, H, F and Cl in Halogenized Hydrocarbons  
by Means of Microanalysis

imeni L. Ya. Karpov)

PRESENTED: by S. S. Medvedov, Academician

SUBMITTED: February 18, 1959

Card 3/3

KAZENNIKOVA, G.V.; TALALAYEVA, T.V.; ZIMIN, A.V.; SIMONOV, A.P.; KOCHESHKOV, K.A.

Synthesis of side chain fluorinated vinylnaphthalenes. Izv.AN SSSR.  
Otd.khim.nauk no.5:835-838 My '61. (MIRA 14:5)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova.  
(Naphthalene)

5360

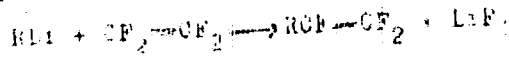
25041  
S/062/61/000/006/003/010  
B118/B220

AUTHORS: Kazemikova, G. V., Talalayeva, T. V., Zimin, A. V., Simonov, A. P., and Kocheshkov, K. A.

TITLE: Fluorinated styrenes. Report 5.  $\alpha$ ,  $\beta$ ,  $\beta$ -Trifluoro-styrenes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye Khimicheskikh nauk, no. 6, 1961, 1063 - 1065

TEXT: In the present study,  $\alpha$ ,  $\beta$ ,  $\beta$ -trifluoro-styrenes were synthesized by condensation of tetrafluoro-ethylene with organo-metallic compounds of the aromatic series:



It has been found that the yield in  $\alpha$ ,  $\beta$ ,  $\beta$ -trifluoro-styrene amounts to 25-15% when the phenyl lithium solution is added to the tetrafluoro-ethylene at  $-75^{\circ}C$ ; at lower temperatures (down to  $-120^{\circ}C$ ), the yield does not increase. It may, however, be increased up to 30-40% if an excess of pure tetrafluoro-ethylene is allowed to pass rapidly through a dilute ether.  
Card 1/3

Fluorinated styrenes. Report...

25011  
S/062/6/000/006/003/010  
B118/B220

solution of phenyl lithium for 1 to 2 hr. Concentrated solutions of the latter (or a longer passage of tetrafluoro-ethylene) reduces the yield to 15-20%. The condensation of tetrafluoro-ethylene with organolithium compounds at low temperatures may be used generally for the synthesis of new  $\alpha, \beta, \beta$ -trifluoro-styrenes and perfluoro-vinyl compounds. Depending on the radical RLi, the yield usually amounts to 40-55% and sometimes to 15-30%. The corresponding difluoro-stilbene forms as a by-product. The monomeric  $\alpha, \beta, \beta$ -trifluoro-styrenes obtained are stable in sealed ampullae in argon atmosphere over a small amount of copper powder from  $-25^{\circ}$  to  $-55^{\circ}\text{C}$ . The formation of the dimer is insignificant.  $\alpha, \beta, \beta$ -trifluoro-p-methyl styrene (40%),  $\alpha, \beta, \beta$ -trifluoro-o-methyl styrene (55%),  $\alpha, \beta, \beta$ -trifluoro-m-methyl styrene (46%),  $\alpha, \beta, \beta$ -trifluoro-p-chloro-styrene (15%),  $\alpha, \beta, \beta$ -trifluoro-p-bromo-styrene (5-10%),  $\alpha$ -perfluoro-vinyl naphthalene (10%) were synthesized by this method. Tetrafluoro-ethylene with tetramethylene dilithium, pentamethylene dilithium, and decamethylene dilithium gives the unsaturated compounds  $\text{CF}_2=\text{CF}(\text{CH}_2)_n\text{CF}=\text{CF}_2$  (35%). With butyl lithium, only the compound  $p\text{-C}_4\text{H}_9\text{CF}=\text{CF}_2$  was obtained. The infrared spectra of the

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25041

S/062/61/000/006/003/010

B118/B220

Fluorinated styrenes. Report...

compounds obtained were taken. The styrenes were analyzed by the method of A. V. Zimin et al. (Dokl. AN SSSR, 126, 784 (1959)). There are 1 table and 8 references: 2 Soviet-bloc and 6 non-Soviet-bloc. The 3 references to English-language publications read as follows: 1) P. Tarrant, D. A. Warner, J. Amer. Chem. Soc. 76, 1624 (1954); pat. USA 2804484 (1957); 2) S. Dixon, J. Organ. Chem. 21, 400 (1956); 3) D. I. Livingston, P. M. Kamath, R. S. Corley, J. Polymer. Sci. 20, 485 (1956); W. G. Barb, J. Polymer Sci. 37, 515 (1959).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: April 1, 1960

Card 3/3

53600

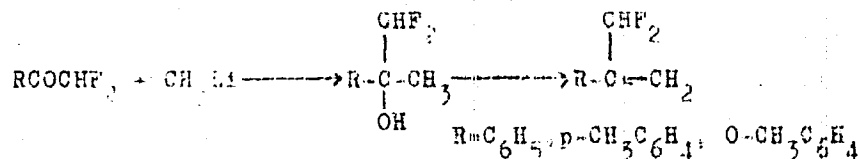
25012  
S/062/61/000/006/004/010  
B118/B220

AUTHORS: Kazennikova, G. V., Talalayeva, T. V., Zimin, A. V., and Kocheshkov, K. A.

TITLE: Fluorinated styrenes. Report 6.  $\alpha$ -difluoro-methyl styrenes and  $\alpha$ -trifluoro-methyl styrenes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 6, 1961, 1066 - 1069

TEXT. The present paper deals with the synthesis of  $\alpha$ -difluoro-methyl styrene,  $\alpha$ -difluoro-methyl-p-methyl styrene,  $\alpha$ -difluoro-methyl-o-methyl styrene,  $\alpha$ -trifluoro-methyl styrene, and  $\alpha$ -trifluoro-methyl-p-fluoro-styrene according to the equation:

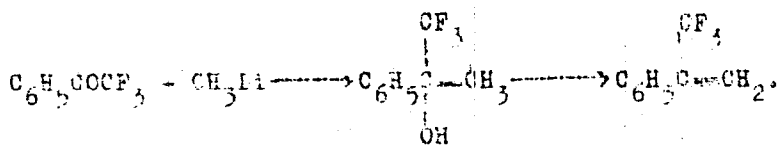


Card 1/3

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25042  
S/062/6:/000/006/004/010  
B110/B220

Fluorinated styrenes. Report.



Starting from phenyl magnesium bromide and p-fluoro-phenyl magnesium bromide,  $\alpha$ -trifluoro-methyl styrene and  $\alpha$ -trifluoro-methyl-p-fluoro-styrene were obtained by using trifluoro-acetone (via the carbinol stage). The most convenient method proved to be the use of methyl lithium and of  $\omega$ -difluoro-aceto-phenones or  $\omega$ -trifluoro-acetophenones which are easily accessible for synthesis and obtained from  $RF_2$  and fluorinated acids (or their diethyl amides). The condensation of methyl lithium with fluorinated acetophenones is effected at temperatures between  $-20$  and  $-25^\circ C$  in ether, resulting in tertiary carbinols with yields between 80 and 95%. The dehydration of the carbinols is effected by phosphorus pentoxide (yield of 65 - 85%). Moreover, p-chloro-styrene was synthesized. There are 10 references: 4 Soviet-bloc and 6-non-Soviet-bloc. The references to Card 2/3

25042

S/062/61/000/006/004/010  
B118/B220

Fluorinated styrenes. Report...

English-language publications read as follows: 1) P. Tarrant, R. E. Taylor, J. Organ. Chem. 24, 238(1958). 2) K. T. Dishard, R. Levine, J. Amer. Chem. Soc. 78, 2268(1956); 77, 3656(1955); I. D. Park, R. E. Noble, I. R. Lacher, J. Organ. Chem. 23, 1396(1956); D. A. Rausch, A. M. Lovelace, L. E. Coleman, A. M. Lovelace, J. Amer. Chem. Soc. 79, 4983(1957); J. Organ. Chem. 21, 1328(1956). 3) T. Mc.Groth, R. Levine, J. Amer. Chem. Soc. 77, 3656(1955).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: June 1, 1960

X

Card 3/3

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28938

S/063/61/006/004/007/010  
A057/A129

AUTHORS: Khramchenkov, V. A., Zimin, A. V.

TITLE: Effect of gamma-irradiation from Co<sup>60</sup> on perfluorodienes

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva imeni D. I. Mendeleeva  
v. 6, no. 4, 1961, 468-469

TEXT: The effect of gamma-irradiation from a Co<sup>60</sup> source on perfluoro-octa-  
diene and perfluorododecadiene was investigated, two difficultly volatile fractions  
of the products of radiolysis were separated, and the infrared spectra were com-  
pared to those of the non-irradiated substances. Static irradiation was carried  
out with integral doses of  $0.948 \cdot 10^{22}$ - $1.43 \cdot 10^{22}$  ev/g at 18 - 25°C in sealed, eva-  
cuated ampoules. After irradiation the liquid phase was distilled ( $2 \cdot 10^{-2}$  torr)  
and the separated fractions were identified by elemental analysis, molecular  
weight, cryoscopically, and refractometrically (Tables 1, 2). The two difficultly  
volatile fractions no. 3 (Table 1) and no. 2 (Table 2) were also compared by infra-  
red spectroscopy. The number of double bonds is, according to the molecular re-  
fraction, in this fraction two times smaller than in the sum of three molecules of  
the initial substances. The decrease in number of double bonds by formation of

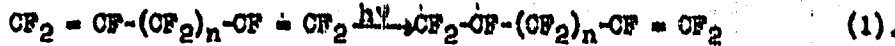
Card 1/3

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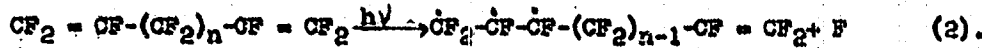
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A057/A129

Effect of gamma-irradiation from  $Co^{60}$  on perfluorodienes

"trimers" after irradiation is also proved by infrared spectra, which show a decrease in the bands corresponding to the double bond. The primary process resulting in formation of "trimers" is thus the formation of free radicals:



The infrared spectra show weak absorption bands at  $1,720 - 1,750 \text{ cm}^{-1}$  indicating the presence of double bonds in the group  $R_2-CF = CF-R_2$  ( $\nu = 1,733 \text{ cm}^{-1}$ ) of the "trimers" and also formation of an absorption band corresponding to the group  $-CF_3$  ( $\nu = 715 \text{ cm}^{-1}$ ) is observed. An increase in the absorption in the long-wave range of the spectrum indicates formation of cycles, i.e., the absorption band in the region  $950 - 1,000 \text{ cm}^{-1}$ . According to spectroscopical data it can be assumed that simultaneously with reaction (1) formation of radicals can occur according to



The existence of such a radical is possible since unpaired electrons are not localized on the carbon atom and react with the adjoining fluorine atoms resulting in cyclization of the carbon chain. Apparently also formation of double bonds occurs in the present case according to:

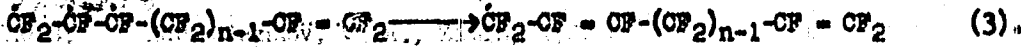
Card 2/5

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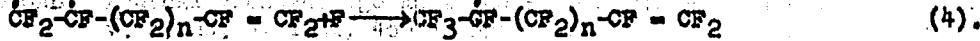
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A057/A129

Effect of gamma-irradiation from Co<sup>60</sup> on perfluorodienes



Since the concentration of radicals formed by equation (1) is greater than the concentration of radicals formed according to equation (2) the splitted-off fluorine atom joins the radical according to:



Radicals formed according to equations (1) - (4) participate in formation of the "trimer". There are 2 figures, 2 tables and 7 references; 5 non-Soviet-bloc, 2 Soviet-bloc.

ASSOCIATION; Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physicochemical Institute imeni L. Ya. Karpov)

SUBMITTED: October 20, 1960

MUSHENKO, D.V.; LEVINA, M.I.; TAMMIK, M.E.; MOCHALOVSKAYA, A.P.;  
SEMENOVA, V.V.; ZIMINA, A.V.

Industrial experimental testing of catalytic petroleum detarring  
process. Khim.i tekhn.topl.i masel 6 no.12:1-7 D '61.

(MIRA 15:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh  
professov.

(Petroleum--Refining)

(Tar)



21979

S/020/61/137/005/023/526  
R101/B203

5.5400(1273, 1292, 1160)

AUTHORS: Pomerantsev, N. M., Khrumchenkov, V. A., Sumin, L. V.,  
and Zimin, A. V.

TITLE: Nuclear magnetic resonance spectra of irradiated perfluoro  
octadiene and perfluoro dodecadiene

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 5, 1961, 1153-1154

TEXT: For complicated molecules, the interpretation of the infrared spectrum is rendered difficult because the absorption bands of the individual functional groups are superimposed. In the nuclear magnetic resonance (nmr) spectrum, however, the lines of the groups are well discernible. This is proved by the nmr spectra, taken by the authors, of the  $F^{19}$  nuclei in non-irradiated and irradiated perfluoro octadiene and perfluoro dodecadiene. Irradiation was conducted at room temperature with  $Co^{60}$  (integral dose  $\sim 10^{22}$   $ev.g^{-1}$ ). The apparatus for the recording of spectra will be described in a separate paper. The  $CF_3$  group of

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21979

S/O20/61/137/005/023/026  
B101/H203

Nuclear magnetic resonance spectra ...

trifluoro acetic acid was used as a reference standard for the chemical shift  $\delta$  of  $F^{19}$ . Figs. 1, 2 show the data obtained,  $\delta$  being calculated from the equation  $\delta = 10^5 (H_{stand} - H_{sample}) / H_{stand}$ , where  $H_{stand}$  is the value of the field resonance for the standard,  $H_{sample}$  is that for the fluorine of the group investigated. According to data published on fluorine compounds containing F and C only, the absorption bands of  $F^{19}$  nuclei of the CF group lie in strong fields, those of the  $CF_2$  group in weak fields, and those of the  $CF_3$  group in even weaker fields. On the basis of these facts, the spectra obtained are interpreted as follows: The intensive band at  $\delta = 5.5$  should consist of a series of unresolved lines corresponding to  $F^{19}$  nuclei of the  $CF_2$  groups in the molecules  $CF_2=CF-(CF_2)_4-CF=CF_2$  and  $CF_2=CF-(CF_2)_8-CF=CF_2$ . The lines of CF lying in the stronger field were not observed, probably due to their low intensity. The spectra of irradiated compounds differed from those of

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21979

S/020/61/137/005/023/026  
B101/B203

Nuclear magnetic resonance spectra ...

non-irradiated compounds by lines in weak fields. They are ascribed to the  $CF_3$  groups, which had also been proven by infrared spectroscopy. Some changes in the bands of  $CF_2$  groups should be due to the formation of branched structures. Their interpretation might be possible in the case of a better resolution. The bands of irradiated samples are wider than those of non-irradiated ones. This is explained by the viscosity of irradiated samples. Measurements at higher temperatures should lead to better resolved spectra. There are 2 figures and 4 non-Soviet-bloc references. The four references to English-language publications read as follows: J. A. Pople, W. G. Schneider, H. J. Bernstein, High-resolution Nuclear Magnetic Resonance, N.Y., 1959; H. S. Gutowsky, C. J. Hoffman, J. Chem. Phys., 12, 1259 (1951); A. Saika, W. P. Slichter, J. Chem. Phys., 22, 26 (1954); W. Muller, P. C. Lauterber, G. F. Svatos, J. Am. Chem. Soc., 79, 1807 (1957).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova  
(Physicochemical Institute imeni L. Ya. Karpov)

PRESENTED: November 17, 1960, by V. A. Kargin, Academician

Card 3/4