L 21085-65 EPA(s)-2/EWT(l)/EWT(m) DIAAP/IJP(c)/AS(mp)-2 GG
ACCESSION NR: AP5001982 S/0020/64/159/006/1257/1260

AUTHOR: Gal'perin, F. M.

19

TITLE: Effective magnetic fields on the atomic nuclei of ferromagnets 21

SOURCE: AN SSSR. Doklady, v. 159, no. 6, 1964, 1257-1260

TOPIC TAGS: ferromagnet, effective magnetic field, atomic magnetic moment, conductio electron, crystal magnetic field

ABSTRACT: In view of the fact that present-day theory cannot account rigorously for the large effective magnetic fields acting on the atomic nuclei of ferromagnets, the author derives empirical relations for the calculation of the effective field with an aim at comparing them with the experimental results. The relation obtained for the pure metals Fe, Co and Ni is

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$$H_{eff} = -[10^2 m/\mu_B - H_s] \text{ kOe}, \quad (1)$$

where m -- atomic magnetic moment, μ_B -- Bohr magneton, and H_s is the product of the number of unpaired conduction electrons in the 4s band of the metal (N_s) by the negative contribution (H_A) made by the 4s electron to H_{eff}. The values obtained experimentally for H_{eff} and for N_s are in agreement with experiment and with direct measurements of H_s made by investigating the Mossbauer effect on Sn^{119} nuclei dissolved in Fe, Co, and Ni. Tables are presented of the magnetic fields on the nuclei Fe^{57} in ferromagnetic alloys and on the nuclei of diamagnetic elements in Fe, Co and Ni. In the latter case, the fields depend essentially on the host metal. This report was presented by N. V. Belov. Orig. art. has: 2 formulas, 2 figures, and 3 tables.

L 21085-65
ACCESSION NR: AP5001982

ASSOCIATION: None

SUBMITTED: 07Oct64

ENCL: 00

SUB CODE: SS, EM

NR REF SOV: 004

OTHER: 016

Card 3/3

GAL'PERIN, F.M.

Magnetic moment and magnetic field on the nucleus of a ferromagnetic atom. Dokl. AN SSSR 165 no.5:1041-1044 D '65. (MIRA 19:1)

1. Submitted May 6, 1965.

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

L 15171-66 EWT(1) IJP(c)
ACC NR: AP6002419 SOURCE CODE: UR/0020/65/165/005/1041/1044

AUTHOR: Gal'perin, F. M.

ORG: none

5/
B

21, 44, 55

TITLE: Magnetic moment and field on the nucleus of a paramagnetic atom

SOURCE: AN SSSR. Doklady, v. 165, no. 5, 1965, 1041-1044

TOPIC TAGS: paramagnetic alloy, nuclear magnetic moment, crystal structure, transition metal, magnetic field, nucleus

21, 44, 55

ABSTRACT: The author shows that the magnetic moment and field on the nucleus of an atom are associated with the crystal structure of a paramagnetic material and that this relationship may be used to explain a number of important phenomena. The distances between an atom and its closest neighbor in the crystal structure of transition elements in the iron group are compared with the average radii of the 3*d*-shells in the atoms. For this purpose, the author introduces the characteristic interatomic distance R:

$$R = 0{,}13\,[(C/2)^2 - 5{,}75C + 51] \quad \text{for} \quad C \geqslant 8,$$

$$R = 0{,}13\,[(C/2)^2 - 4{,}75C + 43] \quad \text{for} \quad C \leqslant 8, \qquad (1)$$

UDC: 539.262

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APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

L 15171-66

ACC NR: AP6002419

0

where C is the electron concentration (the total number of $3d$-and $4s$-electrons) in an isolated atom. The author introduces the parameters p_a and $\bar{p}$ for binary unordered paramagnetic alloys:

$$p_a = 0,64\Sigma n_i(r_i - R_a)\,/\,A, \quad \bar{p} = 0,64\Sigma n_i(r_i - \bar{R})\,/\,A, \qquad (2)$$

where n_i is the number of atomic neighbors; i=1 for closest neighbors; i=2 for next closest neighbors; c_a is the atomic concentration of the component in the alloy, $\bar{R} = c_aR_a+c_bR_b$. A table is given showing A-moments and the parameter p for pure transition elements in the iron group. These data show that for all transition elements except nickel, $p<0$ while for nickel $p>0$. A formula is given for the localized atomic magnetic moment in Bohr magnetons. Tables are given showing the A-moments for iron in iron-nickel and iron-chromium alloys as well as the magnetic moments and fields on the nuclei of atoms in solid solutions. A critical concentration is observed for both systems of alloys when the magnetic moment of the b-metal (Fe in the first alloy and Cr in the second) reverses its orientation. A formula is given for the effective magnetic field on the a-atom of Fe-Ni and Fe-Cr solid solutions. Experimental data show that the effective magnetic field on the nucleus of an iron atom in nickel is less than 300,000 oersteds, while the effective field on the nucleus of an iron atom in cobalt is greater than 300,000 oersteds. Extrapolation of

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ACC NR: AP6002419

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the linear sections of curves for nickel and cobalt concentration as a function of the effective magnetic field to 100 at.% Fe gives an effective magnetic field of 360,000 oersteds which is close to the theoretical value on the nuclei of cobalt and nickel atoms dissolved in iron. Orig. art. has: 3 figures, 4 tables, 3 formulas.

SUB CODE: 20/ SUBM DATE: 04Apr65/ ORIG REF: 001/ OTH REF: 015

Card 3/3

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERIN, G.

Equipment for riveting brake linings and friction clutch rings. Avt. transp. 36 no. 7:47 Jl '58. (MIRA 11:8)
(Automobiles--Maintenance and repair)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERIN, G., elektrik

USSR

Electric pan serves longer. Obshchestv. pit. no.7:39 Jl '62.
(MIRA 15:10)

(Kitchen utensils)

GAL'PERIN, G.

PANCHENKO, A., kandidat tekhnicheskikh nauk; GAL'PERIN, G., kandidat tekhnicheskikh nauk.

Roll reducing gear. Muk.-elev.prom. 20 no.12:18-21 D '54.
(MLRA 8:3)

1. Odesskiy tekhnologicheskiy institut imeni I.V.Stalina.
(Grain milling machinery)

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERIN, G., kandidat tekhnicheskikh nauk; BANIT, Ye., inzhener.

Ventilating grain in silos by means of air ducts with louvered outlets. Muk.-elev.prom. 21 no.1:13-14 Ja '55. (MLRA 8:5)

1. Odesskiy tekhnologicheskiy institut im. I.V.Stalina.
(Grain--Storage)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERIN, G., kandidat tekhnicheskikh nauk.

Installing machinery in drying and cleaning towers at the time of construction. Muk.-elev.prom.22 no.10:8-9 O '56. (MLRA 9:12)

1. Odesskiy tekhnologicheskiy institut.
(Grain elevators) (Grain-handling machinery)

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERIN, G., kandidat tekhnicheskikh nauk; KOTLYAR, L., kandidat tekhnicheskikh nauk.

Design of separators for drying and cleaning towers. Muk.-elev. prom. 23·no.3:3-5 Mr '57. (MLRA 10:5)

1. Odesskiy tekhnologicheskiy institut im. I.V. Stalina.
(Separators (Machines))

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

SIMONOVICH, M., kand.tekhn.nauk; GAL'PERIN, G., kand.tekhn.nauk.

Wear of the cutters of roller-cutting machines. Muk.-elev. prom. 26 no.2:28-30 F '60. (MIRA 13:6)

1. Odesskiy tekhnologicheskiy institut im. I.V.Stalina. (Metal-cutting tools)

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERIN, G., kand.tekhn.nauk; PEYSAKHOVICH, A., inzh.; SUKHOY, L., inzh.

Investigating the performance of the feeding mechanism of sieve middlings purifiers. Muk.-olev. prom. 27 no.4:29-31 Ap '61. (MIRA 14:7)

1. Odesskiy tekhnologicheskiy institut imeni I.V. Stalina.
(Sieves)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERIN, G., kand. tekhn. nauk; PEYSAKHOVICH, A., inzh.;
KOVALEV, Yu., inzh.; SUKHOY, L., inzh.

Fastening pulleys and gears in roller mills. Muk.-elev. prom.
28 no.1:18-19 Ja '62. (MIRA 16:7)

1. Odesskiy tekhnologicheskiy institut (for Gal'perin,
Peysakhovich). 2. Direktor Odesskogo mel'nichnogo kombinata
No.2 (for Kovalev). 3. Proyektno-konstruktorskiy institut
UKRGiprostanok (for Sukhoy).
(Flour mills—Equipment and supplies)

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERIN, G., inzh.; PEYSAKHOVICH, A., inzh.

Multiwheel transmission between shafts. Muk.-elev. prom. 28 no.10:25-26 O '62. (MIRA 16:1)

1. Odesskiy tekhnologicheskiy institut imeni Lomonosova.
(Flour mills--Transmission devices)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERIN, G.

Operation of a new type of warehouse. Mor.flot 26 no.1:
16-17 Ja '66. (MIRA 19:1)

1. Zamestitel' nachal'nika Liyepayskogo porta.

1ST AND 2ND ORDERS

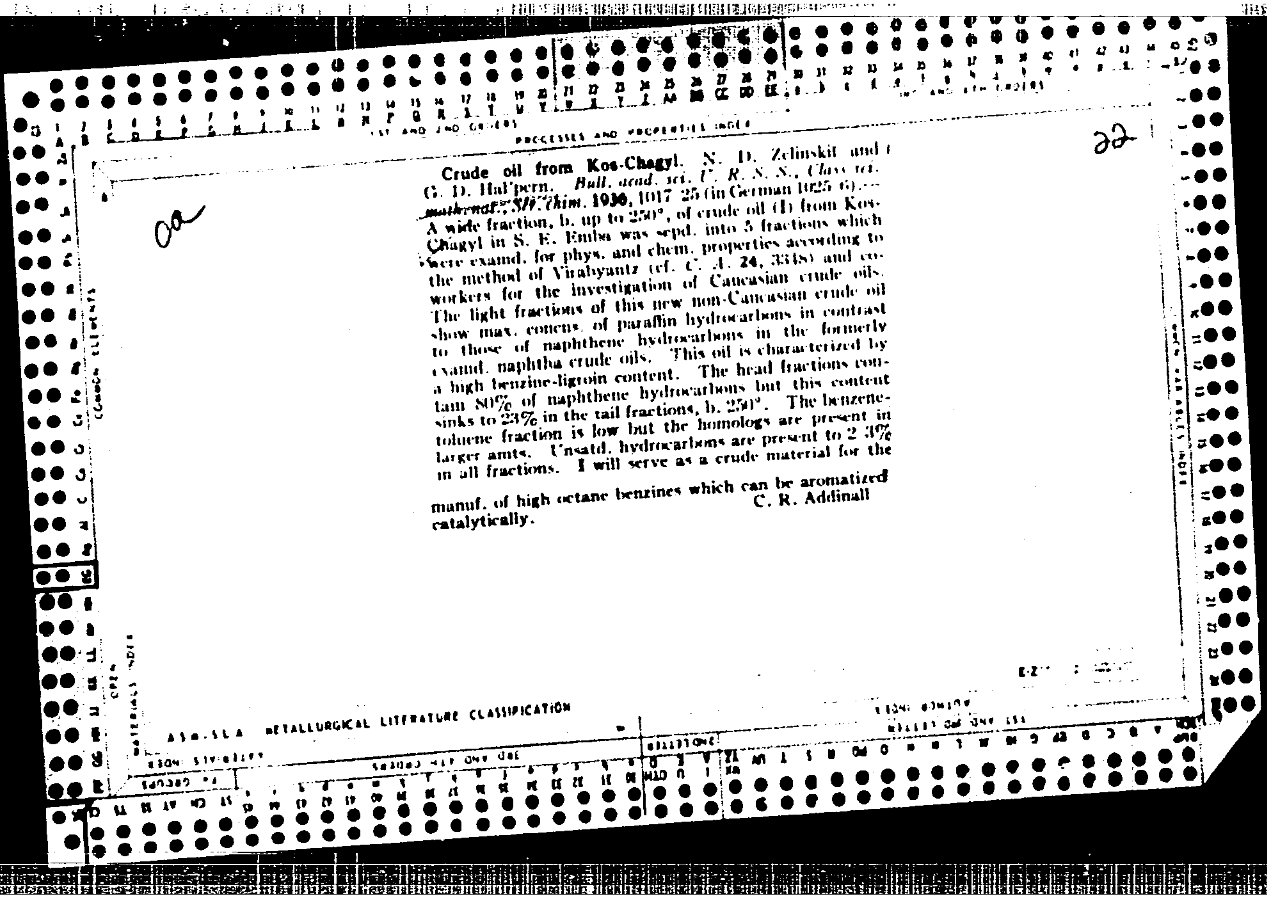
3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Determination of benzene hydrocarbons in gasoline by the aniline-point method. G. Galpern. *Neftyanoe Khozyaistvo* 21, 202-4(1931).—Synthetic mixts. were prepd. by G. from gasoline and benzene, toluene and xylene. The content in aromatics checked by the aniline-point method produced correct results when Sakhanov's conversion factors were used. However, an attempt to det. the content of benzene, toluene and xylene in fractions boiling within the range of each of these compds. fractionated from the gasoline-aromatic hydrocarbon mixt. in a Glinskii app. by means of aniline points for each individual fraction failed because of the inefficiency of the fractionating app.

A. A. Boehtlingk

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

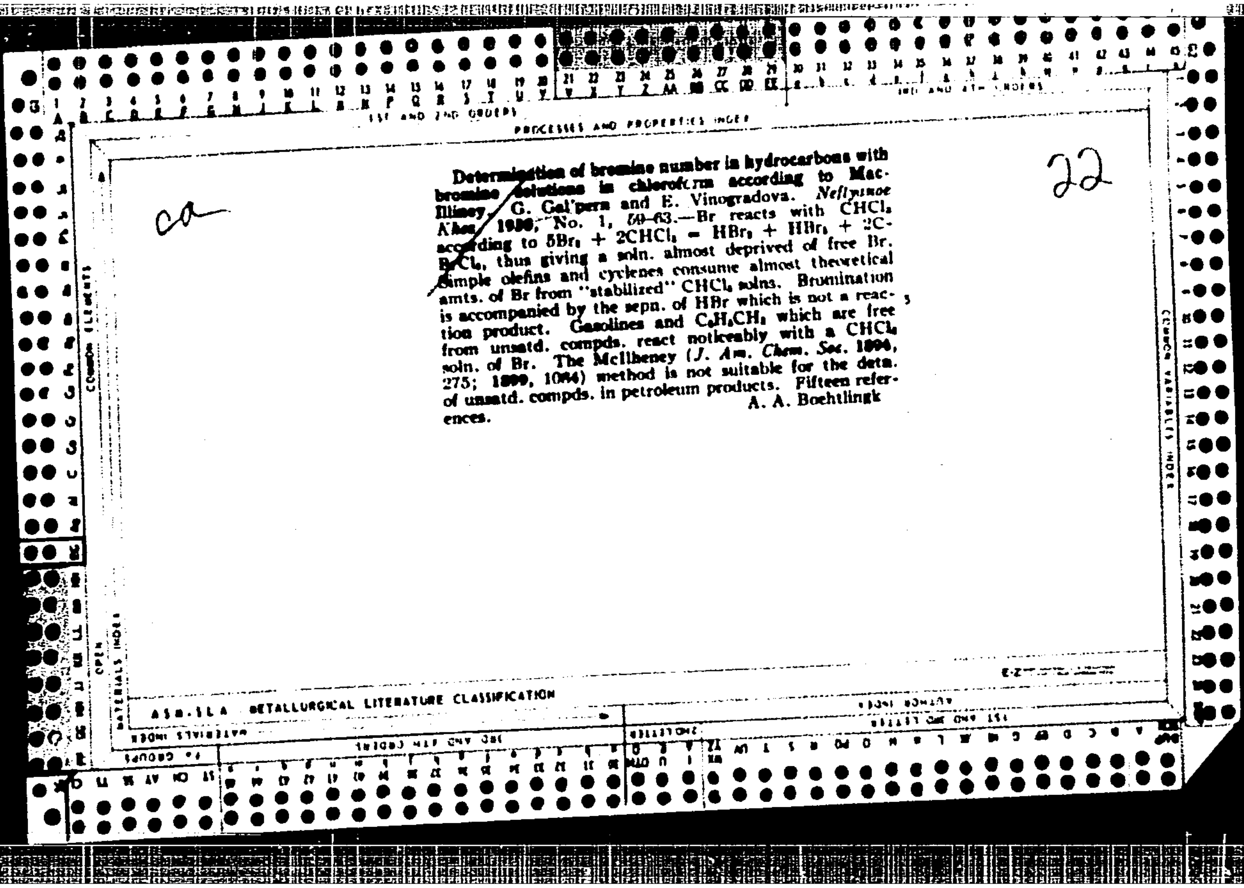


oa

22

Crude oil from Kos-Chagyl. N. D. Zelinskiĭ and (
G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci.*
mathemat. Sér. chim. **1936**, 1017 25 (in German 1025 6).—
A wide fraction, b. up to 250°, of crude oil (I) from Kos-
Chagyl in S. E. Emba was sepd. into 5 fractions which
were examd. for phys. and chem. properties according to
the method of Virabyantz (cf. *C. A.* **24**, 3348) and co-
workers for the investigation of Caucasian crude oils.
The light fractions of this new non-Caucasian crude oil
show max. concns. of paraffin hydrocarbons in contrast
to those of naphthene hydrocarbons in the formerly
examd. naphtha crude oils. This oil is characterized by
a high benzine-ligroin content. The head fractions con-
tain 80% of naphthene hydrocarbons but this content
sinks to 23% in the tail fractions, b. 250°. The benzene-
toluene fraction is low but the homologs are present in
larger amts. Unsatd. hydrocarbons are present to 2 3%
in all fractions. I will serve as a crude material for the

manuf. of high octane benzines which can be aromatized
catalytically.
C. R. Addinall



ca

22

Determination of bromine number in hydrocarbons with bromine solutions in chloroform according to MacIlliney. G. Gal'pern and E. Vinogradova. *Neftyanoe Khoz.* 1936, No. 1, 60-63.—Br reacts with $CHCl_3$ according to $5Br_2 + 2CHCl_3 = HBr_3 + HBr_3 + 2CBrCl_3$, thus giving a soln. almost deprived of free Br. Simple olefins and cyclenes consume almost theoretical amts. of Br from "stabilized" $CHCl_3$ solns. Bromination is accompanied by the sepn. of HBr which is not a reaction product. Gasolines and $C_6H_5CH_3$ which are free from unsatd. compds. react noticeably with a $CHCl_3$ soln. of Br. The McIlheney (*J. Am. Chem. Soc.* 1894, 275; 1899, 1084) method is not suitable for the detn. of unsatd. compds. in petroleum products. Fifteen references.

A. A. Boehtlingk

The interaction between inorganic complex compounds and hydrocarbons. I. Displacement of ammonia in certain complex compounds by aromatic hydrocarbons. G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. ~~math. nat., Sér. chim.~~* 1937, 435-41 (in German 441-1).—The Hoffmann and Arnoldi (*Ber.* **39**, 339(1906)) reaction between $Ni(CN)_2$ in NH_4OH and C_6H_6 was studied. Preliminary tests with various hydrocarbons and NH_3 concns. showed that though the formation of insol. $C_6H_6.Ni(CN)_2.NH_3$ is a sp. eraction for C_6H_6, it cannot be satisfactorily used in the detn. of C_6H_6 because (1) the displacement of the C_6H_6 in the complex with excess NH_4OH is a reversible reaction: $Ni(CN)_2.2NH_3 + C_6H_6 \rightleftarrows C_6H_6.Ni(CN)_2.NH_3 + NH_3$, and (2) a part of the benzene complex is converted into the sol. $C_6H_6.Ni(CN)_2.3NH_3$, which decomps. incompletely into C_6H_6 and $Ni(CN)_2.4NH_3$. Furthermore, the extn. of C_6H_6 from hydrocarbons (benzine) is incomplete because of the formation of highly stable emulsions in aq. medium (NH_4OH). Cyanides and thiocyanates of bivalent metals (Ni, Co, Cu and Zn) in NH_4OH are capable of absorbing C_6H_6 and PhMe with the formation of sol. complex compds. This reaction is also characterized by a definite equil. depending on the conditions involved. In all these reactions the absorption of C_6H_6 (PhMe) increases in the presence of cyclohexane. Ten references.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Laboratory apparatus employed for investigating petroleum from Kos-Chagyl. G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1937, 959-66 (in German 967). — A small lab. pipe still, dephlegmators, vacuum receiver, buret and a flask for sulfonating hydrocarbons are described. V. A. K.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

2/

Removal of unsaturated hydrocarbons from cracking gasoline for the determination of benzene and toluene contents. G. D. Hal'pern. *Zavodskaya Lab.* 6, 570-1 (1937).—Exptl. evidence indicates that in the detn. of C_6H_6 and PhMe in cracking gasoline by preliminary removal of unsatd. hydrocarbons with concd. H_2SO_4, the considerable losses are caused not by the extn. of unsatd. compds., but by the condensation of C_6H_6 and PhMe with the latter, chiefly 1,3-diolefins. Better results can be obtained by detg. C_6H_6 by the Jones cryoscopic method and PhMe by the aniline method. Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

10

Determination of the degree of unsaturation of hydrocarbons by the Kaufmann method. G. D. Gal'pern and R. V. Vinogradova. *Khim. Tverdogo Topliva* 7, 381-9 (1936). The Kaufmann method was investigated for individual olefins and cyclenes. The use of pure MeOH is essential, because the stability of titer of the Kaufmann soln. is about 10 times higher than in a HCl soln. of Br. Simple unsatd. hydrocarbons reacted with the Kaufmann soln. completely, while terpenes gave an increased and sterols a decreased amt. of used Br. The optimal conditions are a 60% excess over theoretical of Br, time for the reaction with hydrocarbons 10-15 min., and wt. of sample about 0.0005 mol. of the unsatd. hydrocarbon. Data are tabulated. Fourteen references. A. A. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Hydrogenation of unsaturated hydrocarbons. I. A. Musaev and G. D. G[illegible]pern. *J. Applied Chem.* (U. S. S. R.) 12, 572-6(in French, 576)(1939).—The following hydrocarbons were hydrogenated in a specially constructed app. (described) at 300° under an initial H pressure of 100-150 atm. for 1.5-[illegible] hrs. or 3-4 hrs. in the presence of a catalyst, with the following results: (1) indene → indane; (2) limonene → menthane; (3) octene (b. 118-21°) → octane; (4) dodecylene (b. 210-14°) → dodecane; (5) naphthalene, no reaction; (6) isooctylbenzene, no reaction; (7) stilbene → 1,2-diphenylethane; and (8) 1,2,3,4-tetrahydronaphthalene, no reaction. The catalyst used was prepd. by the pptn. of Cu hydroxide on asbestos followed by its reduction. The yield of satd. hydrocarbons in all cases was 98-9%. Since the aromatic hydrocarbons were not hydrogenated in the presence of the above catalyst, the latter could be used for the selective hydrogenation of unsatd. hydrocarbons in the presence of aromatic compds. and for the analysis of petroleum products contg. unsatd. compds. by the Vlugter, Waterman and Vesten method (cf. C. A. 20, 7057). The catalyst also had an ability to remove S from petroleum fractions and thus facilitated subsequent hydrogenation of the aromatic hydrocarbons.

A. A. Podgorny

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

22

A comparative investigation of the individual crude oils of U. S. S. R. II. Hydrocarbons of the gasoline-ligroin fractions of light oils of various ages. G. D. Gal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. tech.* 1941, No. 4, 45-51. The content of aromatic hydrocarbons was detd. from the depression of the *n* values caused by the sulfonation of the initial fractions. The concns. of paraffins and cyclanes were calcd. from the consts. of the sulfonated fractions after acid treatment. The proportions of the hydrocarbons in the 95-250° fractions of various crude oils are related to the distribution of the polar components. According to their contents of aromatic hydrocarbons and cyclanes, the light oils from strata of identical or similar geol. ages can be formed into series which correspond to the series made according to the increasing or decreasing contents of bases and carbonic acids (forming water-sol. sulfates and Na salts). The 95-250° fractions are divided into 2 groups according to their concns. of cyclanes and paraffins at a max. content of 30% and a min. of 60% cyclanes for the 1st group. Cyclanes of the second group are below 50%. Individual petroleums with higher contents of aromatic hydrocarbons are found in both groups. The concn. of paraffins is characteristic of a petroleum and remains nearly unchanged. The concn. of cyclanes decreases with the increase of the content of aromatic hydrocarbons. The sum of cyclanes and aromatic hydrocarbons varies between 70 and 80% in the 1st group and between 55 and 70% in the 2nd group. The connection existing between the chem. nature of petroleum (which fixes the group to which the petroleum belongs) and the age of the deposits has not yet been detd. Five references. Cf. *C. A.* 33, 8004^{9}.

W. R. Henn

Inst of Mineral Fuels,
Acad Sci USSR, Lab of Oil
Chem.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

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COMMON ELEMENTS

The Jurassic crude oil of the Koss-Chagyl deposit. III. Corrected data on the gasoline-ligroin fractions. N. D. Zelinskii and G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. tech.* **1941**, No. 5, 3-10; *Chem. Zentr.* **1943**, II, 791.—The fraction 30-250° is fractionated into narrow cuts, the compn. of which is detd. The original fraction contains 77.1% cyclic hydrocarbons (10.2% aromatics, 44.2 perhydroaromatics, 22.7 other cyclic compds.); 2.9% cyclic and acyclic unsatd. hydrocarbons and 20.0% paraffins. The aromatic hydrocarbons form 0.3-3.3% in the fractions up to 125°, 10-16% above 125°, 22% in the last fraction (215-250°). The concn. of paraffins varies between 10 and 20% and only in a few fractions it amts. to 30 and 4%, resp. A. K. Esterer

Inst of Mineral Fuels, Acad Sci USSR, Lab of Petroleum Chem.

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

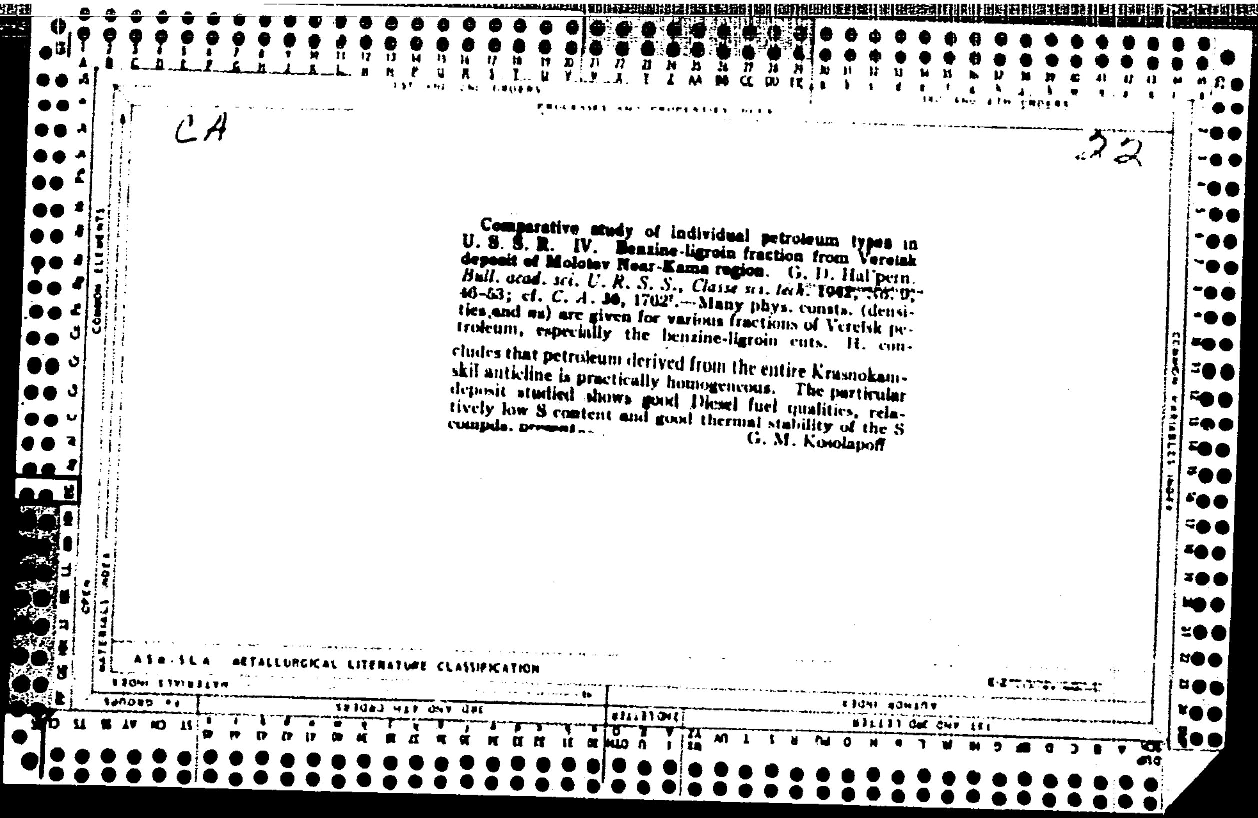
CA

22

Comparison of individual petroleums of U S S R
III Hydrocarbons of the gasoline ligroin fractions of the
Vereya and Namur petroleums of the Krasnokamsk field
G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. tech.* 1941, No. 7-8, 41-51; cf. C. A. 36, 1113. D. and n
at various wave lengths of eight fractions boiling between
18° and 250° have been detd., as well as the changes produced by sulfonation and by dehydrogenation of these
fractions and by sulfonation of the dehydrogenated material. From the dispersion of the sp. refraction it is concluded that these fractions contain mainly paraffin hydrocarbons with some aromatic and very small amts. of
alicyclic hydrocarbons. H. C. F. N.

Inst of Mineral Fuels, Acad Sci USSR, Lab of Petroleum Chem.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

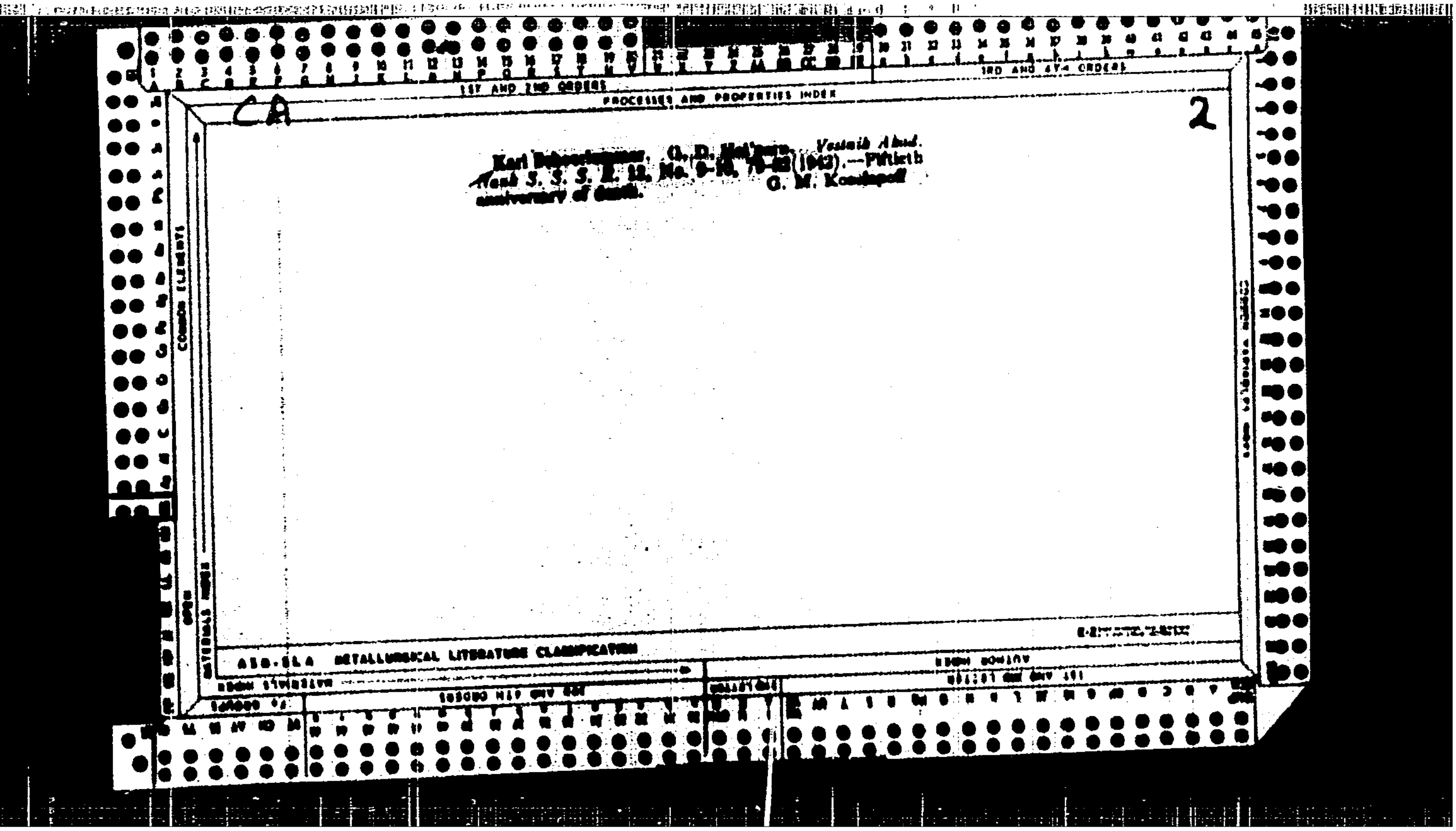


CA

22

Comparative study of individual petroleum types in U. S. S. R. IV. Benzine-ligroin fraction from Vereisk deposit of Molotov Near-Kama region. G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. tech.* 1942, No. 6, 46-53; cf. *C. A.* 36, 1702'.—Many phys. consts. (densities and n_D) are given for various fractions of Vereisk petroleum, especially the benzine-ligroin cuts. H. concludes that petroleum derived from the entire Krasnokamskii anticline is practically homogeneous. The particular deposit studied shows good Diesel fuel qualities, relatively low S content and good thermal stability of the S compds. present.

G. M. Kosolapoff



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

2

Karl Schorlemmer, G. D. [illegible]. *Vestnik Akad. Nauk S. S. S. R.* 12, No. 9-10, 79-82(1942).—Fiftieth anniversary of death. G. M. Kosolapoff

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

10

Synthesis of hydrocarbons. G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. chim.* 1943, 290-5 (English summary).—A no. of primary alcs. on treatment with H_2SO_4-NaBr yield a mixt. of primary and secondary bromides due to partial α,β-migration, under the influence of Na ion. Primary amyl, hexyl, octyl and 3-phenylpropyl alcs. gave bromides with d. and n higher than the accepted values for primary bromides (Tables ann. intern. const., 1930). Bromopentane, b. 128-30°, d_4^{20} 1.2193, n_D^{20} 1.4463, prepd. by the above method, treated with Na gave 2 almost equal fractions, b. 166.5-8.5° and b. 168.5-70.5°, which correspond in their consts. to n-decane and β-methylnonane. $Ph(CH_2)_3Br$ prepd. by the NaBr-H_2SO_4 method gave, in a Würtz reaction, 3 fractions: b_1 136-40°, n_D^{20} 1.5441; b_1 140-2°, n_D^{20} 1.5438; and b_1 142-4°, n_D^{20} 1.5430, which represent $Ph(CH_2)_6Ph$ with admixt. of $PhCH_2CHMe(CH_2)_3Ph$. $Ph(CH_2)_3Br$, prepd. by action of HBr on the alc., gave only the pure $Ph(CH_2)_6Ph$, $b_{1.5}$ 155-7°, n_D^{20} 1.5423. Dispersion data are given in tabular form for decane, diphenylhexane and dicyclohexylhexane.

G. M. Kosolapoff

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

F

1448. VARIATION IN COMPOSITION OF N[illegible] [illegible] OF THE [illegible] OILFIELD. Galpern G D (Bull. Acad. Sci. U.R.S.S. (Div. Tech. Sci.) 1943, [illegible], 26-34; J. Inst. Petrol. 1945, 31, 40A). An investigation of the character of gases occurring in this oilfield, their distribution and origins. The composition of the gas varies regularly from the center of the field outwards, the concentration of hydrogen sulphide, carbon dioxide, mercaptans, lower homologues of methane, dropping from the centre outwards, whilst the methand concentration rises. Tables of analyses of gases are given and maps of the oilfield showing the distribution of gases. The origins and modes of formation of the gases are discussed as well as the geological aspect of this oilfield.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

Ca

10

C. J. West

The synthesis of individual hydrocarbons. IV. Obtaining cyclopentylpentane from methylpropylfulvene. G. D. Hal'pern. *Bull. acad. sci. U. R. S. S., Classe sci. chim.* 1943, 307-9; cf. *C. A.* 38, 1480⁴.—MePrCO and cyclopentadiene give methylpropylfulvene (I), b_5 61-3°, d_4^{20} 0.87518. As λ varies from 7065.2 to 5875.6 A., n_λ^{20} varies from 1.52168 to 1.53234, and MR (molecular refraction), found, from 46.713 to 47.503 as against the calcd. values from 44.276 to 44.780. The strong exaltation is due to resonance in the crossed conjugated double bonds. When I is hydrogenated over Ni at 300° and 100 atm., it gives a mixt. of isomers, but over an asbestos catalyst the product is chiefly 3-cyclopentylpentane, b. 174-6°, d_4^{20} 0.80173. Variation of λ from 7065.2 to 4340.5 A. gives values of n_λ^{20} from 1.43648 to 1.45027; MR found, from 45.754 to 47.007; and MR calcd., from 45.830 to 47.100.

H. M. Leicester

COMMON ELEMENTS

COMMON VARIABLES INDEX

OPEN

MATERIALS INDEX

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

AUTHOR INDEX

PROCESSES AND PROPERTIES INDEX

Ca

2

The variation of Ishimbay oils. O. D. Hal'pern. *Doklady Akad. Nauk S.S.S.R.* 41, 175-7(1943); *Compt. rend. acad. sci. U.R.S.S.* 41, 107-8(1943)(in English).—The zonal variations of Ishimbay oils are ascribed to 2 causes: (1) the peculiar complicated structure of the reservoir cavities which might be described as pockets, some completely isolated, others having all sorts of irregular communicating channels and (2) variation of reduction-oxidation conditions within the field with tendency for oxidation conditions to be more pronounced at the periphery. The geology of the field also accounts for the paradoxical observation that the initial flow from a well sometimes is a heavier oil than the later flow.

J. W. Perry

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

21

Cd

The variability of gases of the southern Ishimbay massif. G. D. Hal'pern. *Doklady Akad. Nauk S. S. S. R.* 41, 225-7(1943); *Compt. rend. acad. sci. U. R. S. S.* 41, 213-15(1943)(in English).—The concn. of various components in gases from the Ishimbay field (cf. *C. A.* 38, 6528) varies on going from the center toward the periphery as follows: CO_2 1.2-3%, H_2S 8.4-2%, mercaptans 0.0-0.05%. The concns. of C_2H_6, C_3H_8 and C_4H_{10} also decrease on approaching the periphery. The H_2S is believed to be due to biol. reduction of sulfates with CO_2 as by-product. The high S content of Ishimbay oils may be due to reactions (cf. *C. A.* 31, 1300) of H_2S with furans, etc. Coincidence, at the periphery of the field, of the highest content of CH_4 in the gases with the occurrence of the heaviest oils suggests that 2 different types of reactions are involved in the formation of CH_4 and of heavy oils, waxes, etc.

J. W. Perry

Inst. Mineral Fuels, AS USSR.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

CA

2

Application of the Abbé refractometer and the Waldmann coefficient in dispersiometry of hydrocarbons. G. D. Hal'pern. *Bull. acad. sci. U.R.S.S., Classe sci. tech.* 1944, 331-7.—The Abbé refractometer can be utilized in conjunction with the Waldmann coeff., $(n_D - n_C)/(n_F - n_D)$ (cf. C.A. 33, 4407) for the analysis of petroleum fractions and other complex hydrocarbon mixts. As a rule, for hydrocarbons and their mixts. $K - Q > 0$ ($K = (n_F - n_D)/(n_F - n_C)$). The mean value for Q for all hydrocarbons studied was 0.2856 and for petroleum fractions 0.2907. These values practically agree with those given by Waldmann. For paraffin hydrocarbons and hexamethylenes $K - Q = 0.0024$ and 0.0028, resp.; for aromatic hydrocarbons $K - Q = 0.0074$. For pentamethylenes $Q - K$ was high. Addn. of pentamethylenes to paraffin-cyclane mixts. increased $Q - K$. Repetition of the CH_2 group within homologous series did not change the dispersion ratio. The Waldmann method is recommended for practical dispersiometry in the analysis of petroleum fractions. In most cases the value $Q = 0.280$ can be used. For products especially rich in aromatic hydrocarbons (products of pyrolysis) the value $Q = 0.283$ should be used, and for paraffin products (synthin fractions) the value 0.288.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GAL'PERN, G.D.

Institute of Mineral Fuels, Acad. of Sci., USSR (-1943-)

"Application of the Abbe Refractometer and Waldman Coefficient in Hydrocarbon Dispersimetry." Iz. Ak. Nauk SSSR, Otdel. Tekh. Nauk, No. 6, 1944

BR 52059019

PROCESSES AND PROPERTIES INDEX

F

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1763. PLATINIZED CARBON IN ANALYTICAL HYDROGENATION AND DEHYDROGENATION OF HYDROCARBONS. Musaev, I. A. and Gal'pern, G.D. (Bull. Acad. Sci. U.S.S.R., Sect. Tech. Sci., July 1947, 805-808). Experimental data which are tabulated and charted, shows that above catalyst gives practically quantitative hydrogenation and dehydrogenation of benzene and cyclohexane, respectively, under proper conditons. The former proceeds from 50° to 180°C., and the latter at about 325°C. Applicability to unknown mixtures is assumed.

B.L.R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3086. GENERAL BASIS OF REFRACTOMETRIC ELEMENTARY (RING)ANALYSIS OF
SATURATED HYDROCARBONS. Gal'pern, G.D. and Musaev, I.A. (Bull.
Acad. Sci. U.S.S.R., Div. Tech.,Sci.), 1949, 542-551). A
discussion of the theory on which such methods are founded. The
Vlugter and Waterman method is examined in detail, and it is
considered that it is strictly applicable only to series of pet.
fractions whose general type of structure is known, and that an
arbitrary choice of a "standard" homolo ous series of polymerized
hydrocarbons cannot be justified without supplementary data;
although the shape of the curve R = f (M.) where R is the sp. ref.
and M the mol. wt, can, in the case of a series of successive
hydrogenated fractions, give information as to the type of
structure concerned.
I.P.

Petroleum Inst., Acad Sci USSR.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

F

7

746. RING ANALYSIS OF PETROLEUM PRODUCTS. Museav, I. A. and Gal'pern, G. D. (Bull. Acad. Sci. U.S.S.R., Div. Tech. Sci., 1949, 1106-1115).

A crit. discussion of the determination of hydrocarbon groups in high-mol. wt produsts. Sp. disperson (F and C lines of H_2) is taken as an indication of the complete hydrogenation of the material. Values $>50.10^{-4}$ indicate that aromatic hydrocarbons may still be present. A nomogram is given relating sp. ref. to mol. wt (50-700) for ten hydrocarbon types, curves also relate an. pt of paraffin-naphthene mixtures to mol. wt sp. ref., and H_2 content. Estimation of the average no. of naphthene rings, aromatic rings, and paraffin chains can be made from a knowledge of d_4^{20}, n_D^{20}, mol. wt, and an. pt of the hydrogenated oil and of the an. pt prioor to hydrogenation. The usual value of 0.85 is taken for multiplying the difference in an. pt before and after hydrogenation in order to calculate aromatic rings, although evidence has been obtained that in certain

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GALPERN, G. D.

(4)

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
General and Physical Chemistry

Temperature relationship of the density of heptamethylnonane and methyldicyclopentylcyclohexane. G. D. Galpern, L. A. Konovalova, and M. M. Kusakov. *Trudy Inst. Nefti Akad. Nauk S.S.S.R.* 1, No. 2, 217-22 (1950).—An accurate method of detn. of the d. of liquid hydrocarbons with dilatometric pycnometers. Ds. of heptane, butylbenzene, heptamethylnonane, and methyldicyclopentylcyclohexane were found to change linearly between −60° and +20°. Empirical equations were developed to express changes in ds. with the temp. W. M. Sternberg

9-16-57/p

[illegible]

③ 6

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
General and Physical Chemistry

Temperature relations of index of refraction and diffraction of liquid hydrocarbons at low temperatures. G. D. Gal'pern, L. A. Konovalova, and M. M. Kusakov. *Trudy Inst. Nefti Akad. Nauk S.S.S.R.* 1, No. 2, 223-43(1950).—Obreimov's method (*C.A.* 39, 1585³) was used, based on the diffraction max. and min. at the boundary of a liquid/glass plate, resulting from the interference of 2 branches of a monochromatic light ray, one of which passes through the liquid, and the other through the plate. The *n*s and diffraction of *heptamethylnonane*, *methyldicyclopentylcyclohexane*, and *butylbenzene* changed linearly between +20 and −60°. With a sufficiently high-grade monochromator permitting the isolation of a 2-A. spectrum range, and a sufficiently great range of standard glasses, changes in the *n* can be detd. with a high degree of accuracy in the app. used; the accuracy of the measurements was within ±0.0001. The sp. refraction calcd. by the Lorentz-Lorenz formula is a function of the temp., and is lower at lower temps.

W. M. Sternberg

/22/54

GAL'PERN, G. D.

Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Petroleum, Lubricants, and Asphalt

Analytical hydrogenation of pure hydrocarbons. I. A. Musaev and G. D. Gal'pern. *Trudy Inst. Nefti, Akad. Nauk S.S.S.R.* 1, No. 2, 244-54(1950).—Hydrogenation in an analytical unit designed by the authors with N. D. Zelinskii's Ni + Al_2O_3 catalyst (*C.A.* 18, 2885) at 100–120 atm. and 200–300° converts the following aromatic hydrocarbons into the corresponding hydroaromatic compds. *phenylhexane, phenyloctadecane, diphenylhexane, methylpropyl-1,3-benzofulvene, cyclohexyldiphenylmethane, dicyclohexylbenzene, 1-(methylcyclohexyl)naphthalene, 1,4-dimethyl-2,5-dicyclopentylbenzene, diphenylfulvene, triphenylmethane, tricyclohexylbenzene, fluorene, acenaphthene, anthracene, phenanthrene.* Neither isomerization nor closing nor rupture of the 5- and 6-membered rings in any of the compds. was indicated by physicochem. measurements, and in particular by the agreement between exptl. and theoretical specific refractions of the products. A "cuprated asbestos" catalyst (*C.A.* 33, 8563^1) was found to hydrogenate selectively at 100–120 atm. and 200–300° all aliphatic and alicyclic bonds, without attacking aromatic rings. **The study of kerosine-oil fractions of Yurak kos-chagyl naphtha.** *Ibid.* 255–63.—The application of the above method to a petroleum fraction, mol. wt. 185–633, and a refractometric analysis of the products proved the no. of rings to increase gradually from 1 to 3. Practically no hydrocarbons with strongly stressed bonds (e.g., of the type of triphenylmethyl) were found after hydrogenation, and the more accurate, simple, and rapid refractometric analysis is preferable to the combustion detn. of C and H. W. M. Sternberg

④ Chem

6/8/54
b

GAL'PERN, G. D.

GAL'PERN, G. D. -- "Composition and Physicochemical Characteristics of a Petroleum Fraction." Sub 29 Nov 52, Inst of Petroleum, Acad Sci USSR. (Dissertation for the Degree of Doctorate in Chemical Sciences).

SO: Vechernaya Moskva January-December 1952

Gal'Pern, G. D.

Investigation of straight-distillation gasoline from Surakhan petroleum. G. D. Gal'pern, M. V. Shishkina, and M. I. Shchetsko. *Trudy Vsesoyuz. Soveshchaniya po Khim. i Pererabotke Nefti, Baku, Sept., 1951, Akad. Nauk Azerbaidzhan. S.S.R.* 1953, 123-35; *Referat. Zhur., Khim.* 1954, No. 27935.—Aromatic hydrocarbons were first removed by sulfonation to give a neg. formolite reaction (Nastyukov method, *C.A.* 20, 498). Fine fractionation of the gasoline was carried out in a 1-m. column provided with a Levin head, and d, *n.* (at various wave lengths), and the spectra of combined scattering were detd. on the fractions. Part of the fractions were dehydrogenated and freed from aromatics, and the concn. of naphthenes and paraffins was detd. refractometrically. The ratio of dimethylcyclohexanes was checked by dehydrogenation of the corresponding fractions by the Zelinskii and Kazanskii method (*C.A.* 26, 77) followed by spectrographic analysis of the catalyzates. Analytical dehydrogenation was carried out so as to suppress hydrogenolysis of cyclopentanes by using Pt-coated C (with admixt. of Fe) prepd. without preliminary pptn. of the Pt with HCHO. The content of aromatic hydrocarbons in the catalyzates was detd. by specific dispersion. The results of this investigation showed the ratio of naphthenic to paraffinic hydrocarbons to be: C_5 0.2, C_6 1.7, C_7 4.8, C_8 3.5, and C_9 2.0. The main components of the gasoline were found to be methylcyclohexane, *trans*-dimethylcyclohexane, cyclohexane, methylcyclopentane, and *trans*-dimethylcyclopentanes. A considerable quantity of hydrindene was believed to be present.

M. Hosch

9m

GAL'PERN, G. D.

262T2

USSR/Chemistry - Catalysts, Petroleum Hydrocarbons

Jan 53

"A Catalyst for Analytical Hydrogenation and Dehydrogenation," I. A. Musayev and G. D. Gal'pern

DAN SSSR, Vol 88, No 1, pp 71, 72

A simple and quick method for preparing a catalyst for analytical hydrogenation and dehydrogenation by B. A. Kazanskiy's method (platinized carbon with iron added) is recommended. A catalyst prepd in this manner is useful for investigating compn of hydrocarbon mixts such as straight-run gasolines and kerosenes, since the transformation of

262T2

cyclohexane and its derivs into hydrocarbons of the benzene and napthalene series is accomplished smoothly under it, but hydrogenolysis of pentamethylenes is negligible.

GAL'PERN, G. D.

USSR/Chemistry - Petroleum 1 Aug 53

"Individual Aromatic Hydrocarbons of the Gasoline Fraction From Petroleum Occuring in the Red Colored (1) Stratum of Nebit-Dag", Acad A.V. Topchiyev, I.A. Musayev, M.V. Shishkina, G.D. Galpern, Petroleum Inst, Acad Sci USSR

DAN SSSR, Vol 91, No 4, pp [illegible] 869-871.

Investigated the chemical composition of Nebit-Dag petroleum in order to compare it with that of other Caspian crudes. Found that in the gasoline fraction boiling up to 175 , 1, 2, 4 - - trimethylbenzene, ethylvenzene, o-xylene, and m-xylene comprise 52.8% of the total content of aromatics.

272T7

TOPCHIYEV, A.V., akademik; MUSAYEV, I.A.; GAL'PERN, G.D.

Investigation in the composition of Nebit-Dag petroleum;
Report 1. Trudy Inst.nefti 4:3-9 '54. (MIRA 8:1)
(Nebit-Dag--Petroleum--Analysis)

TOPCHIYEV, A.V., akademik; MUSAYEV, I.A.; SHISHKINA, M.V.; GAL'PERN, G.D.

Investigation in the composition of Nebit-Dag petroleum. Report 2.
Trudy Inst. nefti 4:10-17 '54. (MLRA 8:1)
(Nebit-Dag--Petroleum--Analysis) (Nebit-Dag--Hydrocarbons)

GALPERIN, G. D.

274. DEPENDENCE OF DENSITY OF PETROLEUM FRACTIONS ON TEMPERATURE AND ITS CONNEXION WITH THEIR CONSTITUTION. Gal'pern, G.D. (Trud. Inst. Nefti (Trans. Inst. Petrol., Acad. Sci. U.S.S.R.), 1954, vol. 4, 101-115; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1956, (17), 55515). The dependence of density on temperature for petroleum products and hydrocarbons is linear over a wide range. Any deviation from linearity are due to phase changes in the different components of the petroleum products. The temperature corrections for density for different classes of hydrocarbons are functions of the molecular weights. For benzene fractions the temperature corrections depend linearly on the aromatic content.

PM gmb

GALPERN G.D.

CH

Bromometric analysis. I. Investigation of degree of unsaturation of individual hydrocarbons. G. D. Gal'pern. *Trudy Inst. Nefti, Akad. Nauk S.S.S.R.* 4, 111-24(1954). The reaction of halides with olefins, when the reaction takes place in soln., depends not only on the nature of substituted radicals at the double bonds but also on the nature of solvents. The method of calcn. of unsatn. suggested by McIlincy with "correction in substituting" is not confirmed by expt.: by the Kaufman method of bromometry of individual hydrocarbons and some O-contg. compds. the amt. of Br for bromination is often near to the theoretical requirement, but the quantity of evolved HBr is dependent upon the nature of substituted radicals and does not relate to the degree of unsatn. The improved method of Kaufman for petroleum distillates and purified gasoline from cracking is described. To 0.04-0.05*N* soln. of hydrocarbons in $CHCl_3$, about equal vols. of a 0.1*N* soln. of Br in MeOH satd. with NaBr was added. After 20 min. KI soln. was added and the liberated I titrated with 0.1*N* $Na_2S_2O_3$. The bromination of alkenes, cyclenes, and some derivs. ended after 1-10 min. and $d(Br)/dt = 0$; $d(HBr)/dt = 0$. 1,3-Cyclohexadiene, *l*-pinene, and furfurylideneacetone reacted with Br rapidly, in the beginning, further a reaction took place in which $d(Br)/dt = C_1$; $d(HBr)/dt = C_2$, where C_1/C_2 are 8.2 and 3, resp. The second process of bromination of 3,3-dimethyl-1,3-butadiene led to the expression $d(Br)/dt = var_1$; $d(HBr)/dt = var_2$. The rate of bromination decreased; the first rapid process broke off with the accumulation of neg.-substituted radicals. The same effect was observed with I and Br. The reaction of olefins with Br led to the intermediate "molbromide" (cf. Tishchenko, *C.A.* 31, 1003⁴) formation which was partially converted into stable 1,2-dibromide and partially into unsatd. monobromide and HBr. In MeOH soln. the basic process is complicated by the formation of an α-methoxybromide deriv. from "molbromide" and MeOH

(OVER)

G. D. GALPERN

formation with evolving equiv. amt. of HBr. II. Investi-
gation of degree of unsaturation of petroleum products and
individual phenols. Bromometry of artificial mixtures of
hydrocarbons and cracking gasolines. *Ibid.* 131-40.—The
gasoline from Kosichigan petroleum and a mixt. of indi-
vidual olefins with low content of alkenes and aromatic hy-
drocarbons react almost quantitatively with Br. The amt.
of Br is related to the no. of double bonds. Cracking and
pyrogenic gasoline and fractions of ligroine and kerosine from
Kos-Chagyl petroleum react abnormally. The increases
consumption of Br and an abundant HBr formation occur.
Bromometry can be applied to the quant. analyses of phenols
with different structures. III. The determination of the de-
grea of unsaturation of products of petroleum. *Ibid.* 141-
50.—The bromometry of hydrocarbons is described in de-
tail. Cyclic and alicyclic hydrocarbons with one double
bond react with Br in a mol. ratio of 1:1; styrene and
its homologs in the ratio less than one mol. Unsatd. hy-
drocarbons with isolated double bonds react with two mols.
of Br. Unsatd. hydrocarbons with 2 conjugate double bonds
react with about one mol. of Br. Phenol reacts with Br
slowly; 5 mols. of Br combine with one mol. of phenol during
150 min. Homologs of phenol react more rapidly. m-
Cresol and resorcinol combine with 3 mols. of Br during 20
o-cresol, 1,2,4-, and 1,2,6-xylenols with 2 mols. of Br;
naphthol and 1,3,4-xylenol with 1 mol. of Br. In the
n with phenols 80% of Br becomes HBr. M. C.

2/2

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERN, G.D.

Bromometric analysis. Report 2: Investigation of the degree of unsaturation of petroleum products and individual phenols. Trudy Inst. nefti 4:131-140 '54. (MLRA 8:1)
(Bromometry) (Phenols) (Petroleum products--Analysis)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERN, G.D.

Bromometric analysis. Report 3. Method of determining the degree of unsaturation in petroleum products. Trudy Inst. nefti 4:141-150 '54. (MLRA 8:1)
(Bromometry) (Petroleum products--Analysis)

GAL'PERN G. D.

3

2

Transformation of 2-bromoethyl phenyl ether in the presence of zinc chloride and mixed zinc chloride and aluminum chloride. E. N. Karaulova and G. D. Gal'pern. *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1955, 949-50.—Refluxing 76.6 g. $PhOCH_2CH_2Br$ with 8 g. $ZnCl_2$ 2 hrs. gave some $(CH_2Br)_2$ and 7.87 g. $o\text{-}\overline{C_6H_4.O.CH_2.CH_2}$, m. 89°, b. 181-5°. If the reaction is run for 8 hrs. the temp. of the refluxing mixt. gradually falls to 155°, the b.p. of $PhOCH:CH_2$, and the mass polymerizes *in toto*. Small amts. of PhOH are usually formed; the use of $ZnCl_2$-$AlCl_3$ mixts. favors the evolution of PhOH and prevents the formation of the cyclic product. Similar failure to obtain the cyclic product from $PhOCH_2CH_2OH$ is recorded with $ZnCl_2$, P_2O_5, or $ZnCl_2$-$AlCl_3$ catalysts. Cf. Rindfusz, *C.A.* 13, 2020.

G. M. Kosolapoff

Chem

Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii nauk SSSR.

GAL'PERN, G. D.

TOPCHIYEV,A.V.; MUSAYEV,I.A.; GAL'PERN,G.D.; SHISHKINA,M.V.

Analysis of the composition of Nebit-Dag petroleum. Trudy Inst. nefti no.6:3-11 '55. (MLRA 8:12)
(Nebit-Dag--Petroleum--Analysis)

Individual Composition and Naphthene Hydrocarbons [illegible] Petroleum from the [illegible]
in the Central Region (17 to 76 °C Fraction)

GAL'PERN, G.D.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor Fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62581

Author: Mironov, S. I., Gal'pern, G. D., Kolbanovskiy, Yu. A.

Institution: None

Title: On Temperatures of Formation and Conversion of Petroleum

Original Periodical: Dokl. AN SSSR, 1955, 103, No 4, 667-668

Abstract: On the basis of data concerning hydrocarbon composition have been calculated equilibrium temperatures of 32 varieties of petroleum, on the basis of which was calculated the mean temperature for these petroleum varieties which is ~170°. Calculation of temperatures was done according to approximate formulas for the systems cyclohexane-methylcyclopentane, methyl cyclohexane-ethyl cyclopentane; n-hexane-2 and 3-methyl pentanes, 2,2- and 2,3-dimethyl butanes; n-heptane-2,2-, 2,4- and 2,3-dimethyl pentanes, 2- and 3-methyl hexanes, 3,3-dimethyl pentane, 2,2,3-trimethyl butane, 2-ethyl pentane.

Card 1/1

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERN, G.D.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor Fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62605

Author: Topchiyev, A. V., Gal'pern, G. D., Musayev, I. A., Kislinskiy, A. N., Shishkina, M. V.

Institution: None

Title: Individual Paraffinic and Naphthenic Hydrocarbons of the Gasoline Fraction of Nebitdag Petroleum

Original Periodical: Dokl. AN SSSR, 1955, 103, No 6, 1035-1038

Abstract: The gasoline fraction of Nebitdag petroleum after removal of aromatic hydrocarbons by chromatography on silicagel, was divided by distillation into 43 narrow fractions. The first 11 fractions were used directly for spectral investigations, while the other were also subjected to spectral investigation after analytical dehydrogenation over platinized charcoal with iron, and in part after dearomatization

Card 1/2

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor Fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62605

Abstract: of the obtained catalysts. The analyses showed that Nebitdag gasoline recovered up to 150° contains about 140 individual hydrocarbons. Approximately 50% of its composition consists of 15 hydrocarbons. In maximal concentration are present: among the paraffinic, 2-methyl butane (4.50%); n-hexane (3.31%); n-pentane (2.69%); n-heptane (2.26%) and 2-methyl pentane (2.10%); of the cyclopentanic, methyl cyclopentane (5.03%); cis-1,3-dimethyl cyclopentane (2.16%) and trans-1,2-dimethyl cyclopentane; of cyclohexanic, methyl cyclohexane (10.49%); cyclohexane (4.97%); 1,1,3-trimethyl cyclohexane (2.41%); ethyl cyclohexane (2.25%) and cis-1,3-dimethyl cyclohexane (2.22%). It was found that on dehydrogenation conversion of 1,1-dimethyl cyclohexane with cleavage of the methyl group as CH_4 reaches 5% in the case of the 118-119° fraction. Analogous conversion of 1,1,3-trimethyl cyclohexane yields traces of m-xylene. In the 96-101° fraction is observed a conversion of about 5% of cis-1,2-dimethyl cyclopentane to the trans-form. In the 86-88° and 128-136° fractions is observed a slight hydrogenolysis of cyclopentanes (up to 5%).

Card 2/2

GAL'PERN, G D

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of Natural Gases and Petroleum. Motor Fuels. Lubricants, I-13

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62606

Author: Topchiyev, A. V., Musayev, I. A., Kislinskiy, A. N., Gal'pern, G. D.

Institution: None

Title: Individual Aromatic and Hexahydroaromatic Hydrocarbons of the Gasoline Fraction of the Romashkinsk Petroleum

Original Periodical: Dokl. AN SSSR, 1955, 104, No 1, 93-95

Abstract: On study of the composition of the gasoline fraction (50-175°) of the petroleum from the Romashkinsk deposit by the combined method of Kazanskiy and Landsberg (Izv. AN SSSR, OKhN, No 2, 1951, 100) it was found that it contains 5.46% aromatic (toluene, pseudo-cumene and m-xylene, etc, a total of 15 hydrocarbons) and 8% hexahydroaromatic hydrocarbons (methyl cyclohexane, ethyl cyclohexane, 1,3-dimethyl cyclohexane, cyclohexane and other, a total of 20 hydrocarbons).

Card 1/1

GAL'PERN, G. D.

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 24/25

Authors : Luk'yanitsa, V. G., and Gal'pern, G. D.

Title : Oxidizing potentials of organic sulfur compounds

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 130-131, Jan 1956

Abstract : The oxidation potentials of organic sulfur compounds and certain hydrocarbons were investigated by means of the Gorbachev-Vabel differential-potentiometric method. It was established that the irreversible oxidation potentials of mercaptanes hava a value of about + 0.2, sulfides + 0.35, disulfides + 0.39, thiophenes + 0.41, aromatic hydrocarbons such as di- and tri-cyclic from + 0.42 to + 0.58 and more than + 0.58 for hydrocarbons of the benzene series. Nine references: 5 USSR and 4 USA (1926-1955). Table.

Institution : Acad. of Sc., USSR, Inst. of Petroleum

Submitted : September 2, 1955

GAL'PERN, G.D.

4480. INDIVIDUAL HYDROCARBONS IN THE LIGROINE FRACTION OF WEST NEBIT-DAG CRUDE OIL. Topchiev, A.V., Musaev, I.A., Kiglinskii, A.I. and Gal'pern, G.D. (Khim. Tekhnol. Topliva (Chem. Technol. Fuel, Moscow), 1956, (2), [illegible] (abstr. in Chem. Abstr., 1956, vol. 50, 11007). The ligroine fraction (boiling up to 175°) of Nebit-Dag crude oil was found to contain aromatic hydrocarbons 9.3, cyclohexane derivatives 27.4, cyclopentane derivatives 17.0, paraffins 38.1; and high boiling residue and loss 8.2%. Each fraction was separated to give about 150 individual hydrocarbons. C.L.

LFH

GAL'PERN, G.D.

2138. INDIVIDUAL PARAFFINIC AND PENTAMETHYLENIC HYDROCARBONS IN THE GASOLINE FRACTION OF [illegible] PETROLEUM. [illegible], A.V., [illegible], I., Kislinskii, A.N. and Gal'pern, G.D. (Khim. Tekhnol. Topliva (Chem. Technol. Fuel, Moscow), 1956, (3), 8-10; abstr. in Chem. Abstr., 1956, vol. 50, 13412-13413). The results are given of a quantitative analysis of the gasoline fraction boiling up to 150°, by a chemico-spectral method.

LFH

GALPERN, G.D.

5

1483. SOME DATA ON THE RELATIONSHIP BETWEEN SULPHIDE SULPHUR AND TOTAL SULPHUR IN FRACTIONS OF ROMASHKO AND TUIMAZY PETROLEUMS. Luk'yanitsa, V.G. and Gal'pern, G.D. (Trud. Inst. Neft. Akad. Nauk SSSR (Trans. Inst. Petrol. Acad. Sci. U.S.S.R.), 1956, vol. 8, 76-83; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1956, (24), 79031). Total sulphur determined by the standard lamp method and sulphide sulphur determined by the potentiometric method in the kerosine fractions of these petroleums is shown to increase with increase of mean molecular weight. The sulphur compounds in the top kerosine fractions are predominantly sulphides. The concentration of sulphide sulphur in total sulphur falls in the top fraction from 100 to 40-50% at molecular weights of 220 and 200 respectively for Tuimazy and Romashko kerosines. The higher fractions of Tuimazy crude from the Devonian are distinguished by a high total sulphur content and some increase in the relative concentration of sulphide sulphur.

GAL'PERN G.D.

KARAULOVA, Ye.N.; GAL'PERN, G.D.

Oxidation of sulfides with hydrogen peroxide. Khim.i tekh.topl.no.9: 39-44 S '56. (MLRA 9:10)

1.Institut nefti Akademii nauk SSSR.
(Sulphides) (Hydrogen peroxide)

Galpern, G D

[illegible] composition of thermally cracked [illegible] A. V. Topchiev, I. A. Musaev, E. Kh. [illegible], [illegible] and G. D. Galpern. Khim. i Tekhnol. To[illegible] 1956, No. 10, 1[illegible] Spectroscopic analysis of a thermally cracked gasoline (b. up to 60°, n_D^{20} 1.3742, d_4^{20} 0.6498, no. 105.1) showed the presence of the following hydrocarbo (wt.%): propane and propene 0.37; butane 7.15; 2-methy propane 0.50; 1-butene and 2-butene 3.80; 2-methy propene 1.91; pentane 27.60; 2-methylbutane 10.4 1-pentene 1.60; *trans*-2-pentene 4.90; 3-methyl-1-bute 0.65; 2-methyl-2-butene 10.28; 2-methyl-3-butene 4.0 cyclopentane 4.61; cyclopentene 3.00; 1-methyl-1-cycl butene uncertain; 2-methylpentane 3.87; 3-methylpentan trace; 2,2-dimethylbutane 0.48; 2,3-dimethylbutane 0.7 1-hexene uncertain; 2-methyl-1-pentene uncertain; 2-methyl-3-pentene trace; *trans*-2-methyl-3-pentene 3.2 2-methyl-4-pentene 1.89; 3-methyl-1-pentene 0.05; dimethyl-1-butene 0.47; 3,3-dimethyl-1-butene 0.16; 1, hexadiene trace; and traces of 3 addnl. unidentified compds.

—A. P. Kotloby

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

GAL'PERN, G.D.

Sexual variation in some pine species. Biul. Glav. bot. sada no.24:58-63 '56. (MLRA 9:11)

1. Institut nefti Akademii nauk SSSR.
(Pine) (Plants, Sex in)

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERN, G.D.

PRIKHOT'KO, A F

24(7) p 3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Gazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

Card 1/30

Gordadze, G.S. Anharmonicity of the Potential Curve of a Hydrogen Molecule

317

Kusakov, M.M., S.S. Nifontova, Ye. S. Pokrovskaya, et al. Study of the Structural-group Composition of Kerosene Fractions by Means of the Absorption Spectra in the Near Ultraviolet Region

321

Ioganson, A.V. Structural-group Analysis of Saturated Petroleum Products by Means of Infrared Absorption Spectra. Determination of CH_3-groups, Aliphatic CH_2-groups and Long Chains, $(CH_2)_n$-

327

Gal'pern, G.D., A.N. Kislinskiy, I.A. Musayev, et al. Study of the Composition of Benzine-ligroin Fractions by Means of Combined Dispersion Spectra

329

Gal'pern, G.D., M.M. Kusakov, Ye. S. Pokrovskaya, et al. Study of the Absorption Spectra of Some Petroleum Aromatic Hydrocarbons in the Near Ultraviolet and Infrared Regions

Card 21/30

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GAL'PERN, G.D.; KISLINSKIY, A.N.; MUSAYEV, I.A.; TOPCHIYEV, A.V.; SHISHKINA, M.V.

Raman spectrum study of gasoline-ligroine fractions. Fiz. sbor. no.3:329-333 '57. (MIRA 11:8)
(Gasoline--Spectra) (Ligroine--Spectra)

GAL'PERN, G.D.; SHISHKINA, M.V.; SHCHETSKO, M.I.

Light naphthene and paraffin hydrocarbons in ordinary Surakhany petroleum. Trudy inst. nefti. 10:59-73 '57. (MIRA 11:4)

(Surakhany region--Petroleum)
(Paraffins) (Naphthene)

[illegible]

TOPCHIYEV, A.V.; ISKHAKOV, E.Kh.; MUSAYEV, I.A.; GAL'PERN, G.D.

Chromatographic separation of benzene produced by thermal cracking.
Khim. i tekh. topl. i masel no.11:26-33 N '57. (MIRA 11:1)

1. Institut nefti AN SSSR.
(Gasoline--Analysis) (Chromatographic analysis)

GAL'PERN G.D.

AUTHORS: Volynskiy, N. P., Gal'pern, G. D. and Chudakova, I. K.

TITLE: Quantitative Detection of Haloids in Organic Compounds by the Method of Double Combustion (Kolichestvennoye opredeleniye galoidov v organicheskikh soyedineniyakh metodom dvoynogo sozhzheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, No. 1 pp. 27-29 (U.S.S.R.)

ABSTRACT: In these experiments the method of double combustion was used to detect sulfur in organic compounds. By this method vapors of the substance to be analyzed and products of its pyrolysis are conducted into a flame produced by some suitable solvent. The products of the combustion are absorbed by a suitable device, which quantitatively binds the elements to be detected. This combustion produced hydrogen haloid or free haolid, and nitrogen as NO_2, NH_2, $N(R_3)$, etc. Some description is given of the method of detecting chlorine and bromine. Sketches are presented of the equipment for quantitatively detecting haolids in organic substances by this method; besides quartz beakers, capillary tubes, burners, etc. The results of the detection of chlorine and bromine are given in tables. There is 1 Slavic reference.

~~Card 1/2~~

Inst. Petroleum AS USSR

GAL'PERN, G.D.

AUTHORS: Karaulova, Ye. N., Meylanova, D. Sh., Gal'pern, G. D. 79-11-27/56

TITLE: On the Thermal Isomerization of Allylarylsulfides (O termicheskoy izomerizatsii allilarilsul'fidov).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11, pp. 3034-3040 (USSR)

ABSTRACT: According to Claisen the characteristic property of the allylaryl-esters is the so-called regrouping, the ability of isomerizing into o-allylphenols on heating. It was attempted to apply the thermal isomerization to the sulfur-analogues of these esters, to allylphenylsulfide and o- and p-allyltolylsulfide. In contrast to the results obtained by Hurds and Greengards it was found that on heating (boiling) of allylphenylsulfide without solvents no allylthiophenol is to be obtained, but only propenylphenylsulfide which, if heated, yields concentration products. The structure of the product obtained in the thermal isomerization of allylphenylsulfide was determined by hydrogenation over nickel. Thus this isomerization with subsequent formation of allylthiophenols (Claisenian

Card 1/2

On the Thermal Isomerization of Allylarylsulfides 79-11-27/56

regrouping), like in the analogous oxygen compounds, has no effect. In thermal isomerization the allylarylsulfides are converted to the corresponding propenylarylsulfides. At first they obtained allyl-o-tolylsulfide, allyl-o-tolylsulfone, propenyl-o- and p-tolylsulfides, propenyl-o-tolylsulfone, cis- and trans-propenylphenylsulfones. Allylphenylsulfide and propenylphenylsulfide are split up by the solution of mercuric chloride in alcohol, on which occasion mercuric chloride of thiophenol forms.
There are 1 figure, and 12 references, 2 of which are Slavic.

ASSOCIATION: Petroleum Institute AS USSR (Institut nefti Akademii nauk SSSR).

SUBMITTED: December 10, 1956

AVAILABLE: Library of Congress

Card 2/2 1. Allylarysulfides - Isomerism

20-6-26/59

AUTHOR: KARAULOVA,Ye.N., MEYLANOVA,D.Sh.
GAL'PERN,G.D.

TITLE: On KLEISEN's Rearrangenment in the Allylarylsulphide Series.
(O peregruppirovke Klayzena v ryadu allilarilsul'fidov, Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 6, pp 1280 - 1282
(U.S.S.R.)

ABSTRACT: This rearrangement is an isomerization which, according to the opinion of some scientists, is characteristic not only of the allylarylethers but also of their analogys. In contrast to Hurd and Greengurd the authors found that in the case of boiling of allylphenylsulphide without solvent practically no allylthiophenol is formed, but an isomerization of the former in propenylphenylsulphide occurs. It is identical with the product insulated by Tarbell and Mc Call which they obtained by the action of sodium alcoholate in an alcoholic solution on allylphenylsulphide. When standing or warming propenylphenylsulphide forms condensation products. The thermal isomerization of the allylarylsulphides develops according to the scheme:

$ArS - CH_2CH = CH_2 \xrightarrow{to} ArSCH = CHCH_3$; (Ar = C_6H_5, o-$C_6H_4CH_3$ and n-$C_6H_4CH_3$)

Furhtermore, the single reactions with yields and experimental

Card 1/2

20-6-26/59

On KLEISEN's Rearrangement in the Allylarylsulphide Series.

conditions are described in detail. A colored reaction with sulphuric acid is characteristic of the here investigated propenylarylsulphides: A red coloring results, which quickly changes into brown. In contrast to this, allylarylsulphides, after addition of concentrated H_2SO_4, turn only faint yellow. The obtained results allow the conclusion that KLEISEN's rearrangement does not take place in the case of the allylarylthioethers, in contrast to corresponding oxygen-compounds. Allylarylthioethers isomerize in the case of heating in corresponding propenylarylsulphides. (1 Slavic reference).

ASSOCIATION: Petroleum Institute of the Academy of Science of the U.S.S.R.
PRESENTED BY: A.V.Topchiyev, Member of the Academy
SUBMITTED: 24.12.1956
AVAILABLE: Library of Congress

Card 2/2

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

20-4-30/60

AUTHORS	Topchiyev, A.B., Academician Musayev, I.A., Gal'pern, G.D.
TITLE	The Chemical Composition of Gasolines Obtained by Thermal and Catalytic Cracking. (O khimicheskom sostave benzinov termicheskogo i kataliticheskogo krekinga.)
PERIODICAL	Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 4, pp. 740-743 (USSR)
ABSTRACT	The knowledge of the unsaturated and other hydrocarbon groups which form part of the cracking products is very important. At present the problem of the influence of the raw material on the structure of the above-mentioned products is not clear enough. The solution of this problem will make it possible to come closer to a rational selection of raw materials as well as to produce mineral oil products of prescribed quality. Furthermore a number of possibilities for the chemical synthesis of mineral oil will be created. The systematic investigation of the cracking products, however, meets with specific difficulties. A survey of the methods hitherto proposed by other authors is given; special reference is made
CARD 1/5	

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

The Chemical Composition of Gasoline Obtained by Thermal and Catalytic Cracking.

to the combined treatment of sulfuric acid by hydro- and dehydrogenating catalysis and the selective hydration. The present work employed the combined method. It contains: 1) the sulfuric-acid method for determining the total content of unsaturated and aromatic compounds,
2) determination of the per cent content of unsaturated hydrocarbons in fractions according to the iodine number and the molecular weight.
3) selective hydration of the unsaturated hydrocarbons at 80 at.excess pressure and 280-300°C,
4) dehydrogenation catalysis for the purpose of determining the nature of cyclanes (the unsaturated and the saturated ones),
5) the method of aniline points for the purpose of determining the group composition of the fractions which do not contain any unsaturated ones. Pressure distillates of the thermal and catalytic cracking of paraffin oil from Groznyy were taken as test objects. Gasoline from thermal cracking. After drying in a weak nitrogen flow it was fractionated and separated into standard fractions. Table 1 shows the yields and characteristic

fractions. The fractions were divided into two parts; one part was investigated by the sulfuric-acid method, the other one was first selectively hydrated (over a copper catalyst). After sulphidization and distillation of the polymers the paraffin oil residue was thoroughly dehydrated on a platinum-iron catalyst. Table 2 gives the final results of the various hydrocarbon groups in this gasoline. Gasoline from catalytic cracking. Table 3 gives the characteristic of the initial fractions which were investigated in the same manner as above. For the 6-member naphthenes a detailed chemical group composition of gasoline from catalytic cracking (60-200°C) was determined. The final results are shown in table 4. By means of the combined method the precise group composition of gasolines from both types of cracking were investigated. It was proved that for the fractions 60-200°C of the thermal cracking gasoline a high content (44,7%) of unsaturated hydrocarbons is characteristic. The acyclic ones were

20-4-30/60

The Chemical Composition of Gasoline Obtained by Thermal and Catalytic Cracking.

predominant (24,2%). The concentration of the unsaturated ones: cyclohexenes (7,2%) and cyclopentene (11,9 %) was marked. The comparatively high content of paraffins (28,8 %) in all fractions was close to that of the acyclic unsaturated compounds. An analogous analysis of the catalytic cracking gasoline showed that the smallest content of unsaturated hydrocarbons (almost the same percentage of the acyclic ones and those with one 5-member cycle) is characteristic for the fractions 60-200°C. The 6-member unsaturated cyclic compounds were almost completely absent (0,8%). The content of paraffinic hydrocarbons considerably surpasses that of olefins; the content of aromatic hydrocarbons rapidly increases with increasing temperature of extraction and reaches 60% for the fraction 150-200°C. The diene-hydrocarbons with a conjugate bond are absent in both gasoline groups.

There are 4 tables and 13 Slavic references.

CARD 4/5

"APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7

20-4-30/60

The Chemical Composition of Gasoline Obtained by Thermal and Catalytic Cracking.

ASSOCIATION:	Petroleum Institute AN USSR (Institut nefti Akademii nauk SSSR)
SUBMITTED:	July 9, 1956.
AVAILABLE:	Library of Congress.

CARD 5/5

APPROVED FOR RELEASE: 07/16/2001 CIA-RDP86-00513R000614120019-7"

GAL'PERN, G D.

LEVENSON, Viktor Emanuilovich; KUZNETSOVA, Nina Pavlovna; MAKSIMOVA, Serafima Nikolayevna; ~~GAL'PERN, G.D.,~~ doktor khim.nauk, otv.red.; KOTLYAREVSKAYA, P.S., red.izd-va; RYLINA, Yu.V., tekhn.red.

[Some problems in the geochemical history of bituminous minerals of the Volga Valley in Kuybyshev Province] Nekotorye problemy geokhimicheskoi istorii bituminosnykh iskopaemykh Kuibyshevskogo Povolzh'ia. Moskva, Izd-vo Akad.nauk SSSR, 1958. 62 p. (MIRA 11:12)
(Kuybyshev Province--Bituminous materials)

LEVENSON, Viktor Emanuilovich; KUZNETSOVA, Nina Pavlovna; MAKSIMOVA, Serafima Nikolayevna; GAL'PERN, G.D., doktor khim.nauk, otv.red.; KOTLYAREVSKAYA, P.S., red. izd-va; RYLINA, Yu.V., tekhn.red.

[Introduction to the general study of bitumen of the Ural Mountain and Volga regions and results of the study of bitumen of Saratov Province] Vvedenie v obshchee issledovanie bituminologii Uralo-Povolzh'ia i rezul'taty bituminologicheskogo izucheniia Saratovskoi oblasti. Moskva, Izd-vo Akad.nauk SSSR, 1958. 153 p. (MIRA 11:12)
(Ural Mountain region--Bitumen) (Volga Valley--Bitumen)

Gal'pern, G.D.
p. 2

5(3); 11(4) PHASE I BOOK EXPLOITATION SOV/2221

Akademiya nauk SSSR. Institut nefti

Trudy, t. 12 (Transactions of the Petroleum Institute, USSR. Academy of Sciences, Vol 12) Moscow, Izd-vo AN SSSR, 1958. 395 p. Errata slip inserted. 1,700 copies printed.

Ed.: S. R. Sergiyenko, Professor; Ed. of Publishing House: K. G. Miyesserov; Tech. Ed.: V. V. Golubeva.

PURPOSE: The book is intended for scientists, engineers, and technicians in the petroleum industry.

COVERAGE: This collection of articles describes the results of studies on the chemistry and technology of petroleum and gas conducted in the laboratories of the Petroleum Institute, Academy of Sciences, USSR, in 1956 and 1957. A new section "Petrochemical Synthesis and Technology of Petroleum" has been included in the collection of articles. A list of investigations published by the associates of the Institute in 1956 and 1957 and a list of dissertations for the Doctor's and Candidate's degrees presented in 1956 and 1957 at open sessions of the Academic Council of the Petroleum Institute, Academy of Sciences, USSR, are given.

Card 1/9

Transactions of the Petroleum Institute, USSR (Cont.) SOV/2221

There are 349 references: 199 Soviet, 112 English, 29 German, 6 French, and 3 Japanese.

TABLE OF CONTENTS:

From the Editor

I. HYDROCARBON COMPOSITION OF THE GASOLINE-KEROSINE PETROLEUM FRACTION

Card 2/9

SOV/81-59-7-24797

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 462 (USSR)

AUTHOR: Gal'pern, G.D.

TITLE: Physico-Chemical Characteristics and Composition of Petroleum Products

PERIODICAL: V sb.: Sostav i svoystva vysokomolekul. chasti nefti. Moscow, AS USSR, 1958, pp 36 - 44

ABSTRACT: A short review of the literature. It is noted that for the investigation of the group composition of standard light fractions (60 - 95, 95 - 122, 122 - 150°C) the best characteristics until the present time are the critical point of dissolution in aniline and the refractive indices. In the case of investigating the structural group composition (SGC) of oil fractions the methods of Waterman's school have found the widest spread. Not one of the SGC methods proposed yields reliable results without preliminary separation of the raw material into the aromatic and naphthene-paraffin fractions. There are 36 references.

Card 1/1

A. Ravikovich

GAL'PERN, G.D.

62-58-4-8/32

AUTHORS: Petrov, Al. A., Sergiyenko, S. R., Tsedilina, A. L., Teterina, M. P., Kislinskiy, A. N., Gal'pern, G. D.

TITLE: Izomerization of Saturated Hydrocarbons (Isomerizatsiya nasyshchennykh uglevodorodov). Communication 1: Isomeric Conversions of Alkanes With $C_6 - C_8$ Structure (Soobshcheniye 1:Izomernyye prevrashcheniya alkanov sostava $C_6 - C_8$)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 4, pp. 437 - 445 (USSR)

ABSTRACT: During the last years in a number of works it was pointed out that saturated hydrocarbons are subject to a remarkable isomerization (References 1-4) under hydrogen pressure in the presence of catalysts (alumosilicates). This heterogenous isomerization reaction of saturated hydrocarbons found already industrial use at largest extent. Though there is great attention paid to the preparation of catalysts there are, however, relatively few works dealing with the investigation of the reaction of individual hydrocarbons

Card 1/3

62-58-4-8/32

Izomerization of Saturated Hydrocarbons. Communication 1: Isomeric Conversions of Alkanes With C_6 - C_8 Structure

(on the same conditions). Only the works by Chiapetta and Khanter (Reference 4) are an exception here. As the investigation of isomeric conversions of the individual hydrocarbons of different structure is of greatest interest the authors decided to carry out a systematic investigation of the isomerization reaction of the alkanes with a C_6- C_8 structure. The experiment was carried out according to the flowing system on special conditions and all experiments of the isomerization of the individual hydrocarbons were performed at 1o atmospheres excess pressure.
The obtained experimental data were compared with the calculated thermodynamic values.
A new mechanism of isomeric conversions of saturated hydrocarbons in the presence of polyfunctional catalysts was suggested. According to this mechanism the first stage of reaction leads to the formation of olefines. Also a great

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62-58-4-8/32

Isomerization of Saturated Hydrocarbons. Communication 1: Isomeric Conversions of Alkanes With C_6 - C_8 Structure

number of new data were determined which offer new ideas as to the binding connection, the structure and the reactivity of hydrocarbons. There are 4 tables, and 17 references, 11 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (**Petroleum Institute, AS USSR**)

SUBMITTED: November 19, 1956

AVAILABLE: Library of Congress

1. Hydrocarbons—Saturated—Isomerization 2. Alkanes C_6 - C_8—Isomeric conversions

Card 3/3

AUTHORS: Petrov, Al. A., Sergiyenko, S. R., Tsedilina, A. L., Kislinskiy, A. N., Gal'pern, G. D. SOV/62-58-6-13/37

TITLE: The Isomerization of Saturated Hydrocarbons (Izomerizatsiya nasyshchennykh uglevodorodov) Communication 3. The Isomeric Transformation of Cyclanes (Soobshcheniye 3. Izomernyye prevrashcheniya tsiklanov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 730 - 738 (USSR)

ABSTRACT: In various earlier papers the isomeric transformations of alkanes are discussed, which develop in the presence of polyfunctional catalysts under hydrogen pressure (Refs 1,2). The main purpose of this paper is the investigation of the rules governing the isomerization of hydrocarbons and of the connection between structure on the one hand and kinetic and thermodynamic parameters on the other. The catalytic isomerization of the cycloparaffin hydrocarbons $C_6 - C_9$ in the presence of a polyfunctional catalyst under hydrogen pressure was carried out. Furthermore, it was found that the isomerization products of the cycloparaffins C_7 and C_8 correspond with respect to their composition to the thermodynamic values obtained by calculation.

Card 1/2

The Isomerization of Saturated Hydrocarbons. SOV/62-58-6-13/37
Communication 3. The Isomeric Transformation of Cyclanes

A mechanism for the isomerization of cycloparaffins was suggested, according to which the formation of unsaturated hydrocarbons figures as the first stage of reaction. Furthermore the influence exercised by pressure and temperature upon the direction of the reactions of cycloparaffins in the presence of a polyfunctional catalyst was shown. There are 5 tables and 17 references, 8 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR (Petroleum Institute AS USSR)
SUBMITTED: November 19, 1956

1. Hydrocarbons--Isomerism 2. Catalysts--Performance 3. Pressure --Chemical effects 4. Temperature--Chemical effects

Card 2/2

GAL'PERN, G.D.

Abnormal fruiting in the Japanese red pine. Biul.Glav.bot.
sada no.32:112-115 '58. (MIRA 12:5)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Adler--Pine) (Abnormalities (Plants))

AUTHORS: Gal'pern, G. D., Bezinger, N. N. SOV/75-13-5-19/24

TITLE: Determination of Primary, Secondary, and Tertiary Coexisting Amino Groups (Opredeleniye pervichnykh, vtorichnykh i tretichnykh amino grupp pri sovmestnom ikh prisutstvii)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 5, pp 603-607 (USSR)

ABSTRACT: There are several references on the separate determination of primary, secondary, and tertiary amines (Refs 1-5). One of these methods (Refs 4, 5) is based on the acidimetric titration. At first, the total content of amino groups in the mixture is determined. Then, the primary amino groups are bound by salicylaldehyde, forming Schiff's-bases, and the sum of the unchanged secondary and tertiary amino groups is determined by titration. In the third sample of the original mixture the primary and secondary amino groups are acetylated by means of acetic anhydride and the tertiary amino groups are titrated acidimetrically. The main difficulty of this method is the determination of the end point, because the alcohols used as solvents (isopropylalcohol and ethylene glycol) are very weak acids. Therefore the intensity of the bases is in these solvents somewhat

Card 1/4

SOV/75-13-5-19/24

Determination of Primary, Secondary, and Tertiary Coexisting Amino Groups

higher than in aqueous solution. In alcoholic solutions only such bases can be titrated the ionization constant of which is not below 10^{-7} - 10^{-8}. In subsequent papers (Refs 6-8) for the acidimetric titration of amines glacial acetic acid has been suggested as solvent. In this medium it is possible to titrate precisely amines with ionization constants up to 10^{-11} - 10^{-12}. In the titration with glacial acetic acid, however, the Schiff's-bases are co-titrated since they are in glacial acetic acid bases of the same intensity as the secondary and tertiary amines. The authors of the present paper used as solvent for the amines glacial acetic acid. The primary amino groups were quantitatively blocked by phthalic anhydride. Thus, the corresponding phthalimides are formed which show the same behaviour as neutral compounds in contrast with the Schiff's bases. The intensity and accuracy of the subsequent potentiometric titration of the secondary and tertiary amino groups with $HClO_4$ is not at all reduced by this process. The potential jump in the endpoint is nearly as large as in an acetic acid solution of amines in absence of phthalimides. The tertiary amines are quantitatively

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determined after acetylation of the primary and secondary amino groups with acetic anhydride by potentiometric titration with $HClO_4$. The method under review was applied for the quantitative determination of primary amino groups in several aliphatic and aromatic amines and in 3-aminopyridine and 3-amino-quinoline; the results of these determinations are given. The error does as a rule not exceed 0,1%, if the nitrogen content is $>$ 10%. Amino groups in position 2 and 4 in pyridine-, quinoline- and thiazole derivatives react neither with phthalic anhydride nor with acetic anhydride and can therefore not be determined by the described method; the same applies to 2-aminothiazole. Details are given for carrying out the elaborated method of determination. There are 1 figure, 2 tables, and 10 references, 2 of which are Soviet.

ASSOCIATION: Institut nefti Akademii nauk SSSR, Moskva (Petroleum Institute AS USSR, Moscow)

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TOPCHIYEV, A.V.; MUSAYEV, I.A.; ISKHAKOVA, E.Kh.; KISLINSKIY, A.N.; GAL'PERN, G.D.

Chemical composition of thermally cracked gasoline. Report no.3: Study of individual aromatic and saturated cyclic hydrocarbons. Dokl. AN Azerb. SSR. 14 no.4:291-298 '58. (MIRA 11:5)
(Cracking process)

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AUTHORS: Topchiyev, A. V., Kazanskiy, B. A., Musayev, I. A., Gal'pern, G. D., Kusakov, M. M., Plate, A. F. (Moscow)

TITLE: Investigation of the Composition of the Light Fractions of Soviet Crudes (Issledovaniye sostava legkikh fraktsiy sovetskikh neftey)

PERIODICAL: Uspekhi khimii, 1958, Vol 27, Nr 10, pp 1177-1197 (USSR)

ABSTRACT: This paper gives a chronological report on the fundamental publications on the investigation of the composition of the light fractions of the Soviet mineral oils which have hitherto been made. In this connection special attention is payed to those publications which are edited by N. D. Zelinskiy, his collaborators and students (Refs 1-50). As may be seen from the present paper the current investigations of the mineral oil fractions until the years 1937, 1939 were carried out mainly in connection with a chemical characterization of the light benzoin and benzene ligroin fractions of mineral oil. Only in the 1940's methods were elaborated for the intensification of the individual investigation of the light fractions of the Soviet mineral oils. At the beginning of this paper reports are made on the first

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work carried out in 1881-83 (Bel'shteyn and Kurbatov). The diverse research institutes of mineralogy which have been established are chronologically mentioned (e. g.: 1924: the first central (Gosudarstvennyy Issledovatel'skiy neftyancy Institut) State Research Institute of **Petroleum** in Moscow); 1934: Institut goryuchikh iskopayemykh AN SSSR (Institute of Combustible Minerals AS USSR), diverse chemo-technical laboratories of the GINI (State Research Institute of **Petroleum**) as well as diverse research institutes in the Republics of the **Union:** Azerbaydzhanskaya SSR, **Uzbekskaya** SSR, **Turkmenskaya** SSR, and others. After World War II methods of group analysis on a higher level were elaborated for the investigation of the petroleum naphtha fractions (with a further differentiation of the hydrocarbon subgroups). It was necessary to investigate in detail the composition of the hydrocarbons of the light mineral oil fractions because of the rapid development of air plane and automobile motor construction in the USSR. Due to this fact the demands concerning the quality of the motor fuel as well as of the crude oil changed Especially in 1955 intensive investigations of the individual composition of the hydrocarbons of gasoline produced by cracking were carried out by using the chromatographic distribution of

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adsorption, the catalytic analytic hydrogenation and dehydrogenation as well as spectrum analysis by means of combined dispersion of light (Refs 108-160). In conclusion the authors are of the opinion that mere geological and geochemical factors are not sufficient for the production of experimentally founded theories on the formation and the change of **petroleum** under the conditions of migration. A great number of important data are necessary for the solution of the problem of the formation of **petroleum,** namely the nature, the concentration and the composition of the hydrocarbon components (or the non-hydrocarbon components); i. e., of the organosulfuric, nitrogen and oxygen compounds which belong to the composition of **petroleum.** There are 160 references, 160 of which are Soviet.

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