

L 16445-65

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ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Khar'kov State University)

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OTHER: 005

Card 3/3

LITVINENKO, L.M.; ALEKSANDROVA, D.M.; TITSKIY, G.D.

Carboxylic acids as a medium for the preparative acylation
of aromatic amines. Ukr. khim. zhur. 28 no.1:77-80 '62.
(MIRA 16:8)

1. Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo.

LITVINENKO, L.M.; OLEYNIK, N.M.; TITSKIY, G.D.

Search in a certain direction for new bifunctional catalysts.
Dokl. AN SSSR 157 no.5:1153-1155 Ag '64. (MIRA 17:9)

1. Khar'kovskiy gosudarstvennyy universitet. Predstavleno
akademikom M.I. Kabachnikovym.

TITSKIY, I.P.

BEZUGLIY, I.P., kand.sel'skokhozyaystvennykh nauk; TITSKIY, I.Ya.,
kand.selskokhozyaystvennykh nauk.

Brewer's yeast increases butterfat percentage in cows.
Zhivotnovodstvo 19 no.12:36-40 D '57. (MIRA 10:12)

1.Ternopol'skaya oblastnaya sel'skokhozyaystvennaya opyt'naya
stantsiya.

(Cows--Feeding and feeding stuffs)
(Yeast)

KHASKIN, V.V.; TITSKIY, I.Ya.

Mixed silage for poultry. Ptitsevodstvo 9 no.8:7-11
Ag '59. (MIRA 12:12)

1. Ukrainskaya opytnaya stantsiya ptitsevodstva.
(Poultry--Feeding and feeds) (Knsilage)

CHEKINI, V.; TITSKIY, M.

Semiautomatic line without converters for "Don" processing of poultry.
Mias.ind. SSSR 33 no.3:6-7 '62. (MIRA 15:7)

1. Poltavskiy mashinostroitel'nyy zavod myasnogo oborudovaniya.
(Poultry plants--Equipment and supplies)
(Assembly-line methods)

TITSKIY, Nikolay Pavlovich; ZAYTSEV, V.S., red.; PRESNOVA, V.A.,
tekh. red.

[Green light for advanced practice] Peredovomu - zelenuiu
ulitsu. Leningrad, Lenizdat, 1962. 58 p. (MIRA 16:10)

1. Sekretar' partiynogo byuro motor-vagonnogo depo Leningrad-
Finlyandskiy (for Titskiy).
(Leningrad--Railroads--Employees)

1ST AND 2ND GROUPS

PROCESSES AND PROPERTIES INDEX

Denaturing paraffin and shale oils under atmospheric pressure. I. N. Titv. *Sci. Repts. Moscow State Univ* 1934, No. 3, 165-71. - S is quantitatively removed as H₂S from org. S compds. by passing the products over Ni-Al₂O₃ or Pt-Al₂O₃ at 350°. B. C. A.

22

CA

ASB. SLA METALLURGICAL LITERATURE CLASSIFICATION

1930-1939

1940-1949

1950-1959

1960-1969

1970-1979

1980-1989

1990-1999

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2010-2019

2020-2029

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PROCESSES AND PROPERTIES INDEX

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Ca

products under atmospheric pressure. I. Desulfurization in presence of 20, 40 and 60% nickel catalysts. I. N. Tits and Yu. K. Yur'ev. *Sci. Repts. Moscow State Univ.* 1956, No. 8, 350-81. The activity of freshly prepd. Ni catalysts falls during use to a const. value. The stable catalyst eliminates about half of the S content of petroleum products. The activity of catalysts contg. 20% Ni is less than 40% Ni and equal to those contg. 60% Ni. Evolution of H₂S begins after a certain time, the length of which is proportional to the Ni content of the catalyst. II. Desulfurization of kerosene fractions in a stream of pyrolysis gas. I. N. Tits, A. F. Plate and N. F. Glushnev. *Ibid.* 365-74. Satisfactory removal of S is achieved by passing the petroleum fraction over 40% Ni catalyst in a stream of pyrolysis gas from which olefines have been removed. B. C. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS
OPEN
MATERIALS INDEX

ALPHABETICALLY
BY SUBJECT

5-A
1751

10

Synthesis and fundamental constants of mixed sulfides with C_{11} - C_{20} carbon atoms. I. N. Tits-Skvertsova, S. Ya. Levina, A. I. Leonova, and T. A. Danilova (M. V. Lomonosov State Univ., Moscow). *Doklady Akad. Nauk S.S.S.R.* 74, 201-4(1950).—Equimolar amts. of RSH, KOH or NaOH, and RX in EtOH or MeOH are allowed to react by dropwise addn. of RSH to alkali in ROH at steam-bath temp., after which 0.5 hr. at 60-70° completes the formation of RSNa (or RSK); RX is similarly added and after 1.5-2.0 hrs. at 60-70°, the product is washed with H₂O, and its Et₂O soln. washed with 10% NaOH. Compds. obtained: $C_{11}H_{23}SPk$ (84%), b_p 170-1°, m. 21°, n_D²⁰ 1.5213, d₄²⁰ 0.8311; *Ph cyclopentyl sulfide* (65%), b_p 130.5°, n_D²⁰ 1.5740, d₄²⁰ 1.0371; *cyclohexyl decyl sulfide* (62%), b_p 161.5°, n_D²⁰ 1.4820, d₄²⁰ 0.8846 (best from $C_{11}H_{23}Br$; the reverse reaction gives only a 17% yield); *cyclopentyl decyl sulfide* (72%), b_p 153°, n_D²⁰ 1.4786, d₄²⁰ 0.8833; *cyclohexyl cyclopentyl sulfide* (67%), b_p 119-20°, n_D²⁰ 1.5118, d₄²⁰ 0.9092; *1-naphthyl decyl sulfide* (72%), b_p 211.5°, n_D²⁰ 1.5711, d₄²⁰ 0.9861; *1-naphthyl cyclohexyl sulfide* (31.1%), b_p 201.2°, n_D²⁰ 1.6308, d₄²⁰ 1.0653; *5,6,7,8-tetrahydro-2-naphthyl cyclohexyl sulfide* (34.9%), prepd. at 120°, best with RSNa, b_p 187.5-8.5°, n_D²⁰ 1.5800, d₄²⁰ 1.0543. G. M. K.

176T13

USSR/Chemistry - Petroleum

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"Synthesis and Catalytic Conversion of Aliphatic Sulfur Compounds Through Their Contact With Aluminosilicate Catalyst," I. N. TITS-SKVORTSOVA, S. Ya. LEVINA, A. I. LEONOVA, Ye. A. KARASEVA, Lab Petroleum Chem, Moscow State U

"Zhur Obshch Khim" Vol XXI, No 2, pp 242-250

Obtained aliphatic sulfides and disulfides with C₉ and C₁₀ from corr bromides, and aliphatic mercaptan of C₁₀ from C₁₀-disulfide. Concluded from passing compd formed over aluminosilicate catalyst: (1) At 250° mercaptans (decylmercaptan) form sulfides (di-decylsulfide) and alkenes (decene-1), at 300° only

176T13

USSR/Chemistry - Petroleum (Contd)

Feb 51

alkenes. (2) At 300° sulfides (dihonylsulfide) form alkenes and mercaptans. (3) Disulfides (dihonyldisulfide) form mercaptans which are partially converted into alkenes.

176T13

TITS-SKVORTSOVA, I. N.

USSR/Chemistry - Sulfur Compounds 21 Sep 51

"Transformation of Some Sulfur Compounds of the Aromatic Series (Dithioresorcinol, Thiocresol, Ditolyldisulfide and 2,6-Dimethylthianthrene) Over an Aluminum Catalyst," I. N. TITS-SKVORTSKOV, A. N. LEONOV, S. YA. LEVIN, Moscow State U Imeni Lomonosov

"Dok Ak Nauk SSSR" Vol LXXX, No 3, pp 377-380

Thiophenol reacts with hydrogen in 2 ways to form: (1) Benzene and H₂S; (2) thianthrene. Dithioresorcinol reacts with hydrogen to form toluene and H₂S. Diphenyldisulfide, when hydrogenated, splits

210T30

USSR/Chemistry - Sulfur Compounds 21 Sep 51
(Contd)

to form thiophenol. 2,6-Ditolylidysulfide splits to form thiocresol. 2,6-Dimethylthianthrene splits to form 2 molecules of parathiocresol.

210T30

TITS-SKVORTSKOV, I. N.

USSR/Chemistry - Organic Sulfur Compounds Jan 52

"Mixed Sulfides With a Number of Carbon Atoms From C11 to C20 and Their Basic Constants," I. N. Titsskvortsova, S. Ya. Levina, A. I. Leonova, T. A. Danilova, Lab of Petroleum Chem, Moscow Order of Lenin State U

"Zhur Obshch Khim" Vol XXII, No 1, pp 135-138

By interaction of metal derivs of aliphatic, aromatic, and naphthenic thioles with aliphatic and naphthenic halogen derivs, following mixed sulfides were synthesized and described for the 1st time:

207126

USSR/Chemistry - Organic Sulfur Compounds Jan 52
(Contd)

phenyl-, cyclohexyl-, cyclopentyl-, and α -naphthyl-decylsulfides; phenyl- and cyclohexyl-cyclopentyl-sulfides; α -naphthyl- and 3-tetrahydropentyl-cyclohexyl-sulfides. Yields were 62-84% except in cases with cyclohexyl halogenides, where they were 30-34% due to side-reaction of cyclohexene formation.

207126

TITSSKVORTSOVA, I. N.

232T11

TITS-SKVORTSOVA, I. N.

USSR/Chemistry - Sulfur Compounds, 1 Jun 52
Petroleum

"Transformation of Some Sulfur Compounds of the Naphthene Series Over an Aluminosilica Catalyst," I. N. TITS-SKVORTSOVA, A. I. LEONOVA, S. YA. LEVINA, Moscow State University M. V. LOMONOSOVA

"Dok Ak Nauk SSSR" Vol 84, No 4, pp 741-743

Cyclopentanethiol and cyclohexanethiol do not behave alike over an aluminosilica catalyst at 300°. Cyclopentanethiol, losing a mol of H₂S, becomes cyclopentane. The end product of

232T11

cyclohexanethiol is methylcyclopentane. Apparently, the following process takes place: cyclohexanethiol, losing an H₂S mol, becomes cyclohexane; cyclohexane isomerizes into methylcyclopentane which hydrogenates to methylcyclopentane. Dicyclopentyl sulfide becomes cyclopentane over an aluminosilica catalyst at 300°, the sulfur leaving the mol in the form of H₂S. Dicyclopentyl disulfide is reduced over an aluminosilica catalyst at 300° as a result of destructive hydrogenation into cyclopentane thiol, part of which, losing a mol of H₂S, turns into cyclopentane.

232T11

TITS-SKVERTSOVA, J.N.

Catalytic transformations over aluminosilicate catalyst of *p*-thiocresol, diphenyl disulfide, *p,p'*-ditolyl disulfide and 2,6-dimethylthianthrene. J. N. Tits-Skvertsova, O. I. Leonteva, S. Ya. Leykin, and I. A. Kuznetsov (M. V. Lomonosov State Univ., Moscow). *Sbornik State Obshchestv. Khim., Akad. Nauk S.S.S.R.* 1, 611-7 (1953).—The aromatic S deriva. listed above on contact with aluminosilicate catalyst at 300–500° suffer the most characteristic reaction of destructive hydrogenation. Thus, *p*-MeC₆H₄SSi changes in part to MePh; 2,6-dimethylthianthrene is not formed. Ph₂S₂ yields 2 mole PhSH, the latter then being converted to C₆H₆ and thianthrene. (*p*-MeC₆H₄)₂S₂ at first yields *p*-MeC₆H₄SH, which then is converted to MePh. 2,6-Dimethylthianthrene is totally decompd., yielding MeC₆H₄SH and being in part converted to C and H. Reduction of *p*-MeC₆H₄SO₂Cl with Zn dust in ice H₂SO₄ at 0° gave 78.6% *p*-MeC₆H₄SH, m. 43°; a 23.8% yield was obtained from *p*-MeC₆H₄MgBr and S after 2 hrs. refluxing, along with a low yield of (*p*-MeC₆H₄)₂S₂, b. 178–80°, m. 44.0–5° (from MeOH). Ph₂S₂, m. 60°, was obtained in poor yield from PhMgBr and S₂Cl₂ in Et₂O, along with much Ph₂S and PhBr. (*p*-MeC₆H₄)₂S₂, m. 47°, was obtained in 30.4% yield from 46 g. *p*-MeC₆H₄SO₂Cl and 30 g. *p*-MeC₆H₄SH in Et₂O in the presence of 33.3 g. powd. KOH. Stirring 40 g. *p*-MeC₆H₄SH with 200 ml. concd. H₂SO₄ in an open flask 20 hrs. gave 15.2 g. 2,6-dimethylthianthrene, pure product, 15%, m. 117° (from EtOH). G. M. K.

TITS-SKVORSOVA, I. N., LEONOVA, A. I., LEVINA, S. Ye. and KARASEVA, Ye. A.

Catalytic Conversion Over Alumosilicate Catalyst of p -Thiocresol, Diphenyl-
disulfide, pp'-Ditolylidissulfide and 2,6-Dimethyl ¹hianthrene, page 541, Sbornik
statey po obshchey khimii (Collection of Papers on General Chemistry), Vol I,
Moscow-Leningrad, 1953, pages 762-766.

Moscow State U, Chair of Petroleum Chemistry

117-SKODI 1300, 1/2

USSR •

✓ Synthesis and catalytic transformations of sulfur compounds of naphthene series on contact with aluminosilicate catalyst. L. S. Lila-Skyortova, A. A. Ledenova, and S. Ya. Levina (M. V. Lomonosov State Univ., Moscow). *Sbornik Statei Obshchei Khim.* 2, 1135-43 (1953). — KOH (28.1 g.) in 125 ml. EtOH satd. with H₂S with cooling and treated at reflux with 74.5 g. cyclopentyl bromide, then refluxed 1 hr. gave 52% cyclopentanethiol, b_m 129-31°, n_D²⁰ 1.4880, d₄ 0.9550, and 5.9% dicyclopentyl sulfide, b_m 133-4°, n_D²⁰ 1.5140, d₄ 0.9715. A 39.5% yield was obtained from cyclopentylmagnesium bromide and S. The pure thiol b_m 129.5-30.5°, n_D²⁰ 1.4871, d₄ 0.9551; the disulfide b_m 140.5-1°, n_D²⁰ 1.5482, d₄ 1.0340, formed in 5% yield from the Grignard synthesis. Cyclopentanethiol passed over aluminosilicate catalyst at 300° gave 33.1% cyclopentene, 10.5% unchanged thiol, 69.1% H₂S, a little CO, 4.65% olefins, 3.6% O, and 15.3% H; the reaction was run in N stream. Reaction of cyclohexylmagnesium bromide with S gave 60% cyclohexanethiol, b_m 88-9°, n_D²⁰ 1.4920, d₄ 0.9449, along with 3.4 g. corresponding disulfide, b_m 165-8°, n_D²⁰ 1.5170, d₄ 1.0478. The thiol passed in N over aluminosilicate catalyst at 300° gave 43% (on catalyze obtained in 49% yield) methylcyclopentane, 0.4% unchanged thiol, and much H₂S; the isolation of the hydrocarbon was preceded by treatment with 60% H₂SO₄ to remove unsatd. compds. (probably cyclohexene). Cyclohexane passed over the catalyst at 300° gave no change. Cyclohexene gave 27% methylcyclopentane and small amounts of methylcyclopentenes, along with aromatic substances. Cyclopentene over the aluminosilicate catalyst at 300° gave no reaction.

1/2
OUEK

TITS-SKVORTSOVA, I. N.; LEONOVA, A. I. and LEVINA, S. Ya.

Synthesis and Catalytic Conversion of Sulfur Compounds of the Naphthenic Series on Contact with an Aluminum Silicate Catalyst, page 1135, Sbornik Statey so obshchey khimii (Collection of Papers on General Chemistry), Vol II, Moscow-Leningrad, 1953, pages 1680-1686.

Moscow State U, Chair of the Chemistry of Petroleum

LITS - SKYVORTSOVA, I. M.

75

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

Catalytic transformations over aluminosilicate catalyst of thiophene, dithyresordiol, thianthrene, and diphenyl sulfide. I. M. Lits-Skyvortsova, A. I. Lebova, S. Ya. Levlin, and L. A. Kabanova (Moscow State Univ.). *Zhur. Khim. Khim.* 23, 303-10 (1953).—The various S derivs. were passed over the $Al_2O_3-SiO_2$ catalyst in N at space velocity 0.25. In all cases H_2S evolution was noted. PhSH was used at 200°, 300°, and 500°. In all cases the catalyzate was a mixt. of liquid and solid products distributed as follows: at 200° C_6H_6 49.5, thianthrene 11.1, and PhSH 7.7; at 300° 42.2, 15.9, and 6.6%, resp.; at 500° 30-3, 10-12.7, 14.6-17.7%, resp. Possibly more PhSH is retained by the catalyst at the lower than at the higher temp. (500°). Pure thianthrene m. 155° (from EtOH). $CISO_2H$ (1950 g.) heated with 195 g. C_6H_6 , 2 hrs. at 150-60°, cooled, and poured into ice, yielded 70.8% *m*- $C_6H_4(SO_2Cl)$, (29.2% pure), m. 61-1.5° (from petr. ether). This (75 g.) added to 180 g. Zn dust and 200 ml. H_2O at 50°, then heated with 20 g. Zn 10 min. to 70°, cooled, treated with dil. HCl (1 kg. concd. HCl and 500 ml. H_2O), then treated with 25 g. more Zn dust, stirred 2 hrs. at 20°, and the resulting ppt. extd. with Et_2O gave 77.7% *m*- $C_6H_4(SH)_2$, m. 28-8.6°, b_p 128-8.5°. Passage of this (20 g.) over the catalyst at 300° gave 23.1% catalyzate contg. C_6H_6 , 23.8, PhSH 11.9, 25.3% thianthrene, and 52.1% H_2S , along with CO_2 0.26, O 1.3, and H 10.5% in the off-gases. Thianthrene passed over the catalyst at 400° yielded 22% catalyzate which gave 36% C_6H_6 , some PhSH and 45% unchanged thianthrene. Addn. of 91 g. $AlCl_3$ to 177 g. C_6H_6 , then 85 g. S_2Cl_2 and 81.5 g. C_6H_6 at 10-13°, stirring 1 hr. without cooling and 1.5 hrs. at 30-40°, treatment with ice, filtration of the org. layer, evapn., soln. in MeOH, and refiltration from S gave 76.6% Ph_2S , b_p 162.5°, n_D^{20} 1.6312, d_4^{20} 1.1100. This passed over the catalyst at 300° gave 80% catalyzate contg. C_6H_6 8, thianthrene 13.7, and Ph_2S 55.2%; at 350° the yield was 50% with 20.6% C_6H_6 , 14.8% thianthrene, and a trace of Ph_2S ; at 450°, 45% with 35.3% C_6H_6 , and 14.7% thianthrene; at 500°, 55% with 64.6% C_6H_6 , and 11.3% thianthrene. PhSH was detected by odor in all cases.

G. M. Kosolapoff

MK
7-14-59

TITS-SKVORTSOVA; I. N.
Skvortsova, I. N.

USSR:

Catalytic transformations over aluminosilicate catalyst of
thiophenol, dihydroresorcinol, quinoline and diphenyl
sulfide. I. N. TITS-SKVORTSOVA, A. I. LEVINA, and
B. A. KURSEVICH. J. Gen. Chem. USSR 33.

317-26(1963) (Engl. translation). See CA 48:2647i
H. L. IL

TITS-SK VOR TSOVA, I.N.

Synthesis and catalytic transformations, on aluminosilicate catalyst, of β -thiotetralol, β -tetralyl nonyl sulfide, β -tetralyl cyclohexyl sulfide and β -tetralyl methyl sulfide. I. N. Tits-Skvortseva and T. A. Demilova (M. V. Lomonosov State Univ., Moscow). *Zhur. Obshchei Khim.* 23, 1354-92 (1953); cf. *Uchenye Zapiski Mosk. Gosudarst. Univ.* 151, 263 (1951).

—Passage of 1,2,3,4-tetrahydronaphthalene-2-thiol (I) over aluminosilicate catalyst at 300° in N gas 60% catalyzate and 21.3% H₂S. Considerable free S was found in the catalyzate, along with 33.9% tetrahydronaphthalene, 27.9% C₁₀H₈, and 6.8% starting material. Reaction of C₁₁H₁₈ with I, K salt (II), gave 68% 1,2,3,4-tetrahydro-2-naphthyl nonyl sulfide, b_p 218.5-9.5°, n_D²⁰ 1.5370, d₄ 0.9671, which, passed over the catalyst as above, gave 69.7% catalyzate and 19.3% H₂S. The catalyzate contained 26.8% tetrahydronaphthalene, 15.7% 1-nonenene, 12.4% I, 4.3% C₁₁H₁₈, and 3.8% nonyl mercaptan. The best yield (35%) of cyclohexyl 1,2,3,4-tetrahydro-2-naphthyl sulfide (III) (b_p 187.5-8.5°, n_D²⁰ 1.5590, d₄ 1.0513) was obtained from cyclohexyl chloride and I Na salt, on heating 10 hrs. at 115-23°; cyclohexene was a by-product. Cyclohexyl bromide gave lower yield (27%) even with II. The sulfide, passed over the catalyst as above, gave 81.7% catalyzate and 27.95% H₂S; the catalyzate contained 27.83% tetrahydronaphthalene, 18.48% I, 16.63% methylenecyclopentane, 6.96% C₁₁H₁₈, and 1% original sulfide. Reaction of MeI with II gave 74.87% 1,2,3,4-tetrahydro-2-naphthyl methyl sulfide, b_p 155°, n_D²⁰ 1.5920, d₄ 1.0711. This, passed over the catalyst as above, gave 74% catalyzate and 5.50% H₂S with 12.36% MeSH. The catalyzate contained 34.63% tetrahydronaphthalene, 36.30% C₁₀H₈, 15.53% Me₂S, and 5.63% I. Tetrahydronaphthalene passed over the catalyst alone gave 1.4% C₁₀H₈, 2.9% alkanes (mostly C₁₁H₁₈) and unchanged starting material; if the reaction is run in H₂S stream 4.64% C₁₁H₁₈ is obtained. III is unchanged on passage through an empty tube at 300°. G. M. Kosolapoff

C.A. V-48
Jan 10, 1954
Organic Chemistry

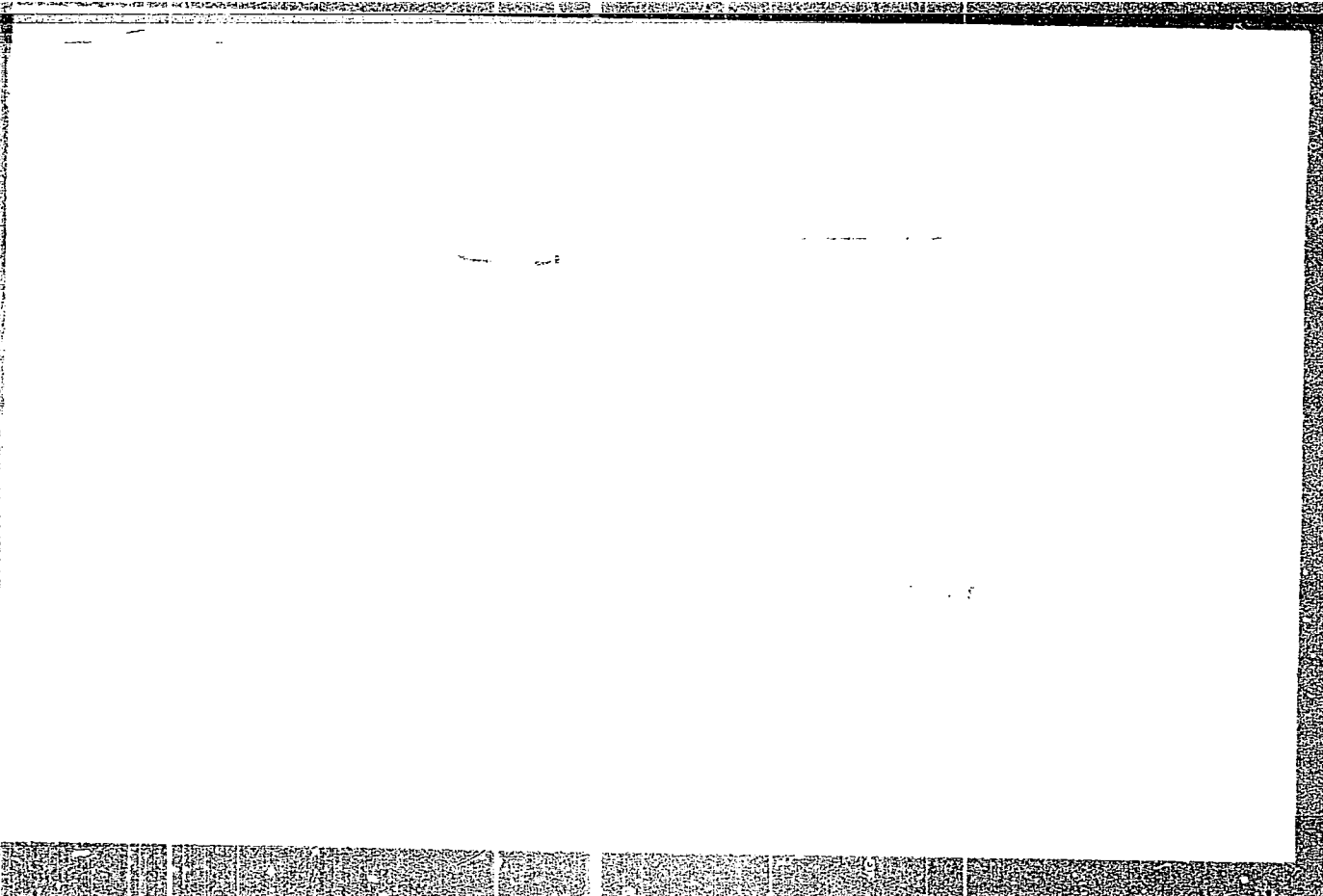
TITS-SKVORTSOVA, I.N.

Conversion of phenyl nonyl and α -naphthyl nonyl ether by using
an aluminum silicate catalyzer. Vest.Mosk.un. 9 no.6:81-89 Je '54.
(MLRA 7:8)

1. Kafedra khimii nefi.
(Catalysts)

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755910015-7



APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755910015-7"

DANILOVA, T.A.; TITS-SKVOITSOVA, I.N.

Synthesis and conversions of sulfur acyl- α -derivatives of
tetralin on aluminosilicate catalysts. Vest. Mosk. un. Ser. mat.,
mekh., astron., fiz. khim., 12 no. 5205-214 '57. (MIRA 11:9)

I. Kafedra khimii nefiti Moskovskogo gosudarstvennogo universiteta.
(Tetralin) (Catalysis)

5(3)

AUTHORS: Danilova, T.A., Tits-Skvortsova, I.N. SOV/55-58-2-21/35

TITLE: Synthesis and Catalytic Conversion of Sulfurous ac- β -
Derivatives of Tetralin With an Alumo - Silicate Catalyzer
(Sintez i kataliticheskiye prevrashcheniya na alyumosili-
katnom katalizatore sernistykh ac- β - proizvodnykh tetralina)

PERIODICAL: Vestnik Moskovskogo Universiteta. Seriya matematiki, mekhaniki,
astronomii, fiziki, khimii, 1958, Nr 2, pp 159-168 (USSR)

ABSTRACT: The ac- β - tiotetralol decomposes into hydrogen sulphide,
tetralin and naphthalene when it comes in contact with an
alumo - silicate catalyzer. In the presence of an alumo -
silicate the 1,4 - dihydronaphthalene suffers a conversion
of the type of the irreversible catalysis of Zelinskiy.
The influence of the benzene ring of the tetralin on the
stability of the combination of sulphur with the hexa-
methylen ring is expressed by the fact that this combination
can be split more easily than the same combination in the
molecule of the cyclohexylcyclopentisulphide.
There are 32 references, 10 of which are Soviet, 12 American,
6 German, 2 Japanese, and 2 Italian.

~~Card 1/2~~

Chair Petroleum Chem.

DANILOVA, T.A.; TITS-SKVORTSOVA, I.N.

Synthesis and catalytic conversions of sulfur α - β -derivatives
of tetralin over aluminosilicate catalysts. Vest.Mosk.un.Ser.
mat.,mekh.,astron.,fiz.,khim. 13 no.2:159-167 '58.
(MIRA 12:2)

1. Kafedra khimii nefi Moskovskogo universiteta.
(Nephthalene) (Catalysts)

S/081/61/000/022/021/076
B110/B138

AUTHORS: Tits-Skvortsova, I. N., Danilova, T. A.

TITLE: Synthesis and conversion of sulfurous tetralin derivatives on an aluminum silicate catalyst

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 22, 1961, 174, abstract 22Zh128 (Sb. "Khimiya seraorgan. soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh", M., AN SSSR, 1959, 174-182)

TEXT: The isomeric thiotetralenes 4-(Ia), 5-(IIa), 1-(IIIa) and 2-thiotetralenes (IVa) were synthesized, along with their sulfides (Ib, c, IIB-g, IIIb, c, IVb-d). (Substitute b = nonyl, c = cycloheptyl, d = phenyl, e = methyl, f = decyl, g = cyclohexyl). The catalytic conversions occurring in conducting I to IV over the aluminum silicate catalyst (AC) at 300°C and a volume velocity of $\sim 0.25 \text{ hr}^{-1}$ were examined. H_2S is always separated in the catalysis. The catalyzates are fractionally distilled. Ia and IIa form tetralin (V) which is converted

Card 1/2

Synthesis and conversion of...

S/081/61/000/022/021/076
B110/B138

into naphthalene. IVa forms a mixture of 1,2-(VI) and 1,4-dihydro-naphthalenes. Ila is thermally unstable and at 300°C forms VI in the absence of AC. The substances Ib, c, Iib, c, e-g decompose, the sulfur forming one of two bonds with the radicals. Ia or Ila and the appropriate RSH are separated. The two bonds are almost equivalent. In the case of Ila, the bond between S and the radical of V is broken, and thiophenol is separated. For Iiib, c and IVb-d, decomposition on the AC was only found where S is bonded with the V radical. The schemes proposed for I-IV decomposition are given. [Abstracter's note: Complete translation.]

Card 2/2

115-DAVUK/SOVA, I. V.

PHASE I BOOK EXPLOITATION

SOV/9911

Mezhuovskoye soveshcheniye po khimii nefli, Moscow, 1956.
Sbornik trudov Mezhuovskogo soveshcheniya po khimii nefli
(Collection of Transactions of the Inter-University Con-
ference on Petroleum Chemistry) [Moscow] Izd-vo Mosk-
univ., 1960. 311 p. Extra slip inserted. 1,600 copies
printed.

Organizing Committee of the Conference: Chairman: B. A.
Kazanskiy, Academician; Vice-Chairman: S. I. Khromov,
Docent; U. M. Pashchenko, Professor; A. F. Piatev, Pro-
fessor; Secretary: S. I. Khromov, Scientific Worker.
Editorial Board: Resp. Ed.: A. F. Piatev, I. V. Goshun-
skaya, I. R. Tikhonovskaya, L. A. Eryuzhanskaya.

NOTE: This collection of articles is intended for the
teaching staff of universities and schools of higher ed-
ucation training specialists for the petroleum and petroli-
um-refining industries.

Card 1/7

COMMENT: The collection includes articles dealing with the
present state of the petroleum industry, the scientific
research problems in petroleum chemistry, the scientific
of petroleum, the composition of petroleum and petroleum
products, the scientific principles of refining petroleum
into motor fuels and lubricants, and the manufacture of
synthetic products from hydrocarbon gases and petroleum.
One article discusses the effect of chemical composition
and additives on fuel combustion in jet engines. The ma-
terial was presented at the Inter-University Conference
on Petroleum Chemistry, held at the Moscow State Universi-
ty from 14-15 November 26-29, 1956. No personal
articles are mentioned. References accompany most of the
articles.

TABLE OF CONTENTS: None given

The authors and the titles of articles are as follows:

Introduction by B. A. Kazanskiy, Academician

Card 2/7

Collection of Transactions (Cont.)

SOV/4941

Obolentsev, R. D., Bashkirakiy filial AN SSSR (Bashkir Branch of the Academy of Sciences USSR). Specific Problems in Refining Sulfur-Bearing Crudes

128

Akishin, P. A., N. G. Rambidi, I. N. Tits-Skvortsova, and Yu. K. Yur'yev, Moscow State University imeni M. V. Lomonosov. Study of the Raman Spectra of Certain Sulfur-Containing Compounds

146

Dorogochinskiy, A. Z., Groznenskiy neftyanoy nauchno-issledovatel'skiy institut i Groznenskiy neftyanoy institut (Groznyy Petroleum Scientific Research Institute and Groznyy Petroleum Institute). Alkylation Reactions in the Industrial Synthesis of Hydrocarbons and Some of Their Derivatives

163

Oborin, V. I., M. S. Ostrikov, I. V. Rostovtseva, and O. L. Arutyunova, Groznyy Petroleum Institute. Effect of the Porosity of Silica-Base Catalysts on the Cracking

Card ~~5/7~~

S/189/60/000/003/012/013/XX
B003/B067

AUTHORS: Tits-Skvortsova, I. N., Danilova, T. A., Kuvshinova, N. N.

TITLE: On the Changes of the Individual Sulfur Compounds on the Alumosilicate Catalyst at 300 and 400°C

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2. khimiya. 1960, No. 3, pp. 61-65

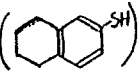
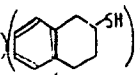
TEXT: The authors studied the changes of various organic sulfur compounds caused by passing them above alumosilicate catalysts at 300 and 400°C. Reference is made to earlier papers of the authors in which the behavior of organic S-compounds at 300°C was studied with the same catalyst under the same conditions. The author of this paper attempted to determine the temperature effect on the catalytic reactions. The results are the following: At 300°C aliphatic S-compounds are divided into two parts each at the S-bond (decyl mercaptan → decene + H₂S, dinonyl sulfide → nonyl mercaptan + nonene, dinonyl disulfide → 2 nonyl mercaptan). At 400°C these compounds are cracked under the formation of gasoline (boiling interval 35-155°C) with a 43-48.4% yield. The remaining part consists of

Card 1/4

On the Changes of the Individual Sulfur
Compounds on the Alumosilicate Catalyst
at 300 and 400°C

S/189/60/000/003/012/013/XX
B003/B067

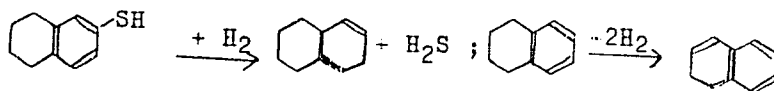
resinification products. At 300°C S-compounds of the naphthene series produce hydrocarbons which can be identified (Refs. 3,4) under cleavage of H₂S. Because of the almost quantitative reaction process (76-94%) this class of substances was not studied at 400°C. From among the hydroaromates two isomeric β-thiotetraloles were studied with the SH group

(ar)  and/or in the alicyclic part (ac) . At 300°C the following was obtained from ar: 22% S (as H₂S), 7% initial substance, 42% tetralin, 28% naphthalene. With ac the following was obtained: 95% S (as H₂S), 45% tetralin, 40% naphthalene. With ar the following was obtained at 400°C: 98% S. (as H₂S), 24% tetralin, 48% naphthalene. From ac 95% S (as H₂S), 72% naphthalene were obtained. The authors explain these processes in the following way:

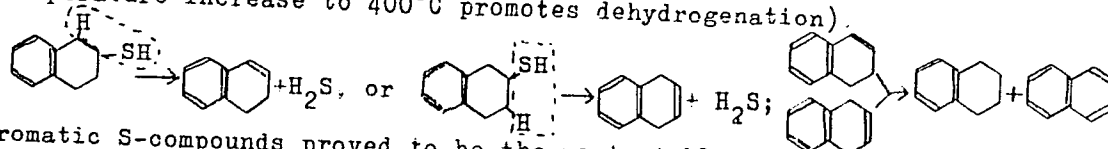
Card 2/4

On the Changes of the Individual Sulfur Compounds on the Aluminosilicate Catalyst at 300 and 400°C

S/189/60/000/003/012/013/XX
B003/B067



(temperature increase to 400°C promotes dehydrogenation)



Aromatic S-compounds proved to be the most stable. They are essentially changed only at 500°C (Ref. 7). 7) Thiophenol, benzene, diphenyl sulfide, benzene, thianthrene, thiocresol, toluene, n,n-ditolyl disulfide n-thiocresol + toluene. In general it may be said that a temperature increase from 300 to 400°C (and/or 500°C) does not change the kind of the final products but only the quantitative ratios. Zelinskiy is mentioned. There are 1 table and 9 Soviet references. ✓

ASSOCIATION: Moskovskiy universitet, Kafedra khimii nefi (Moscow University, Chair of Petroleum Chemistry)

Card 3/4

TITS-SKVORTSOVA, I.N.; DANILOVA, T.A.; KUZNETSOV, B.V.

Reactions of an aqueous solution of mercury acetate with some
organic sulfides and thiols. Khim.sera-i azotorg.soed.sod.v neft.i
nefteprod. 3:75-80 '60. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Mercury acetate) (Sulfide) (Thiols)

5.3620

78292
SOV/79-30-3-46/69

AUTHORS: Danilova, T. A., Tits-Skvortsova, I. N., Navosel'tsev, I. I.

TITLE: Synthesis and Conversions of ar- β - and ac- β -Tetra-lyl Phenyl Sulfides Over an Alumina-Silica Catalyst (Symbols ar and ac show that the substituents are in the benzene or in the hexamethylene ring of tetralin)

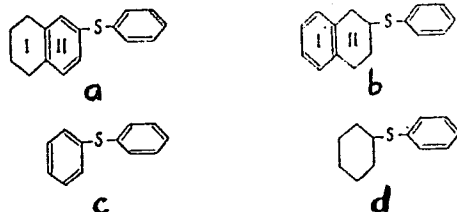
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 962-966 (USSR)

ABSTRACT: In connection with previous studies (I. N. Tits-Skvortsova, S. Ya. Levina, A. I. Leonova, Ye. A. Karaseva, Uch. Zap. MGU, 132, 254, 1950, and others), two new sulfides of tetralin series were synthesized, and their conversions over an alumina-silica catalyst at 300° were studied. This work was undertaken in order to prove the mutually weakening effect of one tetralin ring on the sulfur bond in the second tetralin ring.

Card 1/4

Synthesis and Conversions of ar- β - and
ac- β -Tetraaryl Phenyl Sulfides Over an
Alumina-Silica Catalyst

78292
SOV/79-30-3-48/69



(a) ar- β -tetraaryl phenyl sulfide; (b) ac- β -tetraaryl
phenyl sulfide; (c) diphenyl sulfide; (d) cyclohexyl
phenyl sulfide

ar- β -Tetraaryl phenyl sulfide (65%), light-yellow
liquid, bp 189-190° (5 mm), n_D^{20} 1.6338, d_4^{20} 1.1177,
was obtained as follows: Add ar- β -thiotetralol
to alcoholic KOH (at 70-75°); then add by small por-
tions phenyldiazonium chloride solution; heat the
mixture on a water bath until the evolution of N₂

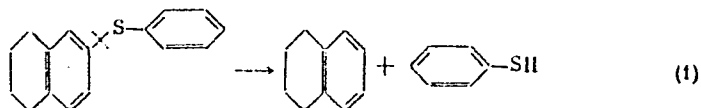
Card 2/4

Synthesis and Conversions of ar- β - and
ac- β -Tetra-lyl Phenyl Sulfides Over an
Alumina-Silica Catalyst

78292

SOV/79-30-3-46/63

ceases) extract with ether, and distill over metallic Na under vacuum. ac- β -Tetra-lyl phenyl sulfide (40.3%), bp 184.5-185.5° (3 mm), n_D^{20} 1.6229, d_4^{20} 1.1263, was obtained by the general method for mixed sulfides (F. Krüger, J. Pr. Ch., (2), 14, 206; 1876). Analysis of the products of catalytic conversion of ar- β -tetra-lyl phenyl sulfide over alumina-silica catalyst at 500°, show that the conversion proceeds according to the assumed scheme:



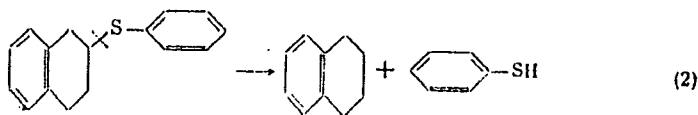
It was found that the conversion of ac- β -tetra-lyl phenyl sulfide also proceeds according to the assumed scheme:

Card 3/4

Synthesis and Conversions of ar- β - and
ac- β -Tetralyl Phenyl Sulfides Over an
Alumina-Silica Catalyst

78292

SO7/79-30-3-46/59



Thus, it was proved that the tetralin hexamethylene ring has a weakening effect on the sulfur bond with the aromatic ring. There are 2 tables; and 13 references, 2 U.S., 1 U.K., 4 German, 6 Soviet. The U.S. and U.K. references are: F. D. Rossini, Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds (1953); H. I. Waterman, H. H. O. Span, Booy H., van Nesk, J. Inst. Petrol., 36, Nr 317, 281 (1950); W. Karo, R. L. McLaughlin, H. F. Nipsher, J. Am. Chem. Soc., 73, 3233 (1953).

ASSOCIATION:

Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED:

March 30, 1959

Card 4/4

5.3620

78297
SOV/79-30-3-51/69

AUTHORS: Tits-Skvortsova, I. N., Danilova, T. A., Markov, M. A.,
Stepanova, I. I., Osipenko, Ts. D.

TITLE: Synthesis and Conversions of Sulfur Compounds of
Naphthalene Series Over an Alumina-Silica Catalyst

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 985-
991 (USSR)

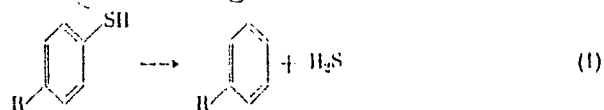
ABSTRACT: The following compounds were synthesized and their
conversions over an alumina-silica catalyst at 300°
was studied. α - Thionaphthol (72%), bp 143-144°
(6 mm); β -thionaphthol (80%), mp 79-80°; α -naphthyl
decyl sulfide (72%); α -naphthyl cyclopentyl sulfide
(45.6%), bp 168-168.5° (2 mm), n_D^{20} 1.6419, d_4^{20} 1.1193;

β -naphthyl decyl sulfide (68%), bp 209-219° (2.5 mm),
mp 34-35°; β -naphthyl cyclopentyl sulfide (65%),
bp 187.5-188° (4 mm), n_D^{20} 1.6455, d_4^{20} 1.1052. This

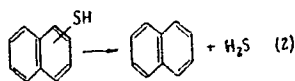
Card 1/5

Synthesis and Conversions of Sulfur Compounds
of Naphthalene Series Over an Alumina-Silica
Catalyst78297
SOV/79-30-3-51/69

study was undertaken to see whether the conversions of the thionaphthols over the above catalyst at 300° proceed similarly to the conversions of aromatic thiols under the same conditions. Conversions of aromatic thiols proceed as authors showed (DAN SSSR, 80, 377, 1951; ZhOKh, 21, 212, (1951); and others), according to the following scheme:



It was found that both α - and β -thionaphthols undergo an identical conversion over this catalyst at 300°, according to the following scheme:



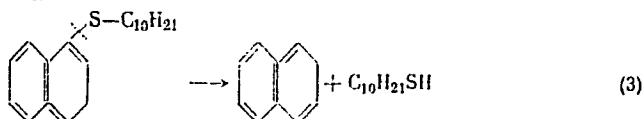
Card 2/5

Synthesis and Conversions of Sulfur Compounds
of Naphthalene Series Over an Alumina-Silica
Catalyst

78297

SOV/79-30-3-51/69

Comparison of schemes 1 and 2 shows that the isomeric α - and β -thionaphthols and aromatic thiols undergo similar conversions over the same catalyst at the same temperature. α -Naphthyl decyl sulfide decomposes over the catalyst at 300° to form naphthalene (36%, of weight of catalyst), decyl mercaptan (13.1%), decen (7.8%), and H₂S, according to scheme:



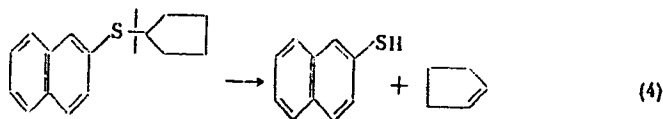
α -Naphthyl cyclopentyl sulfide decomposes over the catalyst to form naphthalene (40% of weight of catalyst), cyclopentanethiol (6.6%), dicyclopentyl sulfide (2.2%) and H₂S. The reaction proceeds also analogously to scheme 3. Catalytic decomposition of β -naphthyl cyclopentyl sulfide under above conditions results in the formation of β -thionaphthol (15.6% of weight of catalyst), cyclopentene (10.2%),

Card 3/5

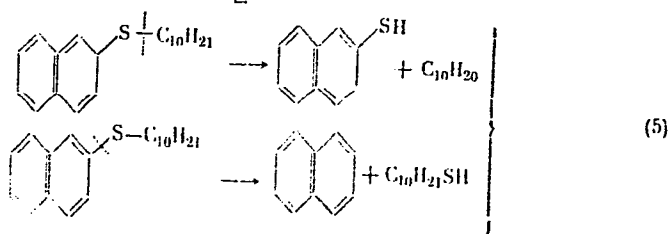
Synthesis and Conversions of Sulfur Compounds of Naphthalene Series Over an Alumina-Silica Catalyst

78297
SOV/79-30-3-51/69

naphthalene (43.5%) and H₂S, according to a different scheme:



Catalytic decomposition of β -naphthyl decyl sulfide under the same conditions results in the formation of: β -thionaphthol (1.1% of weight of catalyst), decyl mercaptan (6%), naphthalene (30.5%), decene-decane fraction (4.2%) and H₂S, according to:

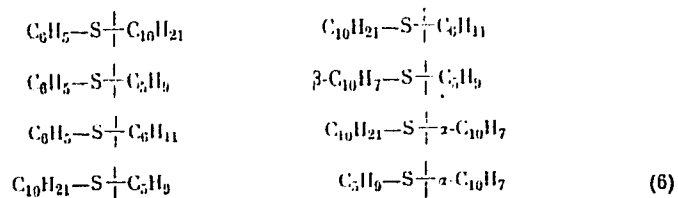


Card 4/5

Synthesis and Conversions of Sulfur Compounds
of Naphthalene Series Over an Alumina-Silica
Catalyst

78297
SOV/79-30-3-51/69

The comparative strength of the sulfur bond with
different radicals is shown in scheme 6:



There are 3 tables; and 14 references, 1 U.S., 1 Dutch,
4 German, 8 Soviet. The U.S. reference is: E. D.
Rossini and others, Selected Physical Values and
Thermodynamic Properties of Hydrocarbons and Related
Compounds (1953).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy
universitet)

SUBMITTED: March 5, 1959
Card 5/5

84877

5.3620

S/079/60/030/010/018/030
B001/B066

AUTHORS: Tits-Skvortsova, I. N., Rybnikova, A. A., and
Kuvshinova, N. N.

TITLE: Synthesis and Catalytic Transformations of α -Decyl
Thiophane by Means of an Alumino-silicate Catalyst

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10,
pp. 3316 - 3319

TEXT: The authors synthesized the hitherto unknown α -decyl thiophane (V) by applying the general method of synthesizing α -alkyl thiophanes by R. D. Obolentsov and V. G. Bukharov (Ref.1). The present paper describes these data and contact transformations by means of an alumino-silicate catalyst. The following intermediates were obtained: α -nonyl-furyl carbinol (I); ethyl ester of γ -ketotetradecanoic acid (II); 1,4-tetradecanediol (III); 1,4-dibromo-tetradecane (IV) (which have not been described as yet). They were synthesized in the following way: Compound (I) from furfurole according to Grignard, by the general method of synthesizing alkyl-furyl carbinols (Ref.2); compound (II) by boiling

Card 1/3

84877

Synthesis and Catalytic Transformations of
 α -Decyl Thiophane by Means of an Alumino-
silicate Catalyst

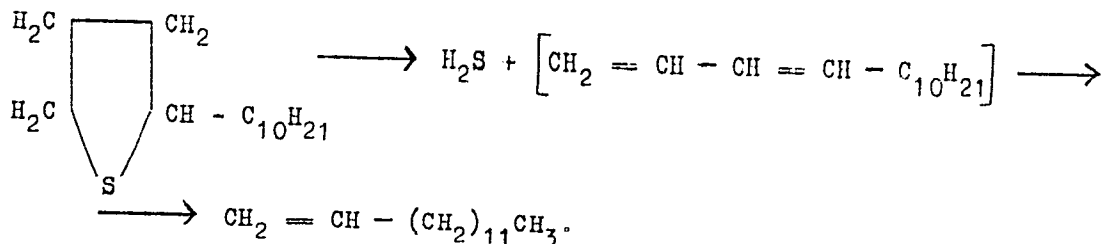
S/079/60/030/0:0/018/030
B001/B066

α -nonyl-furyl carbinol in anhydrous alcohol to which HCl was added (Refs. 2 and 3); compound (III) by reduction of the ethyl ester of γ -ketotetradecanoic acid with lithium-aluminum hydride; compound (IV) by reaction of 1,4-tetradecanediol with dry HBr. α -decyl thiophane (V) X was obtained by reaction of 1,4-dibromo-tetradecane with Na₂S dissolved in alcohol. This reaction offers a good yield and gives a pure end product. α -decyl thiophane decomposes on an alumino-silicate catalyst at 300°C to give hydrogen sulfide and tetradecene-1. Unchanged α -decyl thiophane was found in the catalyate. The cleavage of α -decyl thiophane may be illustrated by the following Scheme:

Card 2/3

84877

Synthesis and Catalytic Transformations of α -Decyl Thiophane by Means of an Alumino-silicate Catalyst S/079/60/030/010/018/030 B001/B066



The behavior of cyclic sulfides thus differs from that of aliphatic sulfides, which form mercaptanes and alkenes under the same conditions of catalysis (Ref.4). There are 6 references: 5 Soviet. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 26, 1959

Card 3/3

S/081/62/000/005/040/112
B151/B101

AUTHORS: Tits-Skvortsova, L. N., Rybnikova, A. A., Kuvshinova, N. N.

TITLE: Transformation of α -decylthiophane in the presence of an aluminosilicate catalyst.

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 5, 1962, 264, abstract 5Zh238 (Sb. "Khimiya seraorgan. soyedineniy, soderzhashchikhsya v neft'yakh i nefteproduktakh. v. 4". M., Gostoptekhizdat, 1961, 136-140)

TEXT: The reaction between furfural and $C_9H_{19}MgBr$ is used to obtain α -nonylfurylcarbinol (I) (here and later the calculated yields in %, b. p. in $^{\circ}C/mm$ Hg, m. p. in $^{\circ}C$, n_D^{20} and d_4^{20}): 76, 144-145/5, 3.9, 1.4665, 0.9326; by the action of HCl and C_2H_5OH I is converted to the ethyl ester of α -keto-tetradecanic acid (II), 35, 142-144/3, 17, 1.4508, 0.9227; by the reduction of II with $LiAlH_4$ tetradecandiol-1,4 (III) is

Card 1/2

Transformation of α -decylthiophane ... S/081/62/000/005/040/112
B151/B101

obtained; 73-98, 172-174/5, 57.3, -, -; by the reduction with HBr gas III is converted to 1,4-dibromo-tetradecane (IV), 70, 182-184/9, -, 1.4857, 1.2174; by the reaction of IV with Na_2S α -decylthiophane (V) is obtained; 75-80, 148.5-149/5.5, -, 1.4804, 0.8959; the complex with HgCl_2 has a m. p. 47.5°C . The contact conversion of V on an aluminosilicate catalyst (ASC) is studied. V is passed with a volume rate of 0.3 hrs^{-1} over ASC (73.3% ASC on the wt. of V) in a stream of N_2 at 300°C . H_2S is obtained in a yield of 53.7% (on the S content in V) and tetradecene-1, $\text{C}_{14}\text{H}_{28}$, b. p. $80-82^\circ/8 \text{ mm Hg}$, n_D^{20} 1.4383, d_4^{20} 0.7841. [Abstracter's note: Complete translation.]

Card 2/2

S/001/62/000/009/032/075
3158/3101

AUTHORS: Tit's-ekvortsova, I. K., Danilova, T. A., Markov, M. A.,
Stepanova, I. I., Osipenko, Ts. D.

TITLE: Conversion of organosulfur compounds of the α - and β -naphthalene series in the presence of an aluminosilicate catalyst

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 9, 1962, 228, abstract
Zh180 (Zh. "Khimiya seraorgan. soyedineniy, soderzhashchikhsya
v neft'yakh i nefteproduktakh. v. 4", L., Gostoptekhzdat, 1961,
141 - 144)

TEXT: Contact conversions of organosulfur compounds of naphthalene as carried out at 300°C on an aluminosilicate catalyst under conditions described earlier (Zh. obshch. khimiya, v. 21, 1951, 242) are reexamined. α - and β -thionaphthols (α - and β -I) were synthesized for research, α - and β -naphthyldecylsulfides (α - and β -II) and α - and β -naphthylcyclopentylsulfides (α - and β -III) synthesized for the first time. It was found that under these conditions α -I and β -I are converted to $C_{10}H_8$ and H_2S similarly to the thiophenols studied earlier the respective yields being 52 and 42%
Card 1/2

Conversion of organosulfur compounds ...

S/081/62/000/009/032/075

B158/B101

by weight of catalyst. As established previously (see UCh, zap. MGU, v.151, 1953, 263), in the case of mixed sulfides of the C_6H_5SR type (R being an alkyl or cycloalkyl), the bond between the sulfur and R is always ruptured. In the case of α -II, it was found that $C_{10}H_8$ and $C_{10}H_{21}SH$ are formed with further conversion of the latter to $C_{10}H_{20}$ and H_2S . α -III also decomposes in the same way, forming $C_{10}H_8$ and cyclopentanethiol with subsequent conversion of the latter to dicyclopentylsulfide and H_2S . β -III under these conditions decomposes to δ -I, cyclopentene, $C_{10}H_8$ and H_2S . In the case of α -II, δ -I, $C_{10}H_{21}SH$, a decene-decane fraction and H_2S were detected. Consequently the bond between the sulfur and the benzene ring in mixed sulfides is much more stable and was not ruptured in any of the cases examined. The bond between the sulfur and the $C_{10}H_8$ in the α -position is far less stable. The bond between the sulfur and the alkyl and naphthyl in the α -position is more stable than that between the sulfur and naphthene rings.

[Abstracter's note: Complete translation.]

Card 2/2

S/081/62/000/010/045/085
B168/B180

AUTHORS: Tits-Skvortsova, I. N., Danilova, T. A., Kuvshinova, N. M.

TITLE: Transformation of organosulfur compounds at 300 and 400°C
in the presence of an aluminosilicate catalyst

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 10, 1962, 189,
abstract 10Zh99 (Sb. "Khimiya seraorgan. sovedineniy,
soderzhashchikhsya v neftyakh i nefteproduktakh.
v. 4". M., Gostoptekhnizdat, 1961, 132-155)

TEXT: The transformation of organosulfur compounds of various classes
was studied on an aluminosilicate catalyst at a temperature of 400-500°C.
In the case of $C_9H_{19}SH$, $C_9H_{19}SC_9H_{19}$ and $C_9H_{19}SSC_9H_{19}$ cracking accompanied
by formation of the gasoline fraction is the principal reaction at 400°C.
In the case of ar- and ac-β-thiotetralols on an aluminosilicate catalyst
at 400°C no processes occur other than those which take place at 300°C.
When aromatic organosulfur compounds are brought into contact with an
aluminosilicate catalyst and the temperature raised to 500°C, only the
quantitative ratio of the reaction products varies, but not the direction

Card 1/2

Transformation of organosulfur ...

S/081/62/000/010/045/085
B168/B180

of the decomposition processes. [Abstracter's note: Complete translation.]

Card 2/2

S/061/61/000/023/016/061
B117/B147

AUTHORS: Rybnikova, A. A., Tits-Skvortsova, I. N., Nordov, E.

TITLE: Hydrogenolysis of sulfurorganic compounds on aluminum-cobalt-molybdenum catalyst

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 23, 1961, 190 - 191, abstract 23Zh128 (Dokl. Akad. Nauk SSSR, v. 1, no. 1, 1961, 190 - 191)

TEXT: For the first time, conversions of thiolenes, sulfides, and disulfides of the aliphatic and aromatic series on an aluminum-cobalt-molybdenum catalyst (AMC) were studied systematically in a static system at hydrogen pressure under conditions of partial hydrogenolysis. Decomposition diagrams of: (a) thiolenes (n-nonyl mercaptan and thiophenol), and (b) sulfides (di-n-nonyl sulfide and diphenyl sulfide) are suggested. According to diagram (a), the process takes place in two directions:
 $RSR + H_2 \rightarrow H_2S + RH$ and $2RSR \rightarrow H_2S + RSR$. It was found that the hydrogenolysis of sulfur compounds of the aliphatic and aromatic series proceeds according to similar diagrams. It was shown that some sulfur compounds were partly converted into other ones in the desulfurization on AMC and
Card 1/3

Hydrogenolysis of sulfurorganic...

S/081/61/000/023/016/061
B117/B147

that hydrocarbons were the final product; sulfur was precipitated as hydrogen sulfide. The sulfur compounds used in this study were synthesized according to methods described in the literature (Tita-Skvortsova, I. N., et al., *Zh. obshch. khimii*, 21, 1951, 242; *Zh. obshch. khimii*, 31, 1953, 303. *Sb. statey po obshchey khimii*, 1, 1953, 541) and characterized by the main constants. Constants of these compounds are also given on the basis of published data. Approximately 30 g of the substance investigated and 3 g of AMC are heated in the autoclave for 5 hr at 300°C. Initial hydrogen pressure is 40 atm. After cooling, H₂S is absorbed in ammoniacal zinc sulfate solution. Some ether is added to the liquid catalyzate, the catalyst is filtered off, and the catalyzate fractionated. Initial substance, conversion percentage, products obtained, and their yields in moles per 100 moles of converted substance are as follows: n-onyl mercaptan (I), 65.0, H₂S, n-nonane (II), di-n-onyl sulfide (III), 58.9, 55.2, 14.3; thiophenol (IV), 72.1, H₂S, C₆H₆, dioneop sulfide (V), 72.8, 70.9, 8.7; (III), 45.5, H₂S, (II) (I), 32.2, 108.5, 30.2; (V), 52.0, H₂S, C₃H₆, (IV), 73.5, 76.9, 10.1; di-n-onyl disulfide,

Card 2/3

Hydrogenolysis of sulfurorganic...

S/081/61/000/023/016/061
B117/B147

100, H₂S, (II), (I), (III), 59.2, 33.9, 104.7, 10.0; diphenyl sulfide,
98.7, H₂S, C₆H₆, (IV), (V), 48.2, 13.7, 97.8, 11.5. 7 references.

[Abstracter's note: Complete translation.]

✓
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Card 3/3

1. Katalizatori

Conversion of...
catalysts. West. Med. Soc. Ser. 1958, 10, 1-10.

1. Katalizatori...
(Soviet)

DANILOVA, T.A.; ~~TITS-SKVOETSOVA~~, I.N.; KUZNETSOV, B.V.; NASYROV, I.

Interaction of mercury acetate aqueous solution with organic
sulfur compounds. Vest.Mosk.un.Ser.2: Khim. 17 no.2:72-75
Mr-Ap '62. (MIRA 15:4)

1. Kafedra khimii nefi Moskovskogo universiteta.
(Mercury acetate) (Sulfides)

DANILOVA, T.A.; TITS-SKVORTSOVA, I.N.; NASYROV, I.; KUZNETSOV, B.V.

Reaction of an aqueous solution of mercury acetate with sulfur
organic compounds. Vest. Mosk. un. Ser. 2: Khim. 20 no.2:79-90
Mr-Ap '65. (MIRA 18:7)

1. Kafedra khimii nefiti Moskovskogo universiteta.

Z/011/62/019/001/014/017
E073/E136

AUTHORS: Rybnikova, A.A., and Tits-Skvortsova, I.N.

TITLE: Hydrogenolysis of organic sulphur compounds on
aluminocobaltomolybdenum catalysts

PERIODICAL: Chemie a chemická technologie. Přehled technické a
hospodářské literatury, v.19, no.1, 1962, 35,
abstract Ch 62-483. (Neftekhimiya, v.1, no.1, 1961,
104).

TEXT: The conversion of mercaptans, sulphides and
disulphides of aliphatic and aromatic compounds under conditions
of partial hydrogenolysis is studied. For the aliphatic and
aromatic series, a similar conversion scheme applies. It is a
complicated process, during which the sulphur compounds become
mutually transformed and the final result is the formation of
hydrocarbons and of hydrogen sulphide.
3 tables, 7 references.

[Abstractor's note: Complete translation.]

Card 1/1

ACCESSION NR: AT3001315 S/2933/63/005 000 0183 0187

AUTHOR: Rubinshteyn, I. A. Churshakov, Ye. S. Razhkov, V. Dautler, E. A.

TITLE: Effect of sulfides and mercaptans on the corrosiveness of diesel fuels

Исследования влияния меркаптанов и сульфидов на коррозионную активность дизельного топлива

Влияние меркаптанов и сульфидов на коррозионную активность дизельного топлива зависит markedly on their nature and chemical composition.

L 8426-6

ACCESSION NR: AT3001315

experiments was satisfactory. The effect of various sulfides and mercaptans on the pro-

ment of various processes and mechanisms the

... were synthesized at the Kafedra

Card 2/5

ACCESSION NR: AT3001315

khimii nefti, MGU im. M. V. Lomonosova (Department of Petroleum Chemistry, Moscow State University) and the Institut organicheskoy khimii Baob'AN SSSR (Institute of Organic Chemistry, Bashkir Branch, AN SSSR), respectively." Orig. art. has 3 figures and 3 tables. 2

ASSOCIATION: None

SUBMITTED: 00

ENCL: 01

SUB CODE: 5D

NO REF SOV: 0-1

OTHER: 0-1

Card 3/5

ACCESSION NR: AT3001315

ENCLOSURE: 01

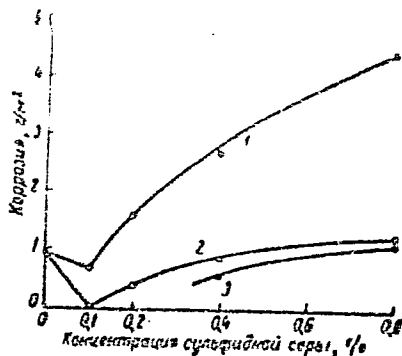


Fig. Effect of sulfides on the corrosivity of hydrorefined diesel fuel:

1 - dibenzylsulfide; 2 - diheptylsulfide; 3 - dibenzylsulfide (in an atmosphere of N₂).

Ordinate: corrosion in g/m²; abscissa: concentration of sulfide S in %.

4/5

ACCESSION NR A F3001315

ENCLOSURE 02

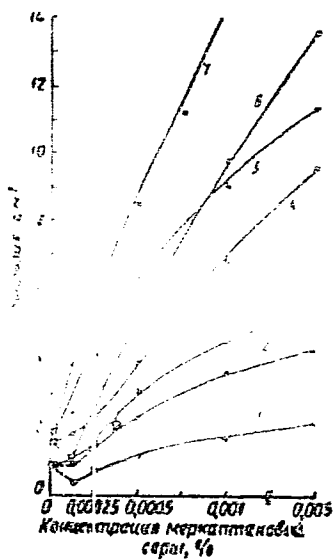


Fig. 2. Effect of mercaptans on the corrosivity of hydrorefined diesel fuel:
1 - decylmercaptan; 2 - p-thiocresol;
3 - benzylmercaptan; 4 - 7-thionaphthol;
5 - cyclohexylmercaptan; 6 - phenylthylmercaptan.

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

S TITTEL, O. 1

Hungarian Deposits Suitable for Producing Bentonite. O. Tittel. (Bányászati és Kohászati Lapok, 1949, vol. 4, Nov., pp. 490-495). [In Hungarian]. The prospects of finding suitable deposits for producing bentonite in Hungary are discussed and the attention of the Hungarian reader is drawn to the fact that the term 'bentonite' is also used in Hungary for certain aluminium hydrosilicates which do not show the properties characterizing bentonite as understood in other countries.—R. O.

COMMON ELEMENTS

MATERIALS INDEX

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

GROUP #

1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

cA

TITEL OSZKAP

9

Bentonite as a secondary material in foundries. Ozkár
Titel. *Bányász. Közle. Lapok* 82, 400-5(1949).
For the evaluation of Hungarian bentonites as secondary
materials in foundries, the amt. of water should be detd.
which is required to obtain solidification in 24 hrs. Ben-
tonites of first quality take up 15-times their own vol.,
water absorption in the 2nd group is 10-times, in the 3rd
group 7-times as much as the vol. of the sample. Thixo-
tropy and film formation on drying are 2 characteristic
properties of bentonites suitable for application in foundries.
I. Pintér

V. G. TITTENBRUN, I.

Energy

49

6'09

Tittенбрун, V. G. Systematization of the Campaign to Save Energy

On systematization of energy saving measures. Prizdat Tekhnicheskoy No. 9, 1950, pp. 149-157, 2 tabs.

The necessity for action to combat waste of energy. The article deals with: 1) selection of the most suitable carriers of energy; 2) rationalization of technical processes; 3) proper organization of the consumption of energy; 4) reduction of losses of energy in existing installations. The necessity to pursue enquiries for the purpose of determining the "consumption index". An example of detailed computation of consumption standards for electric energy in collective farms and for country, a plan for power economy.

TITTENBRUN, Boguslaw, doc. inz.;NOWAKOWSKI, Romuald, mgr inz.

Utilization of large electrothermal receivers for power
load control. Energetyka Pol 17 no. 7:202-207 J1 '63.

TITTEMBRUN, B.

TITTEMBRUN, B. The conception of turbine units in analyzing the work of an electric-power plant. p. 297.

Vol. 9, No. 6, Nov./Dec. 1955

ENERGETYKA

TECHNOLOGY

Warszawa, Poland

So: East European Accession, vol. 5, No. 5, May 1956

TITTENERUN, B.

TITTENERUN, B. The need of drying transformers. p. 131

Vol. 10, no. 3, May/June 1957

ENERGETYKA

POLITICAL SCIENCE

Warszawa, Poland

So: East European accession Vol. 4, No. ~~2~~ 3, March 1957

TITTENBRUN, J.

2.

POL 3

621.314.2.048 : 621.315.615.2

1483. Moisture in transformers and its removal. B.
TITTENBRUN. *Energetyka* [Katowice] 8, No. 3,
129-34 (1954) In Polish.

Physical laws governing moisture migration in transformer oil and insulation are stated. Methods of determining whether moisture in transformer insulation approaches dangerous levels are discussed together with methods of moisture removal. Covering of transformers during overhauls, whenever possible, to prevent contact with large quantities of moisture-laden air is recommended. J. LUKASZEWICZ

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39664
S/056/62/043/001/014/056
B125/B102

AUTHORS: Titts, T., Boychek, L.

TITLE: A formula for calculating phase shifts in the case of Thomas-Fermi and Hartree potentials

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 1(7), 1962, 87-88

TEXT: In the case of Thomas-Fermi and Hartree potentials, the formula

$$a_l = -\frac{4Z}{\pi} \sum_l c_l \int_0^{\pi/2} \frac{\varphi \cos(2l+1)\varphi}{\sqrt{(b_l/\mu)^2 + 8E \sin^2 \varphi}} \ln \frac{\sqrt{(b_l/\mu)^2 + 8E \sin^2 \varphi} + 2\sqrt{2E} \sin \varphi}{\sqrt{(b_l/\mu)^2 + 8E \sin^2 \varphi} - 2\sqrt{2E} \sin \varphi} d\varphi. \quad (7)$$

for small phase shifts $\delta_1^{(1)} + \delta_1^{(2)} + \dots$ can be used to calculate the correction $\delta_1^{(2)}$ to the Born shift $\delta_1^{(1)}$. This formula is convenient for practical calculations. The relation

$$\delta_l^{(1)} = \frac{Z}{\sqrt{2E}} \sum_l c_l Q_l \left(1 + \frac{1}{2} \left(\frac{b_l}{\mu \sqrt{2E}} \right)^2 \right). \quad (6)$$

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A formula for calculating phase ...

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describes the Born shift, and Q_l are Legendre polynomials of the second kind. The subscript i in (6) and (7) varies between 1 and 3, depending on the value of the atomic number. Its exact value can be found in:
W. T. Byatt. Phys. Rev., 104, 1298, 1956. After the determination of a_l from (7) $\delta_l^{(1)}$ can be calculated from

$$\delta_l^{(2)} = \frac{2}{\pi} \left(a_l - \frac{\delta_l^{(1)}}{2l+1} \right) \delta_l^{(1)}; \quad a_l = - \left(\frac{\partial \delta_p^{(1)}}{\partial p} \right)_{p=l+1/2} \quad (5)$$

and (6). Eq. (7) is much better suited for $l = 1, 2$ than the phase $\delta_l^{(1)}$ derived by Born's method. There are 2 tables.

ASSOCIATION: Institut teoreticheskoy fiziki pri universitete v Lodzi,
Pol'sha (Institute of Theoretical Physics at the Łódź
University, Poland)

SUBMITTED: November 8, 1961

Card 2/2

L 14740-65 EWT(1) ASD(a)-5/As(imp)-2

ACCESSION NR: AP5000540

S/0051/64/C17/006/0805/0808

AUTHOR: Titts, T.

TITLE: Analytic method for an approximate determination of the eigenfunctions and energies of electrons in atoms

SOURCE: Optika i spektroskopiya, v. 17, no. 6, 1964, 805-808

TOPIC TAGS: Schrodinger equation, electron energy, eigenvalue, x ray line

ABSTRACT: The author solves the single-electron Schrodinger equation by using exact numerical values of the Thomas-Fermi function for a free neutral atom. The method of F. Rasetti (Rend. Lincei, v. 7, 915, 1928; Zs. Phys. v. 49, 546, 1928) is used to determine the eigenfunctions and energies of the electrons in the atoms. By using the derived formulas and tables of the exact Thomas-Fermi functions rather than the approximate analytic equation as in the

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ACCESSION NR: AP5000540

past) it becomes possible to calculate analytically the eigenvalues and the energies of the electrons in the deepest s, p, d, and f energy states. The x-ray terms obtained in this manner agree with those obtained experimentally as well as with those calculated by the Hartree method. Orig. art. has: 13 formulas and 2 tables.

ASSOCIATION: Lodz University, Poland

SUBMITTED: 29Jun62

ENCL: 00

SUB CODE: OP, GP

NR REF SOV: 000

OTHER: 005

2/2

24 (5)

AUTHOR:

Titts, T.

SOV/56-37-1-44/64

TITLE:

On the Methods of Born and Pais for the Detection of Phase Shifts (O metodakh Borna i Paysa dlya nakhozheniya fazovykh sdvigov)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 1, pp 294 - 295 (USSR)

ABSTRACT:

It is a known fact that, in cases when Born's approximation is found to be useless for the detection of phase shifts, a more exact method, such as that of Pais, is used. The author of the present "Letter to the Editor" gives a short description of the two approximation methods with respect to the plane shifts; Born's and Pais' approximation formula for them are written down. In the following, the exactness of each of the two methods

is compared for a concrete case, viz. for (n,p)-scattering at

100 Mev. $V_0 = 45$ Mev and $\alpha^2 = 0.266 \cdot 10^{26} \text{ cm}^{-2}$. Results:

Pais' approximation	$\eta_1 = 0.534$	$\eta_2 = 0.221$
Born's approximation	$\eta_1 = 0.487$	$\eta_2 = 0.197$
Second Born's approximation	$\eta_1 = 0.552$	$\eta_2 = 0.231$

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On the Methods of Born and Pais for the Detection of Phase Shifts SOV/56-37-1-44/64

Pais' approximation thus gives much better results than the first of Born. There are 4 references, 1 of which is Soviet.

ASSOCIATION: Universitet g. Lodz', Pol'sha (University of the City of Łódź, Poland)

SUBMITTED: February 2, 1959

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86907

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B006/B077

24.4500

AUTHOR: ~~Titts, T.~~

TITLE: Scattering of Electrons in the Thomas-Fermi Model

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 5(11), pp. 1347-1348

TEXT: The author offers a calculation of the differential elastic scattering cross section of electrons using the statistical atom potentials as proposed by Latter (Ref. 1)

$$V(r) = \begin{cases} -(Ze^2/r) \Phi(x), & Z \Phi(x) > 1 \\ -e^2/r, & Z \Phi(x) < 1 \end{cases} \text{ in Thomas-Fermi approximation.}$$

($\Phi(x)$ is the Thomas-Fermi function for the neutral atom). This ansatz for the potential yields more accurate energy values for the atom than the Hartree method. The author obtains for the differential cross section

$$I(\vartheta) = \frac{3^{8/3} h^4 Z^{2/3}}{2^{34/3} \pi^{4/3} e_m^2} \left[\int_0^{x_0} \Phi(x) \sin Px \, dx + \frac{\cos Px_0}{ZP} \right]^2, \text{ where } \vartheta \text{ is the}$$

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Scattering of Electrons in the Thomas-Fermi Model

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scattering angle, $Z \Phi(x_0) = 1$, $P = \frac{3^{2/3} h v \sin(\theta/2)}{2^{7/3} \pi^{1/3} e^2 Z^{1/3}} = \frac{3^{2/3} h^2 \sin(\theta/2)}{2^{7/3} \pi^{1/3} e^2 m Z^{1/3} \lambda}$

(v - electron velocity, λ - the corresponding wavelength). Using equation (5) for $I(\theta)$ the cross sections are calculated for Ne, Si and S. In the table the values are compared with the results obtained by employing the Hartree method in first Born approximation. A more exact study showed that the results of both methods agree quite well for large Z but exhibit a large deviation for small values of Z . The author thanks Professor P. Gombash for his interest and Ya. Vatso for aid in the computations. There are 1 table and 4 references: 2 Soviet, 1 US, and 1 Japanese.

ASSOCIATION: Lodzinskiy universitet Pol'sha (Lodz University, Poland)

SUBMITTED: June 4, 1960

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S/056/60/039/005/024/051
B006/B077

$\frac{10^{-4}}{\lambda} \sin \frac{\theta}{2}, \frac{1}{\text{см}}$	$\frac{10^4}{5,68} I(\theta), \text{ см}^2$					
	Ne		SI		S	
	по Хартри	по (5)	по Хартри	по (5)	по Хартри	по (5)
0,1	4900	26708	70000	38346	57600	44555
0,2	3900	6315	13200	11053	17400	13707
0,3	2180	2936	4150	5189	6130	6428
0,4	1220	1465	1830	2468	2600	3021
0,5	700	716	1000	1206	1340	1487
0,6	420	375	610	660	770	832
0,7	256	221	400	412	480	527
0,8	156	146	275	275	324	350
0,9	106	101	188	185	222	233
1,0	72	70	130	125	160	141
1,1	49	49	94	89	116	97

Card 3/3

" TITS, T.

Electronic polarizability and diamagnetic susceptibility of neutral atoms in the Thomas-Fermi model. Zhur. eksp. i teor. fiz. 40 no.6:1699-1704 Je '61. (MIRA 14:8)

1. Lodzinskiy universitet, Pol'skava narodnaya respublika.
(Atoms)
(Diamagnetism)

TITTS, T.

Scattering of electrons in the Thomas-Fermi model. Zhur.eksp.i
teor.fiz. 39 no.5:1347-1348 N '60. (MIRA 14:4)

1. Lodzinskiy universitet, Pol'sha.
(Electrons--Scattering)

USTINOV, V.S.; ARHIYUNOV, E.A.; MASLENNIKOV, I.P.; TSELUYKO, I.M.;
KULIKOV, L.F.; ~~Prilozheniye~~: MOL'SKAYA, I.Ya.;
TITUKHINA, L.V.

Increasing magnesium recovery during the remelting of a
condensate of magnesium metal and magnesium chloride.
TSvet. met. 37 no.11:75-78 N '64. (MIRA 13:4)

L 45675-66 EWT(m)/T DJ

ACC NR: AP6023623

SOURCE CODE: UR/0318/66/000/004/0019/0021

AUTHOR: Rogacheva, L. M.; Kazanskiy, V. L.; Titurenko, S. G.; Beschastnov, M. V. 27ORG: Kuybyshev Scientific Research Institute of Petroleum Refining, (Kuybyshevskiy^B nauchno-issledovatel'skiy institut po pererabotke nefi)TITLE: Production of the antiseize additive ²di(alkylbenzyl) disulfide in an experimental industrial unit

SOURCE: Neftepererabotka i neftekhimiya, no. 4, 1966, 19-21

TOPIC TAGS: antiseize additive, sulfurization, chloromethylation, ~~sulfide~~ sulfide

ABSTRACT: In order to determine the exact technological conditions of the process for the industrial production of the antiseize additive di(alkylbenzyl) disulfide (ABS-2)¹¹ and to prepare an experimental batch of oil with the additive for extended performance tests, an experimental run was conducted on an experimental industrial unit. The synthesis usually consists of three steps: (1) chloromethylation of a mixture of aromatic hydrocarbons with Formalin and HCl; (2) reaction of the chloromethyl derivatives thus obtained with aqueous sodium sulfide to form di(alkylbenzyl) disulfide; (3) purification of the latter to remove active sulfur compounds. The results of the experimental industrial run indicate that the technological process of production of ABS-2 does not require any complex apparatus and can be carried out on typical chemical plant equipment in two stages: (1) chloromethylation producing alkylbenzyl chloride and (2) sul-

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UDC: 665.4:66.022.313:547.569.3

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ACC NR: AP6023623

furization of the latter. The efficiency of the chloromethylation of aromatic hydrocarbons obtained from the heavy component of hydroforming is largely determined by the rate of stirring of their mixture with Formalin and concentrated HCl. In quality, the ABS-2 obtained with the experimental industrial unit is identical to the additive produced under laboratory conditions; however, its viscosity and density are higher. Orig. art. has: 1 figure.

SUB CODE: 11

Card 2/2^{fv}

PEAVDINA, K.I.; TIUNOV, L.A.

Effect of X rays on the xanthine oxidase and aldehyde dehydrogenase activity in the livers of white rats. Med.rad. 4 no.12:81-82 D '59.

(MIRA 13:5)

(LIVER radiation off.)

(OXIDASES metab.)

(DEHYDROGENASES metab)

TIUNOV, K.V.

Upper Cretaceous sediments of the Greater Balkhan Range.
Izv. AN Turk. SSR. Ser. fiz.-tekh. khim. i geol. nauk
no.3:49-56 '65. (MIRA 18:12)

1. Kugitanskaya geologo-razvedochnaya ekspeditsiya GPGK
Turkmenskoy SSR. Submitted Sept. 29, 1964.

PALIYENKO, E.T.; TIUNOV, K.V.

Geomorphological structure and history of the development
of the relief of the Greater Balkhan Range. Izv. AN Turk.
SSR, Ser. fis.-tekhn., khim. i geol. nauk no.5:44-48 '65.
(MIRA 18:11)

FENIKSOVA, R.V.; RODIONOVA, N.A.; TIUNOVA, N.A.; ULEZLO, I.V.; SAFONOV, V.I.

Study of cellulolytic enzymes of *Myrothecium verrucaria*. Dokl. AN
SSSR 162 no.3:702-704. My '65. (MIRA 18:5)

1. Institut biokhimii im. A.N.Bakha AN SSSR. Submitted August 17, 1964.

TITYUNIK, G.N.; SHAPIRO, V.Ya.

Mechanical properties of aluminum alloy pipe in relation to
the degree of deformation during drawing. TSvet. met. 38 no.5:
76-78 My '65. (MERA 18:6)

CHECHET, Yuriy Sergeyevich, prof. (1894-1960); TITUNIN, A.Ya.,
red.

[Miniature electrical machines of automatic systems]
Elektricheskie mikromashiny avtomaticheskikh ustroystv.
Izd.2., ispr. Moskva, Energiia, 1964. 423 p.
(MIRA 18.1)

SHAKHNO, I.V.; PLYUSHCHEV, V.Ye.; TITUNINA, Ye.M.; SAMUSEVA, R.G.

Solubility in the system $\text{Na}_2\text{CrO}_4 - \text{Cs}_2\text{CrO}_4 - \text{H}_2\text{O}$ at 25 and
50°C. Zhur. neorg. khim. 8 no.6:1466-1469 Je '63.
(MIRA 16:6)

(Alkali metal chromates)
(Solubility)

TIUNOV, L.A.; VASIL'YEV, G.A.

Effect of cytochrome on the radioprotective action of carbon
monoxide. Radiobiologiya 3 no.5:766-769 '63. (MIRA 17:4)

SVETLOV, B.Ya., kand.tekhn.nauk; SOLNTSEVA, R.N., inzh.; TITUSHINA, M.I.,
inzh.

Granular explosives for charging flooded boreholes in opencut
workings. Vzryv.delo no.44/1:40-57 '60. (MIRA 13:7)
(Explosives)
(Strip mining)

SOV/51-5-1-1/19

AUTHORS: Titushina, V.P. and Fabrikant, V.A.

TITLE: Investigation of the Radiation Flux Divergence of the 2537 Å Line in a Mercury Discharge (Issledovaniye divergentsii potoka izlucheniya linii 2537 Å v rtutnom razryade)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 1, pp 3-9 (USSR)

ABSTRACT: Under steady-state conditions the divergence of radiation at a given point is given by the difference in the number of collisions per unit time which excite atoms and the number of collisions which de-excite these atoms. If the excited atoms are not affected by secondary processes, such as collisions of the second kind or cumulative excitation, the radiation divergence ($\text{div } G$) should be proportional to the electron density (n_e). In this case the curves of distribution of $\text{div } G$ and n_e across the discharge tube should be similar. If the secondary processes are important then the curves of distribution of $\text{div } G$ and n_e across the tube should be different. The authors investigated the 2537 Å line in a positive column of an arc discharge in low-pressure mercury vapours. Construction of the discharge tube was similar to that described by Klyarfel'd (Ref 4).

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Investigation of the Radiation Flux Divergence of the 2537 Å Line in a Mercury Discharge

The discharge tube diameter was from 32-38 mm, the length of the positive column was 450-500 mm. Measurements were made at various pressures of mercury from 2×10^{-4} to 1.5×10^{-2} mm Hg and currents from 0.2 to 2.5 amperes d.c. A vibrating luminescent probe was used with its surface parallel to the discharge-tube axis. The vibrating probe method was described in detail by Titushina (Ref 6). Div G was calculated from the brightness of the probe emission, which was measured. Simultaneously with optical measurements the authors found the electron temperature and density using Langmuir and Mott-Smith probes. Fig 1 shows the distribution across the tube of the radiation divergence (black dots) and electron density (open circles). Both these quantities are given in the form of ratios of the value at a particular point to the value at the discharge-tube axis. At low pressures (5×10^{-4} mm Hg) and $\text{div } G / (\text{div } G)_0$ curve (subscript 0 denotes the value at the discharge-tube axis) falls faster at the tube walls than the n_e/n_{e0} . At pressures of the order of 6×10^{-3} mm Hg the two curves coincide, but at higher pressures (1.5×10^{-2} mm Hg) the $\text{div } G / (\text{div } G)_0$ curve falls more slowly than the electron density. The differences between the two curves indicate that in the pressure regions around 10^{-4}

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SOV/51-5-1-1/19

Investigation of the Radiation Flux Divergence of the 2537 Å Line in a Mercury Discharge

and 10^{-2} mm Hg secondary processes are important in the mechanism of excitation of atoms to the 6^3P_1 level. At pressures of the order 10^{-4} mm Hg and discharge currents of 0.5 A the secondary processes intensified emission of radiation. At pressures near 1.5×10^{-2} mm Hg and discharge currents of 0.5 and 1 A different secondary processes are active and they quench resonance radiation. Fig 2 shows the dependence of the ratio $\text{div } G/n_e$ at the discharge-tube axis on the current. Fig 3 shows the discharge current dependence of $\text{div } G/n_e$ at a distance of 0.8 R (R is the tube radius) from the axis. In Figs 2 and 3 numbers 1, 2, 3, 4 refer to pressures of 5×10^{-4} , 3×10^{-3} , 6.5×10^{-3} and 1.5×10^{-2} mm Hg respectively. A short theoretical treatment of the observed effects is given. It relates the radiation divergence to the probability of primary excitation processes and the probability of secondary processes (intensification or quenching of emission) as well as to the electron density. It is concluded that the mechanism of excitation to the 6^3P_1 level is complex and it is determined by diffusion of radiation and the electron density. There are 3 figures and 6 Soviet references.

Card 3/3

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Institute) 1. Radiation
 SUBMITTED: July 4, 1957 --Theory 2. Discharge tubes--Properties 3. Atoms--Excitation
 4. Secondary emission 5. Mercury--Applications