

SUSHCHINSKIY, M.M.

b.r

PHASE I BOOK EXPLOITATION

SOV/4417

Akademiya nauk SSSR. Fizicheskiy Institut

Issledovaniya po optike (Optics Research) Moscow, 1960. 273 p. (Its: Trudy, tom 12)
2,200 copies printed.

Resp. Ed.: D.V. Skobel'tsyn, Academician; Ed. of Publishing House: D.M. Alekseyev;
Tech. Ed.: G.A. Astaf'yeva.

PURPOSE: This volume is intended for researchers in optics, physics, and chemistry.

COVERAGE: The volume contains one abridged and two complete texts of dissertations for the degree of Doctor of Physics and Mathematics which were defended by three candidates in 1957 at the Fizicheskiy Institut imeni P.N. Lebedeva AN SSSR (Physics Institute imeni P.N. Lebedev, Academy of Sciences USSR). Each dissertation is followed by lists of references.

TABLE OF CONTENTS:

Galanin, M.P. Resonance Transfer of Excitation Energy in Luminescent Solutions	3
This is an abbreviated text of the author's dissertation for the degree of Doctor of Physics and Mathematics, defended at the Physics Institute imeni	
Card 1/3	

SOV/4417

Optics Research

P.N. Lebedev on February 27, 1956. The author compares Th. Förster's quantum mechanics theory with the classical interpretation. He examines two extreme cases (the case of "motionless molecules" and the case of "agitation") of averaging probability transfer by the concentration of molecules and how they might be explained by the Vavilov theory containing the assumption of "instantaneous quenching." He also computes the mean time of the excited state in relation to concentration. The data relate to concentration phenomena in solutions of luminescent dyes, resonance quenching, sensitized luminescence in solutions, energy transfer in anthracene crystals with naphthalene content, and sensitization of luminescence by the solvent.

Snezhinskiy A.M. Combined Scattering Spectra and Structure of Hydrocarbons 54
This is the author's dissertation for the degree of Doctor of Physics and Mathematics, defended at the Physics Institute imeni P.N. Lebedev on June 24, 1957. The material deals with: experimental methods of studying combined scattering spectra; computation methods of vibration frequency of molecules; spectra of combined scattering of paraffins, naphthenes, and unsaturated hydrocarbons; and tensor of polarization derivative and parameters of combined scattering lines.

Card 2/3

SUSHCHINSKIY, M.M.

Raman spectra and structure of hydrocarbons. Trudy Fiz. inst. 12:
54-224 '60. (MIRA 13:8)
(Hydrocarbons--Spectra)

NABERUKHIN, Yu. I.; SUSHCHINSKIY, M. M.

Second-order lines on the Raman spectra of hydrocarbons. Opt. 1
spectr. 9 no. 5:576-581 N '60. (MIRA 13:11)
(Cyclohexane--Spectra) (Butene--Spectra)
(Raman effect)

KUZNETSOVA, T.I.; ~~SUSHCHINSKIY, M.M.~~

Computation and interpretation of the vibrational spectra of
isobutane. Opt. i spektr. 10 no. 1:41-47 Ja '61. (MIRA 14:1)
(Propane--Spectra)

SUSHCHINSKIY, M.M., doktor fiz.-matem.nauk; OBUKHOV, A.M.;
GILYAROV, M.S., doktor biolog.nauk; TAFT, V.A., doktor tekhn.nauk;
GLEMBOTSKIY, V.G., doktor tekhn.nauk; OLOFINSKIY, N.F., kand.
tekhn.nauk

Scientific contacts with foreign countries. Vest. AN SSSR 31
no.12:101-105 D '61. (MIRA 14:12)

1. Chlen-korrespondent AN SSSR (for Obukhov).
(Science—Congresses)

S/030/62/000/010/003/007
D204/D307

AUTHOR: Sushchinskiy, M. M., Doctor of Physico-Mathematical Sciences

TITLE: Molecular spectroscopy

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 10, 1962, 36-45

TEXT: A semihistorical treatment of the scope and the fundamental concepts of the nature and of the interpretations of molecular spectra. The interest is focussed on the vibrational spectra and thus on molecular symmetry, molecular models, methods by which vibrational frequencies are calculated and the information which may be obtained from such spectra. The empirical nature of most theoretical calculations and of methods of interpretation is discussed and refinements introduced into the latter field (such as the increased number of parameters from which information may be derived, and the observations of characteristics associated with certain groups of atoms) are described. The correlation of molecular structure with the spectra observed is treated in some detail and is

Card 1/2

Molecular spectroscopy

S/030/62/000/010/003/007
D204/D307

illustrated with examples. Examples are also quoted of compounds whose structures were determined by Raman spectroscopy, and a description is given of some applications of vibrational spectroscopy, such as the determination of hindered rotation, isomerism and the study of compounds possessing large molecular weights. The basic theory is given of nuclear magnetic resonance and of its application to the determination of molecular structures, and the usefulness of the various types of rotational spectra is discussed, quoting some results. The advantages and drawbacks of the use of molecular spectroscopy in analysis are listed, concluding that spectroscopic methods could be used for e.g. the continuous automatic control of industrial processes. There are 4 figures and 3 tables.

Card 2/2

SUSHCHINSKIY, M. M.; ZUBOV, V. A.

Relation between Raman spectra and electron absorption spectra.
Opt. i spektr. 13 no. 6:766-774 D '62. (MIRA 16:1)

(Raman effect) (Electrons--Spectra)

SUSHCHINSKIY, M. M.

Zavisimost' intensivnosti kombinatsionnykh liniy 2-go poryadka
ot chastoty vzbuzhdayushchego sveta i kolebaniya nizkoy chastoty v spektrakh
parafinov.

report submitted for the VII European Congress on Molecular Spectroscopy, Budapest
22-27 Jul 1963.

MULDAKHMETOV, Z.M.; SUSHCHINSKIY, M.M.

Anharmonicity of certain characteristic vibrations. Opt. i
spektr. 14 no.6:819-820 Je '63. (MIRA 16:8)

(Molecular spectra)

L 17790-63

EPF(c)/EAT(m)/BDS Pr-4 RM/WW

ACCESSION NR: AP3005840

S/0051/63/015/002/0190/0194
5/8
5/1

AUTHOR: Zirnit, U.A.; Sushchinskiy, M.M.

TITLE: Low-frequency vibrations of methyl substituted cyclohexanes

SOURCE: Optika i spektroskopiya, v.15, no.2, 1963, 190-194

TOPIC TAGS: Raman spectrum, cyclohexane derivative, rocking vibration

ABSTRACT: The low-frequency region of the Raman spectra of hydrocarbons is of particular interest, for in this region there may be evinced not only ordinary deformation vibrations but also rocking vibrations (rotation of one part of the molecule relative to the rest) and vibrations associated with certain intermolecular interactions, as, for example, hydrogen bonds. Despite its interest, this region has not been extensively investigated owing to experimental difficulties. In the present work there were obtained the low-frequency (100 to 400 cm^{-1}) sections of the Raman spectra of methylcyclohexane and eight other methyl derivatives of cyclohexane (cis and trans forms of di- and trimethyl cyclohexanes). All possible measures were taken to reduce the background. A black screen was used to cutoff the halo of the exciting Hg line; the investigated compounds were very thoroughly

Card 1/2

L 17790-63

ACCESSION NR: AP 3005840

purified, etc. The radiation source was a low pressure mercury discharge tube. The spectra were recorded photographically (12 hour exposures) on a V II spectrograph with a linear dispersion of 18 Å/mm. Intensities were determined with reference to the 802 cm⁻¹ line of cyclohexane. The observed lines are listed in a table together with the data from the literature; comparison shows that about 50% of the detected lines had not been observed hitherto. An attempt was made to identify the lines due to rocking vibrations, on the basis of calculations of the rocking frequency of the methyl group. The calculated values agree fairly well with the frequencies of some of the lines observed in the Raman spectra. Orig.art.has: 3 formulas and 2 tables.

ASSOCIATION: none

SUBMITTED: 14Dec62

SUB CODE: PH, CH

DATE ACQ: 06Sep63

NO REF SOV: 002

ENCL: 00

OTHER: 006

Card 2/2

PROKOF'YEVA, N.I.; SVERDLOV, L.M.; SUSHCHINSKIY, M.M.

Calculation of the integral intensities and depolarization
in the Raman spectra of cyclohexane and deuterocyclohexane.
Opt. i spektr. 15 no. 4:464-470 0 '63. (MIRA 16:11)

VOL'KENSHTEYN, M.V.; SUSHCHINSKIY, M.M.

Seventh European Congress on Molecular Spectroscopy at
Budapest. Opt. i spektr. 15 no.6: 841-842 D '63.
(MIRA 17:1)

L 10727-63 EWA(k)/EWP(j)/EWT(l)/EWP(q)/EWT(m)/BDS/FBD/T-2/3W2/ES(t)-2/
 EEC(b)-2 AFTTC/ASD/ESD-3/RADC/APCG/AFWL Fc-l/Pc-l/PL-l EM/WH/LJP(C)/WG/K/EH/JHB
 S/0056/63/044/006/2193/2194
 ACCESSION NR: AP3003161

AUTHOR: Danil'tseva, G. Ye.; Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K.

TITLE: Application of the laser to the study of Raman spectra of dye powders

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 2193-2194

TOPIC TAGS: laser applications, Raman spectra, dye powders

ABSTRACT: A 6943 Å ruby laser has been applied to the study of Raman spectra in dye powders. A spectrograph with a diffraction grating of 600 lines/mm was used in the investigation. A lens focused the laser light on the powder samples, which were placed directly before the slit of the spectrograph. A low-power cryogenic ruby laser with 1-1.8 kilojoule pumping power was used; 30-100 flashes were required for photographic registration at gap widths of 0.07-0.1 mm, which constitutes 8-12 cm⁻¹ in the given spectral region. Tests conducted with a number of different powders including 4,4'-azoxyanisole

Card 1/2

L 10727-63

ACCESSION NR: AP3003161

(bright yellow) and anisal-para-aminoazobenzene (red) showed that lasers are quite suitable for studying Raman spectra of dye powders. "The authors thank M. D. Galanin and A. M. Leontovich for the use of their ruby laser." Orig. art. has: 1 figure.

3

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics, Academy of Sciences SSSR)

SUBMITTED: 12Apr63

DATE ACQ: 23Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 000

OTHER: 001

QJ/dk
Card 2/2

SUSHCHINSKIY, M.M.; MULDAKHMETOV, Z.M.

Second-order lines in vibration spectra of benzene and
hexadeuterobenzene. Opt. i spektr. 16 no.2:234-239 F '64.
(MIRA 17:4)

SUSHCHINSKIY, M.M.; MULDAKHMETOV, Z.M.

Second-order lines and vibration anharmonicity of chloroform
and deuteriochloroform molecules. Opt. i spektr. 17 no.1:45-50
Jl '64. (MIRA 17:9)

L 53981-65 EWT(m)/EPP(c)/EWP(f) Pc-4/Pr-4 RM
ACCESSION NR: AR5012258

UR/0058/65/000/003/D034/D035

SOURCE: Ref. zh. Fizika, Abs. 3D255

21
B

AUTHOR: Sushchinskiy, M. M.; Muldakhmetov, Z. M.

TITLE: Second order oscillatory spectra and anharmonicity of molecular oscillations

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 176-183

TOPIC TAGS: spectral analysis, oscillation spectra, organic compound

TRANSLATION: A brief review is given of studies on second order spectra. The authors' research on the second order spectra of cyclohexane, chloroform, benzene and their deuterio derivatives are described. A regularity was observed in the behavior of the coefficient of anharmonicity and in the intensities of the second order lines. Null frequencies for chloroform and deuterio chloroform were used in calculating the results.

SUB CODE: NF, OC

ENCL: 00

Card 1/1

L 8705-65

ACCESSION NR: AP4044849

0

bonds, the integrated intensities, and the polarizations of the lines in the Raman spectra of chloroform, deuteriochloroform, and carbon tetrachloride. The data obtained experimentally in the first approximation of the valence-optical theory were employed. The calculation confirms the conclusion that it is essential to use the first approximation of the valence-optical theory in the calculation of the intensities of Raman spectra. The measurement procedure was described in detail in the literature. Analysis of the experimental data leads to the conclusion that the valence-optical parameters for chloroform and deuteriochloroform are similar, and that on deuteration the valence-optical parameters increase noticeably. Orig. art. has:

ASSOCIATION: None

PNL: 00

OTHER: 003

L 8946-65 EWA(k)/EWT(1)/E.T(m)/E.P.F(c)/EEC(k)-2/K/EWP(j)/T/EEC(b)-2/EWP(k)/
 EWA(m)-2 PC-4/PC-4, PC-4, PC-4/PC-4/PC-4 LP(C)/EEC(b) WG/CHB/RM

ACCESSION NR: AP4043665

S/0056/64/047/002/0784/0785

AUTHOR: Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K. B

TITLE: Investigation of the excitation threshold for stimulated Raman scattering

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 784-785

TOPIC TAGS: Raman scattering, combination scattering, stimulated Raman scattering, stokes line, induced Raman scattering

ABSTRACT: The threshold of excitation of stimulated Raman scattering and pertinent line parameters of ordinary Raman scattering were determined for the following five compounds: benzene, 1,3-pentadiene, 3-methyl-1,3-butadiene, carbon disulfide, and styrene. A ruby laser with a rotating Q spoiler was used as the source of excitation (wavelength of 6943 \AA). For stimulated Raman scattering, the spectra of which were recorded with a spectrograph having a diffraction grating dispersion of about 10 \AA/mm . A photoelectric spectrometer with a dispersion of about 0.5 \AA/mm was used to measure the parameters of ordinary Raman scattering excited by a mercury line at the wavelength

Card 1/2

L 8946-65

2

ACCESSION NR: AF4043655

of 4358 Å. In compounds with a relatively low excitation threshold and conjugated C = C bonds, the stimulated Raman scattering lines were observed in the 1600 cm⁻¹ region. The materials investigated represent a new class of active, stimulated Raman scattering compounds in which the pi-electrons are not in the cyclic systems. The threshold for stimulated Raman scattering is determined mainly by the line intensity of standard Raman scattering and is practically independent of the degree of depolarization. A considerable increase in line intensity of stimulated Raman scattering was observed for only a small increase of excitation energy over the threshold value. Two lines at 998 and 634 cm⁻¹ were observed simultaneously in the stimulated Raman spectra of styrene. Orig. art. has: 1 table.

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedev Akademii nauk SSSR (Physics Institute, Academy of Sciences SSSR)

ADMITTED: 15 Jun 64

AID PRESS: 3107 ENCL: 00

001 001 001 001

Card 2/2

ACCESSION NR: AP4041128

S/0053/64/083/002/0197/0222

AUTHOR: Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K.

TITLE: Stimulated Raman scattering of light

SOURCE: Uspekhi fizicheskikh nauk, v. 83, no. 2, 1964, 197-222

TOPIC TAGS: laser, Raman effect, Raman laser, stimulated Raman scattering, Raman laser material

ABSTRACT: The current state of theoretical and experimental work aimed at achieving Raman-effect laser action is presented in a comprehensive review based mainly on Western sources. The principal experimental results are considered for two cases: where the scattering material is located inside and where it is located outside the Fabry-Perot interferometer. In the latter case, particular attention is paid to the types of laser emission falling in the Stokes and anti-Stokes frequency regions. Discussion of the latest experiments is backed up by a theoretical exposition in terms of semiclassical and quantum interpretations of Raman-effect laser action.

Card 1/2

ZIRNIT, U.A.; SUSHCHINSKIY, M.M.

Low-frequency oscillations in the spectra of methyl-substituted
pentanes. Opt. i spektr. 16 no.5:902-903 My '64.

Low frequency oscillations in the Raman spectra of fatty acids.
Opt. i spektr. 16 no.5:903-905 My '64. (MIRA 17:9)

L 1118-66 EWA(k)/FBD/EWT(1)/EPF(c)/EEG(k)-2/T/ENP(k)/EWA(m)-2/EWA(h) SCTB/
 IJF(c) WG/WW/GG
 ACCESSSION NR: AP5021727 UR/0386/65/002/002/0063/0067

AUTHOR: Zubova, N. V. ^{44.55}; Sushchinskiy, M. M. ^{44.55}; Zubov, V. A. ^{44.55} 63
60
B

TITLE: The complex line structure in stimulated Raman scattering of light 21.44.55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaksiyu. Prilozheniye, v. 2, no. 2, 1965, 63-67, and insert attached to p. 65

TOPIC TAGS: Raman scattering, Stokes line, stimulated emission, laser, Raman laser 25.44

ABSTRACT: In investigating stimulated Raman scattering in styrene, isoprene, 1,3-pentadiene, benzene, and nitrobenzene the authors observed line splitting in the region of the first Stokes line. This effect was very pronounced at pump powers just above the threshold, when the line was split from 1-2 components into 5-6 components and the separation of the outer components changed from 1-2 to 10-12 cm⁻¹. As the pump power was increased, the number of components and their separation decreased until only one line was observed when the pump power was 2-4 times greater than the threshold power. The splitting of the lines was found to be independent of the nature of the apparatus used and the operating regime of the laser. The effect was attributed to the fact that Raman scattering occurs on molecules moving at a high speed. At a relatively low pump power the formation of a "spark" in the

Card 1/2

L 1418-66
ACCESSION NR: AP5021727

liquid is accompanied by a flow of molecules in several directions. As the pump power is increased, these directions are shifted closer to the plane perpendicular to the incident beam until only one line is observed. It is calculated that in order to cause splitting the velocities of the molecules must be very high (about 10^7-10^8 cm/sec). Orig. art. has: 4 formulas and 2 figures. [CS]

3

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedeva Akademii nauk SSSR
(Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 25May65

NO REF SOV: 004

ENCL: 00

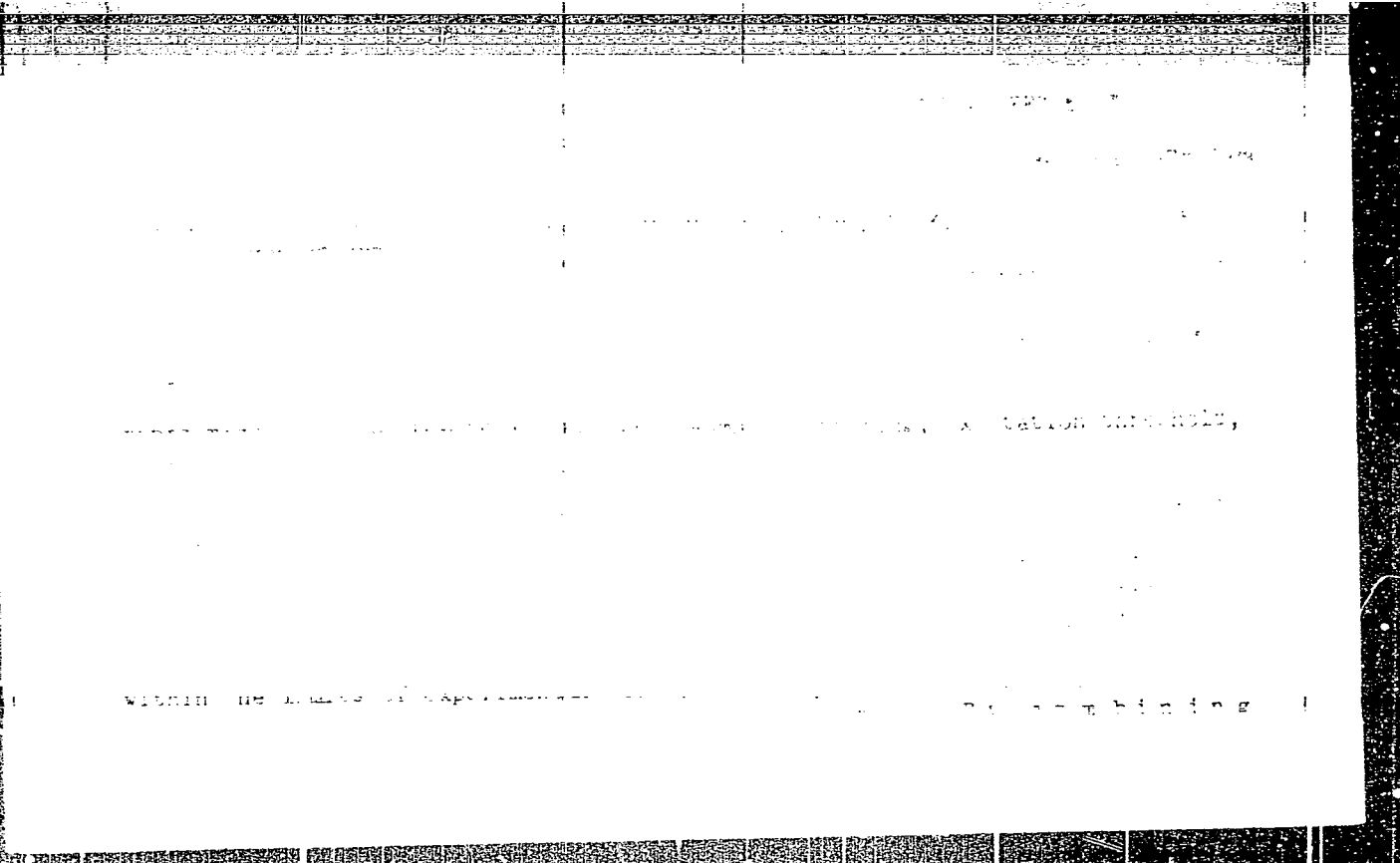
OTHER: 002

SUB CODE: OP, EC

ATD PRESS: 4099

44/55

Card 2/2 *RP*



...pendently of the particle interaction. "We thank P. A. Bazhulin, N. G. Basov,
and A. M. Prokhorov for interest in the work." Orig. art. has: 2 figures and
4 formulas. [02]

Card 2/3

Card 3/3

L 64712-65 EWT(1)/T LJP(c)

ACCESSION NR: AR5012273

UR/0058/65/000/003/D045/D045

SOURCE: Ref. zh. Fizika, Abs. 3D346

AUTHOR: Danil'tseva, G. Ye.; Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K.

TITLE: Investigation of the Raman spectra of powders in a wide spectral region

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 696-703

TOPIC TAGS: Raman spectrum, spectrographic analysis

TRANSLATION: Methods are proposed for producing and analyzing the Raman spectra of powders. These methods are designed for eliminating the effect which the degree of powder dispersion, absorption of light in the powder, and other factors have on the intensity of the Raman lines. Theory and experiment are compared. Methods are described for studying powders in a wide spectral range, using various lines of mercury and cadmium as well as a ruby laser for excitation of Raman spectra. The various methods for producing Raman spectra are compared.

SUB CODE: OP

ENCL: 00

Card 1/1

L 33597-66	EWT(1)/T	IJP(c)	GG
ACC NR: AR6016206	SOURCE CODE: UR/0058/65/000/011/DO37/DO37		
AUTHORS: <u>L'vova, A. S.</u> ; <u>Sushchinskiy, M. M.</u>	60 B		
TITLE: <u>Infrared spectra of liquid crystals</u>			
SOURCE: Ref. zh. Fizika, Abs. 11D286			
REF SOURCE: Tr. <u>Komis. po spektroskopii. AN SSSR</u> , t. 3, vyp. 1, 1964, 611-616			
TOPIC TAGS: ir spectrum, crystal, liquid state, absorption band, temperature dependence, radiation intensity			
ABSTRACT: The ir spectra of a number of substances in the solid and liquid crystalline state and in the state of an isotropic liquid were investigated. The temperature dependence of the intensity in these states was investigated for several absorption bands. A peculiar variation of the curves showing the temperature dependence of the intensity is observed in the liquid-crystal region. [Translation of abstract]			
SUB CODE: 20			
Card 1/1	80		

ARBATSKAYA, A.N.; ZHELEBDEV, I.S.; ZIRNIT, U.A.; SUSHCHINSKIY, M.M.

Low-frequency vibrational spectra of single crystals of triglycine sulfate and Rochelle salt in phase transitions. Kristallografiia 10 no.3:335-337 My-Je '65. (MIRA 18:7)

1. Institut kristallografiï AN SSSR.

L 7071-66 EWA(k)/FBD/EWT(1)/EWP(e)/EWT(m)/EEG(k)-2/EWP(t)/T/ EWP(k)/EWA(m)-2/
ACC NR: AP5026319 EWA(h) SCTB/IJP(c) SOURCE CODE: UR/0356/65/003/004/0336/0341
WH/WG

AUTHOR: Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K.

ORG: none

TITLE: An investigation of stimulated Raman scattering

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 4, 1965, 336-341

TOPIC TAGS: Raman scattering, Stokes component, Raman laser, stimulated emission, laser

ABSTRACT: An experimental investigation was conducted of stimulated Raman scattering in benzene, bromobenzene, chlorobenzene, toluene, pyridene, o-xylene, styrene, 1,3-pentadiene, 2-methyl-1,3-butadiene, carbon disulfide, carbon tetrachloride, and nitrobenzene. The dependence of the intensity of the first Stokes component on the properties of the scatterer, the concentration of its molecules, and the intensity of the excited light (from a Q-spoiled ruby laser) was investigated. It was established that, unlike spontaneous Raman scattering, the line intensity of stimulated Raman scattering is an exponential and not a linear function of the intensity of the exciting light and the concentration of the scattering molecules. The exponential variation is in agreement with a simplified theory developed by the authors for the case when the intensity of exciting light slightly exceeds the excitation threshold. In the first approximation the inverse of the excitation threshold is a quadratic

Card 1/2

UDC: 535.32

66
B

25,44

L 20969-66 EWT(m)/EWP(j) RM

ACCESSION NR: AR5014388

UR/0058/65/000/004/D026/D026

SOURCE: Ref. zh. Fizika, Abs. 4D194

AUTHOR: Zirnit, U. A.; Sushchinskiy, M. M.

TITLE: Low frequency vibrations of liquid hydrocarbons

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 270-279

TOPIC TAGS: Raman scattering, nuclear potential barrier, hydrocarbon

TRANSLATION: Raman scattering spectra were investigated in the low frequency regions of a series of paraffin and naphthene derivatives. A large number of the lines found have not been mentioned in the literature until now. A series of lines in the 100-300 cm^{-1} region were observed which are connected with rotational vibrations of the methyl and ethyl groups. An attempt was made to establish a theoretical relation between the frequencies of the lines found and the height of the potential barrier of the internal rotation.

SUB CODE: OC, OP

ENCL: 00

Card 1/1 *mg*

L 21129-66 EWP(m)/EWP(j) RM
ACC NR: AP6011959

SOURCE CODE: UR/0070/65/010/003/0335/0337

AUTHOR: Arbatskaya, A. N.; Zheludev, I. S.; Zirni, U. A.; Sushchinskiy, M. M.

ORG: Institute of Crystallography, AN SSSR (Institut kristallografii AN SSSR)

TITLE: Low-frequency vibrational spectra of triglycine sulphate and rochelle salt monocrystals during phase transitions

SOURCE: Kristallografiya, v. 10, no. 3, 1965, 335-337

TOPIC TAGS: phase transition, Raman spectrum, Curie point, light scattering, crystal lattice vibration, quartz crystal, crystal symmetry, single crystal

ABSTRACT: Raman scattering spectra of monocrystals of triglycine sulfate are studied near the Curie temperature (+49°C); and those of Rochelle salt, near the upper Curie point (+24°C). According to the Ginsburg-Levanyuk theory, the spectral structure of the scattered light should change markedly near the phase transition points of the second kind. This change should be characterized by a decrease in the frequency of certain lattice vibrations when the temperature is raised. At the transition point of the second kind the frequency of these vibrations should become zero and the corresponding Raman lines intensify. Experiments with quartz appear to support the G-L theory.

Triglycine sulfate undergoes a change in symmetry upon passing through the Curie point. A right-angle prismatic monocrystal was illuminated along the Y and then along the Z axis, and the scattered light was observed along the Z axis in both cases. A line at 47 cm^{-1} appeared in the Raman spectra when the direction of

Card 1/2

UDC: 548.0: 537

L 21129-66

ACC NR: AP6011959

illumination is changed from the Y to the X direction. Features of the spectra are compared with published data in a table. In order to observe the expected increase in scattered light intensity the temperature of the sample was varied slowly through the phase transition, but no change was observed in the Raman spectra. Similar experiments were conducted with piezoelectric salt crystals with similar results. Orig. art. has: 2 tables. [JPRS]

SUB CODE: 20 / SUBM DATE: 08Jun64 / ORIG REF: 008 / OTH REF: 004

Card 2/2 data

L 30408-66 EWT(1) IJP(c)

ACC NR: AP6017864

SOURCE CODE: UR/0053/66/089/001/0049/0088

AUTHOR: Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K.

59
B

ORG: Physics Institute im. P. N. Lebedev, AN SSSR (Fizicheskiy institut AN SSSR)

TITLE: Modern trends in Raman spectroscopy 2/

SOURCE: Uspekhi fizicheskikh nauk, v. 89, no. 1, 1966; 49-88

TOPIC TAGS: Raman spectroscopy, laser application, Raman scattering, stimulated emission, SPECTROPHOTOMETRIC ANALYSIS

ABSTRACT: The authors review recent trends in Raman spectroscopy which are only briefly mentioned in previous survey articles. Fundamentally new methods are described for producing and studying Raman spectra. Spectrophotometric systems for registration of Raman spectra are divided into two categories: 1. systems for electrical division of the signals received from the scatterer (the signal to be measured) and those received directly from the excitation source (the comparison signal); 2. systems for optical division. The operating principles of each class of systems are discussed as a basis for explaining their advantages and disadvantages. Methods and equipment are described for photoelectric registration of Raman spectra generated by pulsed excitation and the theoretical superiority of this method over continuous excitation is discussed. The greatest possibilities for practical application of the pulsed

Card 1/2

UDC: 535.36

L 30408-66

ACC NR: AP6017864

0

method are in high-speed Raman spectroscopy. The difference method for recording Raman spectra is considered as well as the registration of spectra which are differentiated with respect to frequency. Equipment and methods using laser technology for producing Raman spectra are described with particular emphasis on the progress which has been made with the improvement of continuous gas lasers. The rapidly developing field of stimulated Raman scattering is discussed and research on this type of scattering by materials in various states of aggregation is reviewed. The present state of the art in experimental technology indicates that stimulated Raman scattering lines may be obtained for nearly any material in any state of aggregation. Theoretical and experimental data are given on the spatial distribution of stimulated Raman scattering together with some of the energy characteristics and nonlinear effects associated with this phenomenon. The latest research in this field has opened up new possibilities for using this type of emission to amplify light signals in a broad spectral range. Orig. art. has: [28]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 023/ OTH REF: 051/ ATD PRESS: 5017

Card 2/2 CC

L 38. 21-66 EWT(1)

ACC NR: AP6024868

SOURCE CODE: UR/0056/66/051/001/0101/0107

AUTHOR: Zubova, N. V.; Kuz'mina, N. P.; Zubov, V. A.; Sushchinskiy, M. M.; Shuvalov, I. K.

55
B

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Intensity distribution in stimulated Raman scattering spectra

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 101-107

TOPIC TAGS: raman scattering, ~~non-linear~~ ^{laser} optics, laser, light

ABSTRACT: The line intensity of stimulated Raman scattering spectra (SRS) was experimentally investigated as a function of the exciting light intensity. The measurements were conducted in a region of intensities above and below the experimental threshold for a single flash. The intensity distribution in SRS spectra was investigated for several Stokes and anti-Stokes components. The existence of a considerable wing accompanying each component was detected. A structure of the first Stokes component of SRS was found and was investigated in the threshold region and below the threshold. Orig. art. has: 7 formulas and 4 figures. [CS]

SUB CODE: 20/ SUBM DATE: 21Feb66/ ORIG REF: 008/ OTH REF: 002/ LTD PRESS:

Card 1/1

AD

5043

L 36014-66 EWT(1)/T IJP(c) GG/WI/WG

ACC NR: AP6024513

SOURCE CODE: UR/0386/66/004/002/0052/0054

AUTHOR: Gorelik, V. S.; Zubov, V. A.; Sushchinskiy, M. M.; Chirkov, V. A. 59
2ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)TITLE: Possibility of observing induced infrared radiation in Raman scattering of light 2

SOURCE: Zh eksper i teor fiz. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 2, 1966, 52-54

TOPIC TAGS: molecular spectrum, Raman scattering, ir radiation, ir quantum generator, stimulated emission, spectral distribution

ABSTRACT: The authors discuss a new mechanism for producing population inversion between vibrational or vibronic levels of molecules. It is shown that if certain conditions for the possible transitions between molecular levels are satisfied, such that one of the levels does not become populated in the case of Raman scattering of light, so that the thermal distribution of the molecules over the vibrational levels may become disturbed and population inversion may occur. The required threshold power is evaluated from the gain per unit length of the transition near the generation threshold, and it is shown by preliminary estimates that the required minimum power is 10^7 W/cm² for liquids and 10^4 W/cm² for gases. The latter is attainable with a xenon lamp (power $\sim 10^5$ W/cm²), and the estimated molecule density at the upper level

Card 1/2

L-36014-66
ACC NR: AP6024513

turns out then to be 10^{13} cm^{-3} . If a ruby laser is used (power $\sim 10^7 \text{ W/cm}^2$), induced Raman scattering can be observed in liquids, with a quantum yield of several times ten per cent and a molecule density 10^{16} cm^{-3} at the upper level. The proposed excitation mechanism is realizable in principle in crystals, too. Orig. art. has: 1 figure and 2 formulas. [02]

SUB CODE: 20/17/ SUBM DATE: 14May66/ ORIG REF: 003/ OTH REF: 003/
AID PRESS: 5037

Card 2/2/11/1

L 31134-66 EWP(j)/EWT(l)/EWT(m)/EWP(e) RM/WH

ACC NR: AP6012859

SOURCE CODE: UR/0368/66/004/0351/0353

AUTHOR: Berezin, V. I.; Zubov, V. A.; Kats, M. L.; Kovner, M. A.; Sidorov, N. K.;
Stal'makhova, L. S.; Sushchinskiy, M. M.; Turbin, Yu. P.; Shubalov, I. K.

ORG: none

TITLE: Intensities and line thresholds of stimulated Raman scattering

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 4, 1966, 351-353

TOPIC TAGS: laser, stimulated emission, Raman scattering, stimulated Raman scattering

ABSTRACT: The relative values for the threshold I for the intensity of the exciting light necessary to attain stimulated Raman scattering in toluene, chlorobenzene, and pyridene have been measured. Using a theory of SRS developed by P. A. Apanasevich and B. I. Stepanov (Zhurnal prikladnoy spektroskopii, v. 1, 1964, p. 202), the authors derived the following formula

$$I_B/I = (I_{\infty}/\delta)(I_{\infty}/\delta)_B \cdot v_{\beta B}^3/v_{\beta}^3 \cdot n_B^3/n^3, \quad (1)$$

where I_{∞} is the integral intensity of the SRS line, δ is the line width, v_{β} is the frequency of the scattered light, n is the index of refraction, and the subscript B identifies these quantities for benzene. The experimental values of

Card 1/2

UDC: 535.22/36

L 31134-66

ACC NR: AP6012859

2

Table 1. Main parameters and oscillation thresholds for SRS

Substance	$\Delta \nu, \text{cm}^{-1}$	ν, cm^{-1}	$\Delta \nu, \text{cm}^{-1}$	$\frac{I_0}{I_{\text{th}}}$	$\frac{I_0}{I_{\text{th}}}$	n_D	exp. I	cal. I
benzene	992	13411	1.8	1	1	1.50	1	1
1,3-pentadiene	1655	12748	16	1.6	0.2	1.43	0.5	0.25
3-methyl-1,3-butadiene	1638	12765	7	1.3	0.3	1.42	0.5	0.40
carbon disulfide	656	13747	1	1.6	3	1.63	1.6	2.24
styrene	998	13405	2	0.7	0.6	1.55	0.6	0.55
styrene	1602	12801	3	0.9	0.6	1.55	1	0.59
styrene	1634	12769	3	1.6	0.9	1.55	0.9	0.90
toluene	1003	13400	1.8	0.37	0.4	1.50	0.8	0.42
chlorobenzene	1002	13401	1	0.45	0.8	1.52	1	0.78
bromobenzene	1001	13402	1	0.50	0.9	1.56	1.1	0.81
pyridine	992	13411	1.2	0.46	0.8	1.51	1	0.82

1/I for substances investigated in the present paper and in an earlier paper by three of the authors (Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, 1964, p. 784) are compared with the theoretical values derived by using formula (1) (see Table 1). The value of 1/I for the line $\Delta\nu = 992 \text{ cm}^{-1}$ in benzene was taken to be unity. Since the values of $n(\nu_0)$ for a ruby laser source were unavailable, the values of n for the D-line of sodium (n_D) were used in the calculations. Orig. art. has: 17 formulas and 1 table. [CS]

SUB CODE: 20/ SUBM DATE: 17Mar65/ ORIG REF: 004/ ATD PRESS: 4240
Card 2/2 AC

L 09461-67

ACC NR: AP6024666

SOURCE CODE: UR/0070/66/011/004/0604/0609

AUTHOR: Gorelik, V.S.; Zheludev, I. S.; Sushchinskiy, M. M. 51

ORIG: Physics Institute im. P. N. Lebedev AN SSSR (Fizicheskiy institut AN SSSR);
Institute of Crystallography AN SSSR (Institut kristallografii AN SSSR)

TITLE: Study of the Raman spectrum of NaNO_2 single crystal near the phase transition point.

SOURCE: Kristallografiya, v. 11, no. 4, 1966, 604-609

TOPIC TAGS: sodium compound, Raman spectrum, phase transition, ferroelectricity, temperature dependence, line broadening, crystal lattice vibration

ABSTRACT: This is a continuation of an earlier study (Kristallografiya v. 10, no. 3, 335, 1965) and deals with the behavior of most lines of the Raman spectrum of single-crystal NaNO_2 in the temperature interval from 30 to 178C. Principal attention was paid to the small temperature range ($\pm 20^\circ$) near the phase transition point (160C). The single crystal was a rectangular prism 3 x 7 x 10 mm, cut so that its smallest side was oriented along the ferroelectric axis z. The Raman spectra were photographed with a spectrograph, using the 4358 Å mercury line for excitation.

Card 1/2

UDC: 548.0:535.36

L 09461-67
ACC NR: AP6024666

Seven lines were registered, whose frequencies agreed essentially with those published earlier. The Raman spectrum obtained near the transition point differed noticeably from that obtained at 30C. The low-frequency lines shifted in linear fashion, while the higher frequency lines exhibited practically no shift. All observed lines broadened with increasing temperature, but the broadening of the low-frequency lines was larger. Some of the lines vanished with increasing temperature. A group-theoretical analysis of the spectrum for both the high and the low frequency parts of the spectrum is used to interpret the results. The vanishing and the intensity variations of the spectra agree with the selection rules, and the broadening is due to ordinary temperature effects connected with the increase of the interaction between the lattice oscillators themselves and the interaction between the lattice oscillators and other degrees of freedom of the crystal. The authors thank Professor P. A. Bazhulin for interest in the work and also V. I. Mursin for valuable advice. Orig. art. has: 4 figures, 1 formula, and 2 tables.

SUB CODE: 20/ SUBM DATE: 03 AUG 65 ORIG REF: 012/ OTH REF: 005

Card 2/2 LC

SUSCHINSKIY V.L.

SUSHCHINSKIY, V. I.

SUSHCHINSKIY, V. I. - "Manganese organic synthesis of branched paraffin hydrocarbons ranging from C₁₀ to C₂₂. Moscow, 1955. Min Higher Education USSR. Moscow Order of Lenin Chemico-technological Institute D. I. Mendeleev. (Dissertation for the Degree of Candidate of Chemical Sciences.)

SO: Knizhnaya Letopis' No. 46, 12 November 1955. Moscow

SUSHCHINSKIY, V. K.

1977-1980
1980-1982
1982-1985
1985-1988
1988-1991
1991-1994
1994-1997
1997-2000
2000-2003
2003-2006
2006-2009
2009-2012
2012-2015
2015-2018
2018-2021
2021-2024
2024-2027
2027-2030
2030-2033
2033-2036
2036-2039
2039-2042
2042-2045
2045-2048
2048-2051
2051-2054
2054-2057
2057-2060
2060-2063
2063-2066
2066-2069
2069-2072
2072-2075
2075-2078
2078-2081
2081-2084
2084-2087
2087-2090
2090-2093
2093-2096
2096-2099
2099-2102
2102-2105
2105-2108
2108-2111
2111-2114
2114-2117
2117-2120
2120-2123
2123-2126
2126-2129
2129-2132
2132-2135
2135-2138
2138-2141
2141-2144
2144-2147
2147-2150
2150-2153
2153-2156
2156-2159
2159-2162
2162-2165
2165-2168
2168-2171
2171-2174
2174-2177
2177-2180
2180-2183
2183-2186
2186-2189
2189-2192
2192-2195
2195-2198
2198-2201
2201-2204
2204-2207
2207-2210
2210-2213
2213-2216
2216-2219
2219-2222
2222-2225
2225-2228
2228-2231
2231-2234
2234-2237
2237-2240
2240-2243
2243-2246
2246-2249
2249-2252
2252-2255
2255-2258
2258-2261
2261-2264
2264-2267
2267-2270
2270-2273
2273-2276
2276-2279
2279-2282
2282-2285
2285-2288
2288-2291
2291-2294
2294-2297
2297-2300
2300-2303
2303-2306
2306-2309
2309-2312
2312-2315
2315-2318
2318-2321
2321-2324
2324-2327
2327-2330
2330-2333
2333-2336
2336-2339
2339-2342
2342-2345
2345-2348
2348-2351
2351-2354
2354-2357
2357-2360
2360-2363
2363-2366
2366-2369
2369-2372
2372-2375
2375-2378
2378-2381
2381-2384
2384-2387
2387-2390
2390-2393
2393-2396
2396-2399
2399-2402
2402-2405
2405-2408
2408-2411
2411-2414
2414-2417
2417-2420
2420-2423
2423-2426
2426-2429
2429-2432
2432-2435
2435-2438
2438-2441
2441-2444
2444-2447
2447-2450
2450-2453
2453-2456
2456-2459
2459-2462
2462-2465
2465-2468
2468-2471
2471-2474
2474-2477
2477-2480
2480-2483
2483-2486
2486-2489
2489-2492
2492-2495
2495-2498
2498-2501
2501-2504
2504-2507
2507-2510
2510-2513
2513-2516
2516-2519
2519-2522
2522-2525
2525-2528
2528-2531
2531-2534
2534-2537
2537-2540
2540-2543
2543-2546
2546-2549
2549-2552
2552-2555
2555-2558
2558-2561
2561-2564
2564-2567
2567-2570
2570-2573
2573-2576
2576-2579
2579-2582
2582-2585
2585-2588
2588-2591
2591-2594
2594-2597
2597-2600
2600-2603
2603-2606
2606-2609
2609-2612
2612-2615
2615-2618
2618-2621
2621-2624
2624-2627
2627-2630
2630-2633
2633-2636
2636-2639
2639-2642
2642-2645
2645-2648
2648-2651
2651-2654
2654-2657
2657-2660
2660-2663
2663-2666
2666-2669
2669-2672
2672-2675
2675-2678
2678-2681
2681-2684
2684-2687
2687-2690
2690-2693
2693-2696
2696-2699
2699-2702
2702-2705
2705-2708
2708-2711
2711-2714
2714-2717
2717-2720
2720-2723
2723-2726
2726-2729
2729-2732
2732-2735
2735-2738
2738-2741
2741-2744
2744-2747
2747-2750
2750-2753
2753-2756
2756-2759
2759-2762
2762-2765
2765-2768
2768-2771
2771-2774
2774-2777
2777-2780
2780-2783
2783-2786
2786-2789
2789-2792
2792-2795
2795-2798
2798-2801
2801-2804
2804-2807
2807-2810
2810-2813
2813-2816
2816-2819
2819-2822
2822-2825
2825-2828
2828-2831
2831-2834
2834-2837
2837-2840
2840-2843
2843-2846
2846-2849
2849-2852
2852-2855
2855-2858
2858-2861
2861-2864
2864-2867
2867-2870
2870-2873
2873-2876
2876-2879
2879-2882
2882-2885
2885-2888
2888-2891
2891-2894
2894-2897
2897-2900
2900-2903
2903-2906
2906-2909
2909-2912
2912-2915
2915-2918
2918-2921
2921-2924
2924-2927
2927-2930
2930-2933
2933-2936
2936-2939
2939-2942
2942-2945
2945-2948
2948-2951
2951-2954
2954-2957
2957-2960
2960-2963
2963-2966
2966-2969
2969-2972
2972-2975
2975-2978
2978-2981
2981-2984
2984-2987
2987-2990
2990-2993
2993-2996
2996-2999
2999-3002
3002-3005
3005-3008
3008-3011
3011-3014
3014-3017
3017-3020
3020-3023
3023-3026
3026-3029
3029-3032
3032-3035
3035-3038
3038-3041
3041-3044
3044-3047
3047-3050
3050-3053
3053-3056
3056-3059
3059-3062
3062-3065
3065-3068
3068-3071
3071-3074
3074-3077
3077-3080
3080-3083
3083-3086
3086-3089
3089-3092
3092-3095
3095-3098
3098-3101
3101-3104
3104-3107
3107-3110
3110-3113
3113-3116
3116-3119
3119-3122
3122-3125
3125-3128
3128-3131
3131-3134
3134-3137
3137-3140
3140-3143
3143-3146
3146-3149
3149-3152
3152-3155
3155-3158
3158-3161
3161-3164
3164-3167
3167-3170
3170-3173
3173-3176
3176-3179
3179-3182
3182-3185
3185-3188
3188-3191
3191-3194
3194-3197
3197-3200
3200-3203
3203-3206
3206-3209
3209-3212
3212-3215
3215-3218
3218-3221
3221-3224
3224-3227
3227-3230
3230-3233
3233-3236
3236-3239
3239-3242
3242-3245
3245-3248
3248-3251
3251-3254
3254-3257
3257-3260
3260-3263
3263-3266
3266-3269
3269-3272
3272-3275
3275-3278
3278-3281
3281-3284
3284-3287
3287-3290
3290-3293
3293-3296
3296-3299
3299-3302
3302-3305
3305-3308
3308-3311
3311-3314
3314-3317
3317-3320
3320-3323
3323-3326
3326-3329
3329-3332
3332-3335
3335-3338
3338-3341
3341-3344
3344-3347
3347-3350
3350-3353
3353-3356
3356-3359
3359-3362
3362-3365
3365-3368
3368-3371
3371-3374
3374-3377
3377-3380
3380-3383
3383-3386
3386-3389
3389-3392
3392-3395
3395-3398
3398-3401
3401-3404
3404-3407
3407-3410
3410-3413
3413-3416
3416-3419
3419-3422
3422-3425
3425-3428
3428-3431
3431-3434
3434-3437
3437-3440
3440-3443
3443-3446
3446-3449
3449-3452
3452-3455
3455-3458
3458-3461
3461-3464
3464-3467
3467-3470
3470-3473
3473-3476
3476-3479
3479-3482
3482-3485
3485-3488
3488-3491
3491-3494
3494-3497
3497-3500
3500-3503
3503-3506
3506-3509
3509-3512
3512-3515
3515-3518
3518-3521
3521-3524
3524-3527
3527-3530
3530-3533
3533-3536
3536-3539
3539-3542
3542-3545
3545-3548
3548-3551
3551-3554
3554-3557
3557-3560
3560-3563
3563-3566
3566-3569
3569-3572
3572-3575
3575-3578
3578-3581
3581-3584
3584-3587
3587-3590
3590-3593
3593-3596
3596-3599
3599-3602
3602-3605
3605-3608
3608-3611
3611-3614
3614-3617
3617-3620
3620-3623
3623-3626
3626-3629
3629-3632
3632-3635
3635-3638
3638-3641
3641-3644
3644-3647
3647-3650
3650-3653
3653-3656
3656-3659
3659-3662
3662-3665
3665-3668
3668-3671
3671-3674
3674-3677
3677-3680
3680-3683
3683-3686
3686-3689
3689-3692
3692-3695
3695-3698
3698-3701
3701-3704
3704-3707
3707-3710
3710-3713
3713-3716
3716-3719
3719-3722
3722-3725
3725-3728
3728-3731
3731-3734
3734-3737
3737-3740
3740-3743
3743-3746
3746-3749
3749-3752
3752-3755
3755-3758
3758-3761
3761-3764
3764-3767
3767-3770
3770-3773
3773-3776
3776-3779
3779-3782
3782-3785
3785-3788
3788-3791
3791-3794
3794-3797
3797-3800
3800-3803
3803-3806
3806-3809
3809-3812
3812-3815
3815-3818
3818-3821
3821-3824
3824-3827
3827-3830
3830-3833
3833-3836
3836-3839
3839-3842
3842-3845
3845-3848
3848-3851
3851-3854
3854-3857
3857-3860
3860-3863
3863-3866
3866-3869
3869-3872
3872-3875
3875-3878
3878-3881
3881-3884
3884-3887
3887-3890
3890-3893
3893-3896
3896-3899
3899-3902
3902-3905
3905-3908
3908-3911
3911-3914
3914-3917
3917-3920
3920-3923
3923-3926
3926-3929
3929-3932
3932-3935
3935-3938
3938-3941
3941-3944
3944-3947
3947-3950
3950-3953
3953-3956
3956-3959
3959-3962
3962-3965
3965-3968
3968-3971
3971-3974
3974-3977
3977-3980
3980-3983
3983-3986
3986-3989
3989-3992
3992-3995
3995-3998
3998-4001
4001-4004
4004-4007
4007-4010
4010-4013
4013-4016
4016-4019
4019-4022
4022-4025
4025-4028
4028-4031
4031-4034
4034-4037
4037-4040
4040-4043
4043-4046
4046-4049
4049-4052
4052-4055
4055-4058
4058-4061
4061-4064
4064-4067
4067-4070
4070-4073
4073-4076
4076-4079
4079-4082
4082-4085
4085-4088
4088-4091
4091-4094
4094-4097
4097-4100
4100-4103
4103-4106
4106-4109
4109-4112
4112-4115
4115-4118
4118-4121
4121-4124
4124-4127
4127-4130
4130-4133
4133-4136
4136-4139
4139-4142
4142-4145
4145-4148
4148-4151
4151-4154
4154-4157
4157-4160
4160-4163
4163-4166
4166-4169
4169-4172
4172-4175
4175-4178
4178-4181
4181-4184
4184-4187
4187-4190
4190-4193
4193-4196
4196-4199
4199-4202
4202-4205
4205-4208
4208-4211
4211-4214
4214-4217
4217-4220
4220-4223
4223-4226
4226-4229
4229-4232
4232-4235
4235-4238
4238-4241
4241-4244
4244-4247
4247-4250
4250-4253
4253-4256
4256-4259
4259-4262
4262-4265
4265-4268
4268-4271
4271-4274
4274-4277
4277-4280
4280-4283
4283-4286
4286-4289
4289-4292
4292-4295
4295-4298
4298-4301
4301-4304
4304-4307
4307-4310
4310-4313
4313-4316
4316-4319
4319-4322
4322-4325
4325-4328
4328-4331
4331-4334
4334-4337
4337-4340
4340-4343
4343-4346
4346-4349
4349-4352
4352-4355
4355-4358
4358-4361
4361-4364
4364-4367
4367-4370
4370-4373
4373-4376
4376-4379
4379-4382
4382-4385
4385-4388
4388-4391
4391-4394
4394-4397
4397-4400
4400-4403
4403-4406
4406-4409
4409-4412
4412-4415
4415-4418
4418-4421
4421-4424
4424-4427
4427-4430
4430-4433
4433-4436
4436-4439
4439-4442
4442-4445
4445-4448
4448-4451
4451-4454
4454-4457
4457-4460
4460-4463
4463-4466
4466-4469
4469-4472
4472-4475
4475-4478
4478-4481
4481-4484
4484-4487
4487-4490
4490-4493
4493-4496
4496-4499
4499-4502
4502-4505
4505-4508
4508-4511
4511-4514
4514-4517
4517-4520
4520-4523
4523-4526
4526-4529
4529-4532
4532-4535
4535-4538
4538-4541
4541-4544
4544-4547
4547-4550
4550-4553
4553-4556
4556-4559
4559-4562
4562-4565
4565-4568
4568-4571
4571-4574
4574-4577
4577-4580
4580-4583
4583-4586
4586-4589
4589-4592
4592-4595
4595-4598
4598-4601
4601-4604
4604-4607
4607-4610
4610-4613
4613-4616
4616-4619
4619-4622
4622-4625
4625-4628
4628-4631
4631-4634
4634-4637
4637-4640
4640-4643
4643-4646
4646-4649
4649-4652
4652-4655
4655-4658
4658-4661
4661-4664
4664-4667
4667-4670
4670-4673
4673-4676
4676-4679
4679-4682
4682-4685
4685-4688
4688-4691
4691-4694
4694-4697
4697-4700
4700-4703
4703-4706
4706-4709
4709-4712
4712-4715
4715-4718
4718-4721
4721-4724
4724-4727
4727-4730
4730-4733
4733-4736
4736-4739
4739-4742
4742-4745
4745-4748
4748-4751
4751-4754
4754-4757
4757-4760
4760-4763
4763-4766
4766-4769
4769-4772
4772-4775
4775-4778
4778-4781
4781-4784
4784-4787
4787-4790
4790-4793
4793-4796
4796-4799
4799-4802
4802-4805
4805-4808
4808-4811
4811-4814
4814-4817
4817-4820
4820-4823
4823-4826
4826-4829
4829-4832
4832-4835
4835-4838
4838-4841
4841-4844
4844-4847
4847-4850
4850-4853
4853-4856
4856-4859
4859-4862
4862-4865
4865-4868
4868-4871
4871-4874
4874-4877
4877-4880
4880-4883
4883-4886
4886-4889
4889-4892
4892-4895
4895-4898
4898-4901
4901-4904
4904-4907
4907-4910
4910-4913
4913-4916
4916-4919
4919-4922
4922-4925
4925-4928
4928-4931
4931-4934
4934-4937
4937-4940
4940-4943
4943-4946
4946-4949
4949-4952
4952-4955
4955-4958
4958-4961
4961-4964
4964-4967
4967-4970
4970-4973
4973-4976
4976-4979
4979-4982
4982-4985
4985-4988
4988-4991
4991-4994
4994-4997
4997-5000
5000-5003
5003-5006
5006-5009
5009-5012
5012-5015
5015-5018
5018-5021
5021-5024
5024-5027
5027-5030
5030-5033
5033-5036
5036-5039
5039-5042
5042-5045
5045-5048
5048-5051
5051-5054
5054-5057
5057-5060
5060-5063
5063-5066
5066-5069
5069-5072
5072-5075
5075-5078
5078-5081
5081-5084
5084-5087
5087-5090
5090-5093
5093-5096
5096-5099
5099-5102
5102-5105
5105-5108
5108-5111
5111-5114
5114-5117
5117-5120
5120-5123
5123-5126
5126-5129
5129-5132
5132-5135
5135-5138
5138-5141
5141-5144
5144-5147
5147-5150
5150-5153
5153-5156
5156-5159
5159-5162
5162-5165
5165-5168
5168-5171
5171-5174
5174-5177
5177-5180
5180-5183
5183-5186
5186-5189
5189-5192
5192-5195
5195-5198
5198-5201
5201-5204
5204-5207
5207-5210
5210-5213
5213-5216
5216-5219
5219-5222
5222-5225
5225-5228
5228-5231
5231-5234
5234-5237
5237-5240
5240-5243
5243-5246
5246-5249
5249-5252
5252-5255
5255-5258
5258-5261
5261-5264
5264-5267
5267-5270
5270-5273
5273-5276
5276-5279
5279-5282
5282-5285
5285-5288
5288-5291
5291-5294
5294-5297
5297-5300
5300-5303
530

SUSHCHINSKIY, V.L.

Condensation of isobutyrylmagnesium chloride with carbonyl compounds and tertiary amines. A. D. Petrov, V. L. Sushchinskiy, and L. D. Kozoval'nikov (D. I. Mendeleev Chem. Technol. Inst., Moscow). *Zhur. Obshch. Khim.* 25, 1566-71 (1955). To 73 g. Mg under Et₂O there was added a little CH₂:CMeCH₂Cl (I), and when the reaction had commenced, a soln. of 226.5 g. I and 74 g. AcOMe in 1.5 l. Et₂O was added over 10 hr.; distn. gave 63% tertiary alc., C₈H₁₆O, b_p 90-1°, n_D²⁰ 1.4630, d₄ 0.8568, which hydrogenated over Raney Ni at 130° and 160 atm. to the alc. C₈H₁₆O, b_p 86-7°, n_D²⁰ 1.4322, d₄ 0.8352, which treated with HCl at 70° gave the chloride C₈H₁₅Cl, b_p 72-3°, n_D²⁰ 1.4356, d₄ 0.8677, which was identified as 2-chloro-2,4,6-trimethylheptane. This (35.4 g.) and 27.18 g. I treated with 8 g. Mg yielded as a main product (42%) of an olefin, b_p 94-5°, n_D²⁰ 1.4490, d₄ 0.8004, which hydrogenated to 2,4,6-trimethyl-4-isobutylheptane, b_p 103-9°, n_D²⁰ 1.4352, d₄ 0.7812. Treatment of I and pinacolone with Mg (73 g.) run as above, gave 142 g. 2,2,3,5-tetramethyl-4-hexen-3-ol, b_p 46°, n_D²⁰ 1.4502, d₄ 0.8514 (oxidation of this gave Me₂CO and a hydroxy acid, m. 141° (cf. C.A. 49, 10355e)) which treated with HCl at 0° gave but 0.5% yield of the corresponding chloride and 80% dichloride, n_D²⁰ 1.4710, d₄ 1.023; hydrogenation of the alc. gave the std. analog, b_p 84.0-4.8°, n_D²⁰ 1.4368, d₄ 0.8393, identified as 2,2,3,3-

tetramethyl-3-hexanol, which treated with HCl at 0° gave the corresponding chloride, b_p 73.0-3.5°, n_D²⁰ 1.4453, d₄ 0.87-78. This (58.6 g.) and 90.55 g. I with 43.6 g. Mg gave 36% olefin, C₁₁H₂₀, b_p 92.5°, n_D²⁰ 1.4591, d₄ 0.8163, which hydrogenated to 2,4,6-trimethyl-4-isobutylheptane, b_p 105.5-6°, n_D²⁰ 1.4460, d₄ 0.7995. Treatment of 36 g. 2,2,3,3-tetramethyl-3-chloropropane with 13 g. Mg and 36.2 g. I gave 2.8 g. olefin, b_p 45-7°, n_D²⁰ 1.4380, d₄ 0.7743, which hydrogenated to 2,2,3,3,5-pentamethylhexane, b_p 172-3°, n_D²⁰ 1.4260, d₄ 0.7621. 2,2,3,5-Tetramethyl-3-chlorohexane, 61.22 g. CH₂:CHCH₂Cl and 24 g. Mg gave an olefin (27.2 g.) b_p 66-8°, n_D²⁰ 1.4521, d₄ 0.8034, which hydrogenated to 2,4-dimethyl-1-tert-butylheptane (II), b_p 138-40°, n_D²⁰ 1.4416, d₄ 0.7964. II was also prepd. as follows: 2,2,3-trimethyl-3-hexanol (b_p 87°, n_D²⁰ 1.4370, d₄ 0.8463, prepd. by hydrogenation of 2,2,4-trimethyl-5-hexen-3-ol) was treated with HCl at 0° yielding the chloride, n_D²⁰ 1.4455, d₄ 0.8010; this was treated with I in the presence of Mg, as above, to give olefin, b_p 72-3°, n_D²⁰ 1.4528, d₄ 0.8055, which hydrogenated to II, b_p 129-30°, n_D²⁰ 1.4421, d₄ 0.7964. Reaction of 102 g. I, 62 g. Me₂CO, Me and 73 g. Mg gave 102 g. alc., C₁₁H₂₀, b_p 99.5°, n_D²⁰ 1.4637, d₄ 0.8699, which dehydrated with iodine gave 2,6-dimethyl-4-propylidene-1,6-heptadiene, b_p 42°, n_D²⁰ 1.4768, d₄ 0.8153 (oxidation gave Me₂CO and dimethylacetone, m. 48°, whose diphenylhy-

SUSHCHINSKIY, V.L.

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 963

Author: Petrov, A. D., Sushchinskiy, V. L., and Shebanova, M. P.

Institution: Academy of Sciences USSR

Title: Tertiary Mono- and Difluoroalkyls in Grignard-Type Syntheses

Original
Periodical: Izv. AN SSSR, 1956, No 4, 510-512

Abstract: The condensation of tertiary mono- and difluoroalkyls with $\text{CH}_2 = \text{CHCH}_2\text{Cl}$ (I), $\text{CH}_2 = \text{CH}_2\text{CH}_2\text{Cl}$, and $\text{CH}_2 = \text{C}(\text{CH}_3)\text{CH}_2\text{Cl}$ in the presence of Mg has been investigated. It is shown that the yields are 2.5 to 3 times higher than with the corresponding chloroalkyls. The starting $(\text{CH}_3)_2\text{CC}(\text{CH}_3)_2\text{F}$ (II), $(\text{CH}_3)_2\text{CHCH}_2\text{C}(\text{CH}_3)_2\text{F}$ (III), $(\text{CH}_3)_3\text{CC}(\text{C}_2\text{H}_5)(\text{CH}_3)\text{F}$, and $[(\text{CH}_3)_2\text{CH}_2\text{C}(\text{CH}_3)_2\text{F}]_2$ are produced in copper apparatus (reactor and condenser); the reactor is packed with dry ice and acetone; anhydrous HF is charged at -40° and dropwise addition of the olefin is started (mixing temperature is not over -30°). The excess HF is removed by passing a stream of N_2 through the reaction

Card 1/2

SUSHCHINSKIY, V. L.

79-2-42/58

AUTHORS:

Petrov, A. D.; Sushchinskiy, V. L.; Zakharov, Ye. P.; Rogozhnikova, T. I.

TITLE:

Synthesis of Branched Aliphatic Hydrocarbons of the C₁₀ - C₁₅ Composition by the Grignard and Grignard-Wuertz Reactions (Sintez razvetvlennykh alifaticheskikh uglevodorodov sostava C₁₀ - C₁₅ po reaktsiyam Grin'yara i Grin'yara-Vyurtsa)

PERIODICAL:

Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 467-475 (U.S.S.R.)

ABSTRACT:

It was established experimentally that allyl halides even with highly branched ketones react normally. This fact makes this reaction suitable for the derivation of branched hydrocarbons having one or two quaternary carbon atoms. It is shown that Mg-halide isobutenyl reacts even with highly branched ketones resulting in the formation of homologous tertiary alcohols. The condensation of saturated tertiary alkyl fluorides was realized and by the Yavorskiy method using allyl halides. The fluorides compared with chlorides of analogous structure gave 300% more hydrocarbon yields. It is shown that the hydrocarbon yields (hydrocarbons synthesized by the Grignard-Wuertz method) increase by the introduction into the alkyl

Card 1/2

SUSHCHINSKIY, Ye.N., entomolog

A fly in the ointment.
Ag '63.

Zashch. rast. ot vred. i bol. 8 no.8:63
(MIRA 16:10)

SUSHCHINSKIY, Ye.N.

Successful cooperation of scientists with agriculture. Zashch.
rast. ot vred. i bol. 9 no.1:56-58 '64. (MIRA 17:4)

VASIL'YEV, I.A.; PETRZHAK, K.A.; SUSHCHKOVSKIY, V.D.

Determination of absolute activity by means of an end-window counter. Prib. i tekhn. eksp. 6 no.4:39-42 J1-Ag '61. (MIRA 14:9)

1. Leningradskiy tekhnologicheskii institut.
(Nuclear counters) (Radiation--Measurement)

SUSHCHUK, A. S.

A. S. SUSHCHUK, "Silicon stabilitrons." Scientific Session Devoted to "Radio Day", May 1958, Trudreservizdat, Moscow, 9 Sep. 58

The state of the developments of stable volt analogs on a silicon base in both domestic industry and in the foreign literature is discussed.

Parameters and characteristics of 7 - 12 V silicon stabilitrons, already put on sale by the domestic industry, are presented. The silicon stabilitrons now in production do not yield to the voltage stabilizers SG-2, SG-3, in their stabilizing properties. However, the temperature dependence of the voltage stabilization is larger. Prospects of producing instruments with a voltage temperature behavior of the same order or less than in voltage stabilizers are analyzed.

Results of investigations of the time change of voltage in instruments are presented (according to data from the literature)

2237 Sushchuk, I.F.

Sad Kulkhoza Imeni Lenina. (Shkotovskiy Rayon). Broshyura Podgot. K IZD.
A. I. Lebedevym. Bladivostok, Primor, K.N. IZD., 1954. 27s. s. III. 20sm.
(UFR. s.-Kh. Propagandy Primor. KR Ajev. UFR. Sel'skogo Khozyaystva). 3.000
EKZ. 35k.-
(54-55982)p

634.1/7st (57.341)

AYZEN/ERG, D.Ye.; BELEVTSSEV, Ye.N.; BORDUNOV, I.N.; BORISENKO, S.T.;
BULKIN, G.A.; GORLITSKIY, B.A.; DOVGAN', M.N.; ZAGORUYKO,
L.G.; KAZAKOV, L.R.; KALYAYEV, G.I.; KARASIK, M.A.; KACHAN,
V.G.; KISELEV, A.S.; LAGUTIN, P.K.; LAZARENKO, Ye.K.;
LAZARENKO, E.A.; LAPITSKIY, E.M.; LAPCHIK, F.Ye.; LAS'KOV,
V.A.; LEVENSHTeyN, F.I.; MALAKHOVSKIY, V.F.; MITKEYEV, M.V.;
PRUSS, A.K.; SKARZHINSKIY, V.I.; SKURIDIN, S.A.; SOLOV'YEV,
F.I.; STRYGIN, A.I.; SUSHCHUK, Ye.G.; TEPLITSKAYA, N.V.;
FEDYUSHIN, S.Ye.; FOMENKO, V.Yu.; SHKOLA, T.N.; SHTERNOV,
A.G.; YAROSHCHUK, M.A.; ZAVIRYUKHINA, V.N., red.

[Problems of metallogeny in the Ukraine] Problemy metallo-
genii Ukrainy. Kiev, Naukova dumka, 1964. 254 p.

(MIRA 18:1)

1. Akaderiya nauk URSR, Kiev. Instytut geologichnykh nauk.

SVSHCHUK-SLYUSARENKO, I. I.

PHASE I BOOK EXPLOITATION SOV/5078

Akademiya nauk URSR, Kiyev. Instytut elektrozvarivannya
Vvedeniye novykh sposobov svarki v promyshlennosti; sbornik statey.
Vyp. 3. (Introduction of New Welding Methods in Industry; Col-
lection of Articles, v. 3) Kiyev, Gos. izd-vo tekhn. lit-ry
UkrSSR, 1960. 207 p. 5,000 copies printed.

Sponsoring Agency: Ordona Trudovogo Krasnogo Znazeni Institut
elektrozvarki imeni akademika Ye. O. Fatona Akademii nauk
Ukrainskoy SSR.

Ed.: M. Pisarenko; Tech. Ed.: S. Matusevich.

PURPOSE: This collection of articles is intended for personnel in
the welding industry.

COVERAGE: The articles deal with the combined experiences of the
Institut elektrozvarki imeni Ye. O. Fatona (Electric Welding
Institute imeni Ye. O. Faton) and several industrial enterprises
in solving scientific and engineering problems in welding
technology. Problems in the application of new methods of we-
chanized welding and electroslag welding in industry are discussed.
This is the third collection of articles published under the same
title. The Foreword was written by B. Ye. Faton, Academician of
the Academy of Sciences Ukrainian SSR and Lenin prize winner.
There are no references.

TABLE OF CONTENTS:

Lashkevich, R. I. [Candidate of Technical Sciences], V. Mandelberg [Candidate of Technical Sciences], Electric Welding Institute imeni Ye. O. Faton], Z. M. Kuz'minskiy. [Candidate of Technical Sciences, Ukrainskiy Nauchno-Issledovatel'skiy tsentrnyy institut (Ukrainian Scientific Research Institute for the Pipe Industry)], and S. A. Trakhs [Chief Engineer, Chelya- binskiy truboprovodnyy zavod (Chelyabinsk Pipe Mill)]. New Process for Producing Large-Diameter Straight-Weld Pipes-for Oil-and-Gas-Lines	140
Zvonkov, M. L. [Engineer], D. M. Babkin [Candidate of Technical Sciences], A. V. Kuvshinov [Engineer, Electric Welding Institute imeni Ye. O. Faton], V. A. Verchenko [Engineer of the Trust "Iskromstat"] (Trust for Installa- tion of Food Industry Establishments) and G. A. Bredov- skiy [Formerly Chief Engineer of the "Bobrovskiy Plant". Experience in the Successful Welding of Aluminum and Its Alloys]	154
Dzenberg, O. O. [Engineer], L. N. Kovalyuk [Engineer], I. I. Shchuk-Slyusarenko [Engineer, Electric Welding Institute imeni Ye. O. Faton], I. O. Batskov [Chief Mechanic, Belgorodskiy tsementnyy zavod (Belgorod Cement Plant)], M. P. Izayev [Chief of the Welding Engineering Department, Krasnoyarskiy zavod "Sibtyazhmash" (Krasnoyarsk Siberian Heavy Machinery Plant)], and V. G. Kolyanov [Deputy Chief Process Engineer, Syranskiy zavod "Tazhmash" Syrans' Heavy Machinery Plant)]. Electroslag Welding of Large Type 35L Steel Tie-Rings for Cement Kilns	176
Lebedev, B. P. [Candidate of Technical Sciences, Electric Welding Institute imeni Ye. O. Faton], A. I. Alekseyev [Trust "Trastal" Konstruktziya (Tral Fabricated-Steel Trust)] and G. Yu. Babipovich [Trust Dneprostaal'- konstruktziya (Dnepr Fabricated-Steel Trust)]. Experience in the Mechanization of Welding [Operations] in the Erec- tion of Metallic Structures for a Blast-Furnace Plant	194

67701

SOV/125-60-2-3/21

18.7200
25(1)

AUTHORS: Voloshkevich, G.Z., and Sushchuk-Slyusarenko, I.I.

TITLE: On the Accuracy of the Dimensions of Work Welded by Means of Electro-Slag Welding ✓

PERIODICAL: Avtomaticheskaya svarka, 1960, Nr 2, pp 34-43 (USSR)

ABSTRACT: The article contains detailed information on the methods of accurate compensation for displacements of parts being joined by the electro-slag welding process. The essence of the method is the creation of a constant moment of resistance to the displacement, by the weight of the parts and the use of supports (shown in diagram figure 2). The method is practised for welding the tires of cement kilns on erection sites, and was applied for welding the 400-mm thick and 900-mm high kiln tires of the Vol'skiy tsementnyy zavod (Vol'sk Cement Plant). The pertaining calculations are given and explained by diagrams. After test welding of a full-size specimen, ✓

Card 1/2

VOLOSHKEVICH, G.E.; KHRUNDZHE, V.M.; SUSHCHUK-SLYUSARENKO, I.I.

Reconditioning the stand of a three-ton hammer. Avtom.svar.
13 no.7:76-79 J1 '60. (MIRA 13:7)

1. Orden Trudovogo Krasnogo Znameni Institut elektrosvarki im.
Ye.O.Patona AN USSR.

(Power presses--Maintenance and repair)
(Electric welding)

S/125/61/000/008/006/014
D040/D113

AUTHORS: Sushchuk-Slyusarenko, I.I., and Postovalov, Yu.I.

TITLE: The manufacture of a welded cylinder for a 7000-ton hydraulic press

PERIODICAL: Avtomaticheskaya svarka, no. 8, 1961, 62-64

TEXT: On account of the frequent breakdown and consequent pre-schedule withdrawal of the cylinder of a 7000-ton press installed at the Nizhne-Tagil'skiy metallurgicheskiy kombinat (Nizhniy Tagil Metallurgical Combine), efforts were made to improve the system used for preparing these cylinders. In order to increase the life of the cylinders, it was decided to join the shell to the insert bottom by electroslag welding and to use 35 steel for the preparation of both parts. Previously employed 35HM(35NM) steel was found to be insufficient for this purpose. Close attention was paid to the condition of the welding equipment; in order to prevent deformation of the copper tube through heating and to guarantee the accurate positioning of the electrode in the gap during welding, the copper current-conducting part of the tip of the welding torch was fitted with steel strips. A water-cooled slide

Card 1/3

The manufacture of a welded cylinder...

S/125/61/000/008/006/014
D040/D113

bar made of copper was used to hold the slag and metal baths in position. Welding was started in a pocket which was enlarged in accordance with the welding up of the seam. This pocket helped to reduce metal wastage, and to cut down on time used at the beginning of the weld. In the welding process, particular attention was paid to keeping the slag bath at a certain depth, which was considerably reduced owing to the reduction in the gap due to metal contraction. After welding 2.5-3 m of the weld, the slag bath was removed for the withdrawal of iron oxides. The welding of the circular weld was carried out with the aid of an $CB-10\Gamma 2$ (Sv-10G2) electrode wire under an AH-8 (AN-8) flux. The following system was used: voltage-46-48 v; feed rate of electrode wire - 195-200 m/hr; number of electrodes -3; slag bath depth-45-50 mm; speed of transverse oscillations of the electrode - 39 m/hr; time in which the electrodes were held near the rims - 5 sec; duration of the entire welding process - 23 hrs. After a year's operation, a crack appeared in the welded cylinder. It was decided to have the cylinder repaired at the Ural'skiy zavod tyazhelogo mashinostroyeniya (Ural Heavy Machinery Plant) and then put back into operation. The repair work on the cylinder helped economize more than 50,000 rubles and considerably reduced the idle time of the press.

Card 2/3

The manufacture of a welded cylinder...

S/125/61/000/008/006/014
D040/D113

There are 3 figures.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Patona AS UkrSSR) (Sushchuk-Slyusarenko, I.I.); Ordenov Lenina, Krasnogo Znameni i Trudovogo Krasnogo Znameni zavod Uralmash ("Orders of Lenin, of the Red Banner and the Red Banner of Labor". Uralmash Plant)

SUBMITTED: January 31, 1961



Card 3/3

DABAGYAN, A. V.; ROZENBERG, O. O.; SUSHCHUK-SLYUSARENKO, I. I.;
GERMAN, S. I.

Vibration strength of welded hydraulic turbine shafts determined
by modeling. Avtom. svar. 15 no.11:37-43 N '62.
(MIRA 15:10)

1. Khar'kovskiy politekhnicheskij institut imeni V. I. Lenina
(for Dabagyan). 2. Ordena Trudovogo Krasnogo Znameni Institut
elektrosvarki imeni Ye. O. Patona AN UkrSSR (for Rozenberg,
Sushchuk-Slyusarenko). 3. Khar'kovskiy turbinnyy zavod imeni
S. M. Kirova (for German).

(Shafting—Welding)
(Hydraulic turbines—Models)

1.2300

1573

32959
S/125/62/000/001/006/011
D036/D113

AUTHORS: Voloshkevich, G.Z.; Sushchuk-Slyusarenko, I.I.; Khrundzhe, V.M.

TITLE: Electroslag welding of the runners of radial-axial hydraulic turbines.

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1962, 46-58

TEXT: The authors describe a technology which they developed for manufacturing a 120 ton runner for a 225,000 kw turbine for the Bratskaya GES (Bratsk Hydroelectric Power Plant) by joining the separately-cast blades to the upper and lower crowns by electroslag welding with a consumable electrode-holder. The runner could not be cast in its entirety because its shape was too complex to permit obtaining a high-quality casting of the required precision. The Water Turbine Office of the Leningradskiy metallicheskiy zavod (Leningrad Metalworking Plant) had originally suggested using electroslag welding for joining the blades to the upper crown, and manual welding for joining the blades to the lower crown. The blades were held in position while being welded to the upper crown by normal П-shaped clamps joined to the blade by heavy welds; a proportioned counteracting moment was applied to the blade edges during welding by pre-tensioned spring clamps (Fig.2). The Card 1/4 4

32959

S/125/62/000/001/006/011
D036/D113

Electroslag welding ...

general arrangement of the blade and upper crown is shown in Fig. 4, in which (1) are the spring clamps welded on to given points on the blade, (2) are the normal Π -shaped clamps for holding the lower end of the blade, (3) are glass fiber inserts for insulating the consumable electrode-holder and (4) is a clamp which is welded on to the blade and which thrusts against a boss on the crown. The latter clamp prevents the blade edges being displaced in the upper part of the butt. The position of the outlet edge of the blade was taken as a base for the assembly. The welding conditions for welding the blades to the upper crown were as follows: welding voltage 43-46 v; feed of welding wire 160 m/hr; number of wires - 2; depth of slag pool 45-50 mm. The welding was carried out with an A-545 (A-545) welder, AH-8 (AN-8) flux, $E_{B-10} \Gamma 2$ (Sv-10G2) welding wire and an 8 mm thick consumable electrode-holder made of Cr.3 (St.3) steel. One butt took 2 machine-hours, the total time required to assemble and weld one butt being 3.5 hrs. Before welding on the blades to the lower crown, the edges of the blades were trimmed by a special P-930 (R-930) device, in which the cutting torch could move along its axis along guides parallel to the generatrix of the internal conical surface of the crown and at the same time turn about the runner axis. When

Card 2/ 4

32959
S/125/62/000/001/006/011
D036/D113

Electroslag welding ...

assembling the lower crown and blades, the lower crown was clamped by three struts of refractory steel (Fig.1) in order to preclude geometrical distortion caused by welding stresses and subsequent heat treatment of the two halves of the crown. For welding the blades to the lower crown, a manipulator held the runner at an angle of 45° to the horizon. The welding conditions were as follows: welding voltage - 44-47 v; feed of welding wire - 177 m/hr; number of wires - 2; brand of welding wire - $\text{Ca-10}\Gamma 2$ (Sv-10G2), depth of slag pool - 45-50 mm. An Cr.3 (St.3) consumable electrode-holder 8 mm thick was used. The welding took two machine-hours and the total time required for the assembly and welding of one butt was 3.5 hrs. An accuracy of 1 mm was achieved in the radius of the inner surface of the crown after welding. The conclusions are as follows: (1) A flexible attachment by spring clamps may be used in addition to a counteracting moment for obtaining accuracy of the measurements after welding, in addition to a counteracting moment; (2) The precision of the dimensions of a welded-cast runner is determined by the precision of the blade blanks. A considerable number of errors in the blade dimensions can be compensated for during the assembly; (3) Use of a flexible attachment for manufacturing the first welded-cast turbine runner for the Bratsk Hydroelectric Power Plant allowed

Card 3/4

32959

S/125/62/000/001/006/011
D036/D113

Electroslag welding ...

the accuracy of manufacturing the runner to be increased several times in comparison with a solid-cast runner; (4) A special gas-cutting apparatus should be used for trimming the blade edges connected with the lower crown; (5) Welding the lower crown to the blades should be carried out by the electroslag method. The costs of making T-joints with a conical axial surface do not exceed those incurred when welding the blades to the upper crown. There are 11 figures, 2 tables and 3 Soviet references.

ASSOCIATION: Ordena Trudovogo Krasnogo Znamehi Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im.Ye.O. Paton of the AS UkrSSR)

SUBMITTED: January 31, 1961

Card 4/14

SUSHCHUK-SLYUARENKO, I.I.; LYCHKO, I.I.

Characteristics of the melting of insulation cushions during electric slag welding with a consumable electrode. Avtom. svar. 16 no.8:79-82 Ag '63. (MIRA 16:8)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR.
(Electric welding—Equipment and supplies)

SUSHCHUK-SLYUSARENKO, I.I.; VASYUCHKOV, V.S.

International exhibition of welding equipment in London. Avtom.
svar. 16 no.10:90-96 O '63. (MIRA 16:12)

SUSHCHUK-SLYUSARENKO, I.I.

Deformation compensation in electric slag welding. Avtom.svar.
17 no.1:28-33 Ja '64. (MIRA 17:3)

1. Institut elektrosvariki imeni Patona AN UkrSSR.

SUSHCHUK-SLYUSARENKO, I.I.; KHRUNDZHE, V.M.; SHEKHTER, S.Ya.

Providing for the dimensional accuracy of cylindrical articles during electric slag welding. Avtom. svar. 17 no.2:77-80 F '64.
(MIRA 17:9)

1. Institut elektrosvariki im. Ye.O. Patona AN UkrSSR (for Sushchuk-Slyusarenko, Khrundzhe). 2. Kommunarskiy metallurgicheskiy zavod (for Shekhter).

154... T/ENI(t)/GAF(k)/EAF.../EWA(c) Pf-4 JD/HM
ACCESSION NO. 11. 02/0025

AUTHOR: Voloshkevich, G. Z.; Sushchuk-Slyusarenko, I. I.; Lychko, I. I.

27
25
B

TITLE: Electroslag welding with a partially consumable electrode tip

SOURCE: Avtomaticeskaya svarka, no. 11, 1964, 82-85

TOPIC TAGS: electroslag welding, welding electrode, electroslag melting

ABSTRACT: In present electroslag welding processes seams are welded with quantities of weld metal exceeding 1000 kg and welding times extending to 30 to 40 hours. The Institute of Electric Welding has developed a coiled wire electrode tip the end of which is allowed to melt into the weld metal (G. Z. Voloshkevich, "Electrode for Electroslag Welding", description of invention, author's certificate No 1311847, *Bulleten' izobrateniy* [Bulletin of Inventions], No 18, 1960).

Instead of using adjustment devices, the proper feeding of the electrode wire is governed by the fact that the electrode tip almost reaches the slag bath, but as a rule does not touch it. When the end of the tip becomes excessively eroded, the level of the slag is raised slightly and the worn end is melted off. Continuous operating time of the tip depends on the length

Card 1/3

L 33543-65

ACCESSION NR: AP5009174

of the melting part (lifetime can be increased considerably as compared to that of constant-contact control tips).

The new method differs from welding with a consumable tip in that the partially melting tip is simple to make and needs no expensive or scarce materials. After several welds the electrode tip is restored by manually welding new replaceable end sections, as much simpler than maintenance of a consumable tip.

For comparatively short partially melting tips, melting can be accomplished by raising the level of the slag bath with respect to the slide bar, when a long section is to be melted. This requires to raise the slide bar with respect to the feeder mechanism carriage and the tips.

During melting of electrode wire the current-carrying plate of the bottom tip is allowed to overhang the slide bar, since excessive departure of the electrode wire from the slide can result in local incomplete melting of the parent metal edges. The electrode wire can be kept close to the bar by raising the meniscus on the surface of the slag. If the plate is toward the inside of the welding space the level of the slag bath surface can be below the top of the slide but the end of the tip is eroded much more rapidly and requires more frequent replacement. A strip of metal 4 to 5 mm wide is welded on the other side of the tip to strengthen it. The area of reinforcement is governed by the current heating conditions and should

33543-65

ACCESSION NR: AP5009174

be 180 to 200 mm².

The fusible length of the tip is calculated to be 15 to 20 mm per meter of weldment. When welding with the partially melting tip there is a sharp increase in the quantity of molten filler metal when the tips are being melted. Electroslag welding with a consumable tip is considered in this paper only from the standpoint of the quantity and the rate of feed of the electrode wire. During rare instances when the tip is being melted (once per 0.8 to 1 meter of seam) the welding rate should be very slow to avoid hot cracks. However, a more detailed examination of hot crack formation indicates that a brief increase in the welding rate is permissible when the power is increased. Therefore the part of the paper which deals with change in rate of welding and therefore the excess weld metal in the heated zone. The authors believe that the results of the investigation described in this paper are of interest to the welding community.

ASSOCIATION: Institut elektrosvarki im. Ye. G. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR); Uralmash im. S. Ordzhonikidze

SUBMITTED: 22May64

ENCL: 00

SUB CODE: IE, MI

NO RHF SOV: 003

OTHER: 000

JPRS

Card 3, 3

L 24439-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k) JD/HM

ACC NR: AP6012279 (N)

SOURCE CODE: UR/0125/65/000/011/0025/0027

AUTHOR: Sushchuk-Slyusarenko, I. I.; Lychko, I. I.

30
B

ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)

TITLE: Optimum conditions for electroslag welding where accuracy is required in the dimensions of the finished product

SOURCE: Avtomaticheskaya svarka, no. 11, 1965, 25-27

TOPIC TAGS: electroslag welding, structural steel, welding technology

ABSTRACT: The authors study consumable-tip electroslag welding to determine optimum conditions for a high quality joint with maximum accuracy in the predetermined dimensions of the finished product. The basic parameters considered are voltage, feed rate of the electrode wire (or welding speed), number of electrodes, width of the weld gap, depth of the slag bath and thickness of the consumable tip. Since the depth of the slag bath, thickness of the tip, and to a certain extent the weld gap are independent of the other welding parameters, these factors were assumed to be constant. It is shown that an increase in the feed rate up to a certain critical limit does not produce cracks in the joint even when the counteraction is high. Cracks appear in the joints at rates above this critical limit which decrease as the counteracting moment

UDC: 621.791.756

Card 1/2

L 24439-66

ACC NR: AP6012279

increases. A critical feed rate of 120-140 m/hr (for thicknesses of 150-500 mm) is recommended for preliminary calculations on the basis of the experimental data. The following parameters are recommended for maximum accuracy in the final dimensions when consumable-tip electroslag welding is used for joining structural steels in thicknesses of 150-500 mm: welding speed-- 0.5 ± 0.02 m/hr, voltage-- 46 ± 1 v, width of the weld gap--28-30 mm, depth of the slag bath--45-50 mm, width of the consumable tip--4-6 mm, distance between electrodes--50-80 mm and number of electrodes-- $n = (6-40)/d$ where δ is the thickness of the metal in mm. AN-8 flux should be used. The temperature field is measured for determining deformation during welding and a diagram of the quasi-stationary temperature field is given. Orig. art. has: 2 figures, 4 formulas.

SUB CODE: 13/

SUBM DATE: 14May65/

ORIG REF: 004/

OTH REF: 000

Card 2/2 *dda*

ZHDANOV, Nikolay Yefimovich; SUSHCHUK-SLYUSARENKO, Z., red.; SERGEYEV, V.,
tekh. red.

[Organizational work is the most important problem; from the
present-day experience of Ukrainian trade-union organizations]
Holovne teper - organizators'ka robota; z dosvidu roboty prof-
spilkovykh organizatsii Ukrainy. Kyiv, Derzh. vyd-vo polit.
lit-ry URSR, 1960. 46 p. (MIRA 15:1)
(Ukraine--Trade unions)

MOSKALETS, Konstantin Fedorovich [Moskalets', K.]; SUSHCHUK-SLYUSARENKO,
Z., red.; KOPITKOVA, N. [Kopytkova, N.], tekhn.red.

[Trade unions of the Ukraine struggle for the carrying out of the
seven-year plan] Profspilky Ukrainy v borot'bi za zdiisnennia
semyrichky. Kyiv, Derzh.vyd-vo polit.lit-ry, 1960. 89 p.

(MIRA 13:6)

(Ukraine--Trade unions)

(Efficiency, Industrial)

CHUMACHENKO, I.N.; RAKHMATEZHANOV, U.; SUSHENITSA, B.A.; KUZNETSOVA,
N.Ye.; PONOMAREV, V.G.; FOKEYEV, N.I.; ERGASHEV, R.;
PROTIKOVSKAYA, S., red.

[Recent developments in the use of mineral fertilizers)
Novoe v primeneni mineral'nykh udobrenii. Dushanbe, Izd-
vo "Irfon," 1964. 61 p. (MIRA 18:4)

SUSHENIYA, L.M.

Quantitative data on filtration feeding of planktonic crustaceans.
Nauch.dokl.vys.shkoly:biol.nauki no.1:16-20 '58 (MIRA 11:8)

1. Predstavlena kafedroy zoologii Belorusskogo gosudarstvennogo
universiteta im. V.I. Lenina.
(GLADOCERA)

SUSHENTSEV, S.

Each violator should be summoned. Za bezop.dvizh. 3 no.10:1-2 O '60.
(MIRA 13:10)

1. Nachal'nik 9-go otdeleniya Otdela regulirovaniya ulichnogo
dvizheniya g. Moskvy.
(Traffic violations)

S/195/62/003/005/005/007
E075/E136

AUTHORS: Sazonova, I.S., Khokhlova, T.P., Sushentseva, G.M.,
and Keyer, N.P.

TITLE: Catalytic properties of titanium dioxide and its
solid solutions

PERIODICAL: Kinetika i kataliz, v.3, no.5, 1962, 751-760

TEXT: The authors investigated the catalytic decomposition of
iso-C₃H₇OH on TiO₂ and its solid solutions with WO₃ and Fe₂O₃.

The decomposition was followed by the measurement of electrical
conductivity of the catalysts. The reaction was mainly dehydration
of the alcohol with the formation of 54-99.6% C₃H₆, 5.0-45% H₂,
and small amounts of CO, CO₂ and O₂. It was carried out at
160-435 °C with 9 ml of catalyst and feed rates from 0.1 to 0.6
ml/min. Results: dissolution in TiO₂ of WO₃ (0.5-1.0 mole %)
decreases considerably the activation energy of its electrical
conductivity and increases its catalytic activity. The reaction
temperature and the activation energy decrease markedly, the
reaction rates at 200 °C being greater by 4-6 orders of magnitude

Card 1/2

Catalytic properties of titanium ...

S/195/62/003/005/005/007
E075/E136

for the catalyst containing dissolved WO_3 . TiO_2 with dissolved Fe_2O_3 has a lower electrical conductivity and catalytic activity than pure TiO_2 , but the changes produced by the incorporation of Fe_2O_3 (1 mole %) have smaller absolute values than the changes produced by the incorporation of WO_3 . Addition of Fe_2O_3 (1 mole %) to TiO_2 containing WO_3 (1 mole %) cancels completely the catalytic and electrical changes produced by the addition of WO_3 alone to TiO_2 . This indicates that the mechanism of action of the dissolved oxides is electronic. The influence of the electronic structure of TiO_2 on its electrical properties and changes of the electrical conductivity of the catalysts during adsorption of isopropyl alcohol and propylene and during the dehydration reaction, indicates that the mechanism of the reaction is electronic.

There are 7 figures and 4 tables.

ASSOCIATION: Institut Kataliza SO AN SSSR
(Institute of Catalysis SO AS USSR)

SUBMITTED: July 19, 1962

Card 2/2

Sushentsov, S.N.

BAKAKIN, V.P.; BUBOK, K.G.; BUGAREV, L.A.; BUNIN, A.I.; VOROB'YEV, K.V.
DROZDOV, V.V.; DOROKHOV, M.S.; ZUBRILOV, S.V.; IGNAT'YEV, L.A.
KARGOPOLOV, I.G.; KLUSHIN, D.N.; KOMAROV, A.M.; KURILOV, M.S.;
LOMAKO, P.F.; MIKULENKO, A.S.; MIKHAYLOV, M.M.; NEMTINOV, B.A.;
OL'KHOV, N.P.; OSIFOVA, T.V.; PAKHOMOV, Ya.D.; FLAKSIN, I.N.;
PODGHAYNOV, S.F.; PUSTYL'NIK, I.I.; ROZHKOV, I.S.; SAVARI, Ye.A.;
SEMYNIN, A.P.; SPIVAKOV, Ya.N.; STRIGIN, I.A.; SUSHENTSOV, S.N.;
SYCHEV, P.S.; TROITSKIY, A.V.; USHAKOV, K.I.; KHARLAMOV, A.Ye.;
SHEMYAKIN, N.I.

Nikolai Konstantinovich Chaplygin. TSvet. met. 28 no.2:57-58
Mr-Ap '55. (MIRA 10:10)
(Chaplygin, Nikolai Konstantinovich, 1911-1955)

ACCESSION NR: AP5020976

UR/0190/65/007/008/1477/1477

AUTHOR: Andrianov, K. A.; Kurakov, G. A.; Susnentsova, F. F.; Myagkov, I. I.

TITLE: Polymerization of cyclic phenylsilsesquioxanes

INDEXING TERMS: organosilicon polymer; siloxane; phenylsilsesquioxane

ABSTRACT: High-molecular-weight, benzene-soluble polymers having a glass-transition temperature of 100°C were prepared from cyclic phenylsilsesquioxane. It is noted that previous attempts at polymerizing the octamer were unsuccessful. The polymerization was carried out in two steps: first, in a high-boiling solvent, preferably, dimethylacetamide, in the presence of a small amount of a catalyst, and then with an additional amount of catalyst. [SM]

ASSOCIATIONS: none

Card 1/2

L 62479-65

ADMISSION NO: AP5020976

0

AREA CODE: 00, GC

EXT. NO: 4072

Card 2/2

SAZONOVA, I.S.; KHOKHLOVA, T.P.; SUSHENTSEVA, G.M.; KEYYER, N.P.

Catalytic properties of titanium dioxide and its solid solutions.
Kin.i kat. 3 no.5:751-760 ~~8-0~~ '62. (MIRA 16:1)

1. Institut kataliza Sibirskogo otdeleniya AN SSSR.
(Titanium oxide) (Solutions, Solid)
(Catalysis)

ACCESSION NR: AP4017637

S/0190/64/006/002/0258/0264

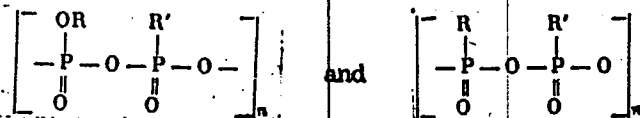
AUTHORS: Pudovik, A. N.; Muratova, A. A.; Sushentsova, F. F.; Zoreva, N. M.

TITLE: Heterochain polymers with phosphorus and oxygen atoms in the main chain.
Polyphosphinophosphates and polyphosphinates

SOURCE: Vy*sokomolekulyarny*ye sovedineniya, v. 6, no. 2, 1964, 258-264

TOPIC TAGS: polymer, polycondensation, phosphinic acid, alkylphosphinic acid, alkylphosphinic acid ester, alkylphosphinyl dichloride, phosphoryl dichloride, ethyldichlorophosphine, polyphosphinophosphate, polyphosphinate, heterochain polymer

ABSTRACT: This investigation involved polyphosphinophosphates (PPP) and polyphosphinates (PP), the polymeric chain of which consisted of links



with radicals containing from 2 to 11 carbons. These polymers were obtained by

Card 1/3

ACCESSION NR: AP4017637

polycondensation of alkylphosphinic acid esters with dichlorides of alkylphosphoric-, alkylphosphinic-, and arylphosphinic acids. The polycondensation was conducted for 4-10 hours at a gradual temperature rise from 120 to 200C. The molecular weight, softening point, and solubility of the obtained polymers in water and in organic solvents were determined. It was found that the PPP compounds, which contained 4-8 carbon atoms per link, dissolved only in water and alcohols and were insoluble in organic solvents. An increase in the number of carbon atoms to 14 per link resulted in the formation of polymers soluble in organic solvents, possessing a low melting point from -30 to -50C, displaying good adhesion to glass, and having a low flammability. The replacement of an aliphatic radical by benzyl raised the melting point by about 60-80C. The PPP and PP compounds are rapidly hydrolyzed by water (even at 0C). When the molecular ratio of the issuing alkylphosphinic acid esters and of the dichlorides was 1:1, the polymerization yielded only products of low molecular weight (676-712). A 30% excess of dichloride was required to bring it up to 2600-2890. It was found that the investigated polymerization reactions were of the second order, and that the reaction rate increased with temperature, as well as in the presence of such catalysts as FeCl₃, ZnCl₂, and AlCl₃. Orig. art. has: 2 charts, 4 formulas, and 3 tables.

Card 2/3

ACCESSION NR: APL017637

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Lenina (Kazan'
State University)

SUBMITTED: 01Dec62

DATE ACQ: 23Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 003

OTHER: 003

Card 3/3

SUSHEVSKIY, M.G.

Letters from the Brussels World's Fair. Zhivotnovodstvo 20 no. 7:79-
83 J1 '58. (MIRA 11:8)

(Brussels--Agricultural exhibitions)

SUSHIL, K. D.

S/121/61/000/008/006/006
D041/D113

AUTHOR: None given

TITLE: Dissertations

PERIODICAL: Stanki i instrument, no. 8, 41-42

TEXT: V.P. Grechin presented the dissertation "Heat Resistance and Other Wear Resistance Factors of Cast Iron and Alloys During Sliding Friction" at the Institut mekhaniki Akademii nauk USSR (Institute of Mechanics of the Academy of Sciences Ukrainskaya SSR) in order to obtain a doctor's degree. The following dissertations were presented for a candidate's degree: "Investigation of Small-Module Gear-Shapers" by Yu.R. Vitenberg at the Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics); "The Effect of the Structural and Technological Factors of Spot-Welded and Seam-Welded Joints on the Distribution of Stress Caused by Load and on the Fatigue Strength" by B.B. Zolotarev at the TsNII tekhnologii i mashinostroyeniya (TsNII of Technology and Machine Building); "Investigation of Screw-Nut Pairs During Rolling and Sliding" by Kumar Basu Sushil at the Moskovskiy stankoinstrumental'nyy institut im. I.V. Stalina (Moscow Institute of Machine Tools and Instruments im. I.V. Stalin).

Card 1/2

Dissertations

S/121/61/000/008/006/006
D041/D113

Stalin); "Investigation of the Surface Accuracy and Smoothness Obtained by Machining Hard and Brittle Materials Using the Ultra-Sound Vibrations Method" by A.Ya. Vladimirov at the Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics); "Effect of Some Technological Factors on the Surface Quality Obtained by Plane Grinding by Means of the Disc Periphery" by B.B. Troitskiy at the Moskovskiy stankoinstrumental'nyy institut imeni I.V. Stalina (Moscow Institute of Machine Tools and Instruments im. I.V. Stalin); "Investigation of the Automatic Synchronization of Gear Changing" by I.M. Khovanov at the Moskovskiy ordena Lenina i ordena Trudovogo Krasnogo Znameni Vyssheye tekhnicheskoy uchilishche im. N.E. Baumaná (Moscow "Order of Lenin and Order of the Red Banner of Labor" Higher Technical School im. N.E. Bauman); "Investigation of a Grinding Process with an Oscillating Motion" by Tsáó Shih-Shen at the Moskovskiy avtomechanicheskiiy institut (Moscow Automechanical Institute). [Abstracter's notes; complete translation].

Card 2/2

SUSHILIN, V. A.

Geology

"Directions for Measuring Dynamic Levels in Oil-Well Echometers", "Safety Technique in the Petroleum Industry VNIITB (abstracts of lectures in Russian and Azerbaydzhan, No 1 and 3)," Gostoptekhizdat, 1948

Summary No. 60, 26 May 52; BR-52056899

SUCHMAN, V. A.

Measurement of depth (pressure in petroleum wells Baku, Gos. nauch.-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, Azerbaidzhanskoe otd-nie, 1948. 61 p. (50-22-56)

TN871.S77