"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

SOV/137-59-2-2805

On the Mineralogical Composition of Fluxed Agglomerates

25 - 35%. Ca ferrites crystallize out on the LP which in the solid state is a ferrous glass. Addition of 9 - 12% CaO into the Ni-A mixture increases the amount of LP, decreases the melting point of the component ores by 150 - 200°C, increases the strength, and improves the quality of the Ni agglomerate.

L. Kh.

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

SOV/137-59-3-5550

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 87 (USSR)

AUTHORS: Moleva, N. G., Kusakin, P. S., Ivanova, S. V.

TITLE: On the Mineralogical Composition of Materials Through the Vertical Cross Section of a Nickel-smelting Shaft Furnace (K mineralogicheskomu sostavu materialov po vysote shakhtnoy pechi nikelevoy plavki)

PERIODICAL: Tr. In-ta metallurgii. Ural'skiy fil. AN SSSR, 1958, Nr 2, pp 195-200

ABSTRACT: The changes in the principal mineral components of the sinter cake of Ni oxide ores along the height of a furnace were studied. The sulfiding of the charge materials prior to melting proceeds mainly through the action of the gaseous phase. Intense sulfiding begins in the central zone of the furnace at the 800-900-mm level and at the periphery at the 1600-1800-mm level from the tuyères. Most of the Fe is in the form of magnetite. The principal cementing material in the sinter cake, namely, rhombic pyroxene, is transformed in the shaft of the furnace into clinopyroxene and then into diopside, i.e., monoclinic pyroxene, in the course of the concentration of lime in the liquid phase. The peripheric process is clearly evident in the furnace.

L. P.

Card 1/1

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

78-3-4-12/38

AUTHORS: Moleva, N. G., Kusakin, P. S., Vetrenko, Ye. A., Diyev, N. P. (Deceased)

TITLE: On the Phase Diagram of the System Iron-Cobalt-Sulfur (K voprosu o diagramme sostoyaniya sistemy zhelezo-kobal't-sera)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 904-910 (USSR)

ABSTRACT: The ternary system iron-cobalt-sulfur in the field of the alloys of the quasibinary section FeS-Co_4S_3 till alloys containing 15 % sulfur was investigated. The investigations were carried out by thermal and dilatometric analyses as well as by the determination of the microstructure, the specific weight and the microhardness. The phase diagram was constructed with the results obtained herein.
The investigations of mutual solubility of the components of the system show that the sulfides of cobalt and iron have limited solubility in solid state. It was found that the solubility of cobalt sulfide in iron sulfide at the eutectic temperature of 42,4 % decreases to 24,5 % at room

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

78-3-4-12/38

On the Phase Diagrams of the System Iron-Cobalt-Sulfur

temperature. The solubility of iron sulfide in cobalt sulfide is about 20 % FeS. The solubility is not affected by the temperature. In the system Fe-Co-S the pure components do not crystallize, but their solid solutions do. Microscopic investigations showed that the structures of the alloys of the ternary system have 8 structural types at normal temperature. In the systems Co-S and FeS-Co_4S_3 in solid state in the field of the ternary system transitions were found at 770-790°C and 810-830°C. The points of the triple eutectic were not determined exactly. There are 5 figures, 1 table, and 15 references, 8 of which are Soviet.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR, Institut metallurgii (Ural Branch of the AS USSR, Institute of Metallurgy)

SUBMITTED: June 25, 1957

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

AUTHORS: Anisheva, N. A., Kusakin, P. S. 78-3-4-14/38

TITLE: The Construction of the Phase Diagram of Iron Sulfide - Nickel Sulfide - Cobalt Sulfide (up to 30%)
(K postroyeniyu diagrammy sostoyaniya sul'fid zheleza-sul'fid nikelya-sul'fid kobal'ta (do 30%))

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp 915-921 (USSR)

ABSTRACT: In the present paper the mutual solubility of the sulfides of iron, nickel and cobalt in liquid and solid state as well as the change of the annealing temperature of the alloys of the system FeS-CoS-NiS in connection with the content of the single components, the phase composition and the structure of the alloys in individual fields of crystallization in connection with temperature and the content of sulfide components is investigated.
Also the binary systems Co_4S_3-Ni_3S_2 and FeS-Ni_3S_2 were investigated. In the binary system Co_4S_3-Ni_3S_2 in the primary crystallization the α-solid solution decomposes at 475°C into δ- and γ-solid solutions. In the system FeS-Ni_3S_2 the decomposition of the α-solid solution into

Card 1/2

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

The Construction of the Phase Diagram of Iron Sulfide - Nickel Sulfide - Cobalt Sulfide 78-3-4-4/35

β, γ- and ε solid solutions also occurs at temperatures of 614°C and 515°C. In the system FeS-Ni_3S_2 in liquid state there exists complete miscibility of all three components. In the crystallization of the alloys of the ternary system solid solutions of α and β form (β represents a solid solution of cobalt- and nickel sulfide in iron sulfide, α represents a solid solution of iron sulfide in cobalt- and nickel sulfide).

The investigations of the alloys as well as of the occurrence of the phases were carried out according to the following methods: thermographic, dilatometric, thermal and chemical analyses, determination of microstructure and microhardness. Based on the experimental results the diagrams were constructed and the polythermal sections were projected.

There are 4 figures, 1 table, and 12 references, 10 of which are Soviet.

ASSOCIATION: Institut metallurgii Ural'skogo filiala Akademii nauk SSSR, Sverdlovsk (Institute of Metallurgy, Ural Branch of AS USSR, Sverdlovsk)

SUBMITTED: June 25, 1957

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KOZHEVNIKOV, G.N.; KUSAKIN, P.S.

Diagram representing the equilibrium condition of the system helenite-sodium oxide. Izv. Sib. otd. AN SSSR no.7:13-22 '58. (MIRA 11:9)

1.Uraliskiy filial AN SSSR.
(Systems (Chemistry)) (Ozocerite) (Sodium oxide)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

MOLEVA, N.G.; KUSAKIN, P.S.

Sulfidizing of magnetite. Trudy Inst.met.UFAN SSSR no.3:15-19 '59. (MIRA 13:4)

(Magnetite) (Ore dressing)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

DIYEV, N.P. [deceased]; YELISEYEV, I.S.; KOCHNEV, M.I.; PADUCHEV, V.V.; VERMENICHEV, S.A.; SARKISOV, I.I.; MAL'TSEV, B.V.; KUSAKIN, P.S.

Use of oxygen in bessemerizing copper mattes in industrial converters. Trudy Inst.met.UFAN SSSR no.3:93-101 '59. (MIRA 13:4)

(Copper--Metallurgy)
(Oxygen--Industrial applications)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

05879

5(2) SOV/78-4-11-32/50

AUTHORS: Kuvakin, M. A., Kusakin, P. S.

TITLE: Investigation of the System NaF - AlF_3 - NaCl

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11, pp 2577 - 2581 (USSR)

ABSTRACT: In investigating this system, it was taken into account that an addition of NaCl could lower the melting point of the bath used for the electrolytic production of aluminum. The melting diagrams were recorded by means of N. S. Kurnakov's pyrometer. The binary systems are described at first. NaF -AlF_3: here, the publication data (Refs 2-4) are confirmed in general. The melting temperature of cryolite was determined to be 1008°. The compound NaF.AlF_3 determined by M. Hordion (Ref 4) could not be confirmed. Solid solutions did not appear. NaF - NaCl: slight corrections to the diagram given by Plato (Ref 5) are given. NaCl - AlF_3: was first investigated by the authors up to a content of 60% AlF_3 (Fig 1, Table 1). The mixture with 68% NaCl has the lowest melting temperature (714°). A complete investigation of this system was not possible because of the volatility of AlF_3 and the reaction $3NaCl+AlF_3 \rightleftharpoons AlCl_3+3NaF$.

Card 1/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

Investigation of the System NaF - AlF_3 - NaCl

05879
SOV/78-4-11-32/50

The phase diagram of the ternary system was drawn by means of 12 sections (Table 2, Figs 2-5). It is represented in figure 6 as a projection on the composition triangle. The isothermal lines of the primary crystallization are entered. The addition of NaCl lowers the melting temperature of a mixture consisting of NaF and AlF_3. Chemical compounds do not appear in this system; solid solutions do not develop either. There are 6 figures, 2 tables, and 5 references, 3 of which are Soviet.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR (Ural Branch of the Academy of Sciences, USSR)

SUBMITTED: July 21, 1958

Card 2/2

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKIN, P.S., kand.tekhn.nauk, otv.red.; SEREDKINA, N.F., tekhn.red.

[Use of oxygen at metallurgical enterprises in the Urals; materials of a coordinating conference] Primenenie kisloroda na metallurgicheskikh predpriiatiiakh Urala; materialy koordinatsionnogo soveshchaniia. Sverdlovsk, Akad.nauk SSSR, In-t metallurgii, 1960. 152 p. (MIRA 13:10)

1. Koordinatsionnoye soveshchaniye po voprosam primeneniya kisloroda na metallurgicheskikh predpriyatiyakh Urala. Sverdlovsk, 1956.

(Ural Mountains--Metal industries)
(Oxygen--Industrial applications)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

MOLEVA, N.G.; KUSAKIN, P.S.

Microscopy of the products of sulfidizing metallic oxides by elementary sulfur. Trudy Inst.met.UFAN SSSR no.5: 105-108 '60. (MIRA 13:8)
(Metallic oxides) (Vapor plating) (Microscopy)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

USPENSKIY, N.F.; KUSAKIN, P.S.; DIYEV, N.P. [deceased]; PERESTORONIN, A.A.; TIKHONOV, A.I.; PRISHLETSOV, D.V.; YERKIN, L.I.

Shaft furnace melting of an oxidized nickel ore sinter with use of highly sulfurous coke. Trudy Inst.met.UFAN SSSR no.5:123-135 '60. (MIRA 13:8)
(Nickel--Metallurgy) (Sulfur)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUVAKIN, M.A.; KUSAKIN, P.S.

Electric conductivity of melts of the system Na_3AlF_6 - NaCl.
Trudy Inst.met.UFAN SSSR no.5:145-147 '60. (MIRA 13:8)
(Aluminum--Electrometallurgy)
(Liquid metals--Electric properties)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

MOLEVA, N.G.; ZHUCHKOV, V.I.; MIKULINSKIY, A.S.; KUSAKIN, P.S.; YEFREMKIN, V.V.

Change in the phase composition of materials in relation to the height of the thermal ore furnace in obtaining manganese sinter. Trudy Inst. met. UFAN SSSR no.7:119-125 '61. (MIRA 16:6)
(Sintering) (Manganese ores)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

MOLEVA, N.G.; KUSAKIN, P.S.; IVANOVA, S.V.

Changes in the composition of the charge mixture along the height of a stack furnace for nickel smelting with a blow containing 40-percent oxygen. Tsvet. met. 36 no.4:36-40 Ap '63. (MIRA 16:4)

(Nickel—Metallurgy)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

OKUNEV, A.I.; KUSAKIN, P.S.; VATOLIN, N.A.; KOLMOGOROV, B.A.; ZAMORIN, L.N.

Obtaining metallic nickel directly from a liquid matte.
Trudy Inst. met. UFAN SSSR no.8:75-82 '63.

(MIRA 17:9)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KOZYREV, B.P.; KUSAKIN, V.F.

Electron-induced conductivity of thin layers of PbS, Bi_2S_3, and copper-activated CdS. Izv.vys.ucheb.zav.; fiz. no.3:16-22 '59. (MIRA 12:10)

1. Leningradskiy elektrotekhnicheskiy institut imeni V.I. Ul'yanova (Lenina).
(Semiconductors) (Sulfides—Electric properties)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

30120
S/194/61/000/007/036/079
D201/D305

9,4170 (1051)

AUTHOR: Kozyrev, B.P. and Kusakin, V.F.

TITLE: Electron bombardment of photoelectric switching elements

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 25, abstract 7 G161 (Izv. Leningr. elektrotekhn. in-ta, 1960, no. 44, 100-105)

TEXT: The bombardment of Ge, Si and CdTe photo-elements by electrons with velocities 2 ÷ 14 kV gives rise to an e.m.f. and consequently a considerable current I_{in} is induced in the external circuit of the photoelement. The graphs of I_{in} against the electron velocity show that the increase in the energy of bombarding electrons produces a sharp increase in the "amplification" of current I_{in}, the largest "amplification" being observed in CdTe photo-elements. By using the impulse bombardment of photo-elements for the study of their frequency dependent properties it has been establish-

Card 1/2 * ÷ = to, i.e. 2÷14 kV = 2 to 14 kV

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKIN, V.P.

Schools of advanced practices at the Yaroslavl Tire Plant.
Opyt rab. po tekh. inform. i prop. no.2:27-29 '63.
(MIRA 16:12)

1. Starshiy inzh. byuro tekhnicheskoy informatsii Yaroslavskogo shinnogo zavoda.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

KUSAKINA, A.A.

Changes in the transparency, sorption capacity, and polarization degree of a frog muscle induced by certain alterative agents [with summary in English]. Vest.LGU 12 no.15:119-127 '57. (MIRA 10:11)
(MUSCLE)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A., Cand Biol Sci -- (diss) "Experiment in applying the photoelectric method for measuring changes in the transparency of tissue in the course of the parabiotic process." Len, 1959, 14 pp; 1 sheet of tables (Len Order of Lenin State Univ im A.A. Zhdanov) 150 copies (KL, 35-59, 113)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Changes in the transparency of the cutaneous musculus pectoralis of the frog under various alternating influences. TSitologiia 1 no.2:218-228 Mr-Ap '59. (MIRA 12:9)

1. Kafedra fiziologii cheloveka i zhivotnykh Leningradskogo universiteta.

(MUSCLE)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

POLYANSKIY, Yu.I., otv.red.; LOZINA-LOZINSKIY, L.K., zamestitel' otv. red.; VOROB'YEV, V.I., red.; ZHIRMUNSKIY, A.V., red.; KUSAKINA, A.A., red.; RUMYANTSEV, P.P., red.; SHAPIRO, Ye.A., red.; SERGEYEVA, G.I., red.izd-va; BLEYKH, E.Yu., tekhn.red.

[Problems of cytology and protistology; collection of articles] Voprosy tsitologii i protistologii; sbornik rabot. Moskva, 1960. 316 p. (MIRA 13:2)

1. Akademiya nauk SSSR. Institut tsitologii. 2. Laboratoriya kletochnykh adaptatsii Instituta tsitologii AN SSSR (for Lozina-Lozinskiy, Rumyantsev). 3. Latoratoriya fiziologii kletki Instituta tsitologii AN SSSR (for Vorob'yev, Shapiro). 4. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR (for Zhirmunskiy, Kusakina).

(CELLS)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Changes in the transparency of muscle in the parabiotic process. Nerv. sist. no.1:56-67 '60. (MIRA 13:9)

1. Kafedra fiziologii cheloveka i zhivotnykh, Leningradskiy ordena Lenina gosudarstvennyy universitet im. A.A. Zhdanova.
(MUSCLE)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

USHAKOV, B.P.; KUSAKINA, A.A.

Lability and conservatism of the adaptation of animal cells revealed at the protein level. TSitologiia 2 no.4:428-441 Jl-Ag '60. (MIRA 13:9)

1. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad.
(ADAPTATION (BIOLOGY)) (LEECHES)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

ARZUMANOV, V.N.; KUSAKINA, A.A.

Portable stimulator for use in the field. Tsitologiia 2 no.4: 501-502 Jl-Ag '60. (MIRA 13:9)

1. Leningradskiy politekhnicheskiy institut i Institut tsitologii AN SSSR, Leningrad.
(PHYSIOLOGICAL APPARATUS)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A., USHAKOV, B.P., (USSR)

"Change in the Cholinesterase Activity of the Muscle Tissue of Leeches Kept at Various Temperatures.

Report presented at the 5th Int'l. Biochemistry Congress, Moscow, 10-16 Aug. 1961.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Effect of temperature on the rate of decrease of cholinesterase activity in liver homogenates of the frogs Rana temporaria L. and R. ridibunda Pall. Dokl. AN SSSR 139 no.5:1258-1261 Ag '61. (MIRA 14:8)

1. Institut tsitologii AN SSSR. Predstavleno akademikom Ye. N. Pavlovskim.
(CHOLINESTERASE)
(TEMPERATURE—PHYSIOLOGICAL EFFECT)
(FROGS)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Heat resistance of muscles and cholinesterase and its correspondence to the temperature conditions of the specific environment of certain fishes. TSitologiia 4 no.1:68-71 Ja-F '62. (MIRA 15:4)

1. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad.

(ADAPTATION (BIOLOGY)) (HEAT—PHYSIOLOGICAL EFFECT)
(MUSCLES) (CHOLINESTERASE)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Congruity between the heat resistance of protoplasm proteins and the temperature conditions of the life of a species. Vop. ekol. 4:45-46 '62. (MIRA 15:11)

1. Institut tsitologii AN SSSR, Leningrad.
(Proteins in the body) (Heat—Physiological effect)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

USHAKOV, B.P.; VINOGRADOVA, A.N.; KUSAKINA, A.A.

Cytophysiological analysis of the interspecific differentiation of whitefish and grayling in Lake Baikal. Zhur. ob. biol. 23 no.1:56-63 Ja-F '62. (MIRA 15:3)

1. Institut tsitologii AN SSSR, Leningrad.
(BAIKAL, LAKE--WHITEFISHES)
(BAIKAL, LAKE--GRAYLING)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Thermal endurance of the muscles and cholinesterase of the muscular homogenates in crucian carps taken from hot springs and normal waters. Dokl. AN SSSR 144 no.5:1160-1162 Je '62. (MIRA 15:6)

1. Institut tsitologii AN SSSR. Predstavleno akademikom Ye.N.Pavlovskim.

(CARP) (ECOLOGY)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A. A.; VINOGRADOVA, A. N.

"Species difference in the heat resistance of protoplasmic proteins in multicellular poikilothermic animals."

UNESCO - International Symposium on the Role of Cell Reactions in Adaptations of Metazoa to Environmental Temperature.

Leningrad, USSR, 31 May - 5 June 1963

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

VINOGRADOVA, A.N.; KUSAKINA, A.A.

Heat resistance of protoplasmic proteins in the representatives of various populations of Rana ridibunda Pall. Sbor.rab. Inst. tsit. no.6:158-162'63. (MIRA 16:8)
(FROGS) (HEAT--PHYSIOLOGICAL EFFECT) (MUSCLE)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Specific differences in the heat resistance of protoplasmic proteins. Sbor.rab. Inst. tsit. no.6:169-188'63. (MIRA 16:8)
(PROTEINS IN THE BODY) (HEAT--PHYSIOLOGICAL EFFECT)
(ANIMALS, COLD-BLOODED)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, A.A.

Heat resistance of the acetylcholinesterase of muscle and brain homogenates of white rats with different lipids composition of their tissue. Sbor.rab. Inst. tsit. no.6:213-216'63. (MIRA 16:8)

(ACETYLCHOLINESTERASE) (HEAT—PHYSIOLOGICAL EFFECT) (LIPIDS)

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KUSAKINA, A.A.

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594-597 S-O '63. (MIRA 37:4)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6"

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TROSHIN,A.S., otv. red.; ARRONET,N.I., red.; BEYYER,T.V., red.; ZHIRMUNSKIY,A.V., red.; KUSAKINA,A.A., red.; PROSSER, K.L., red.; LOZINA-LOZINSKIY,L.K., red.; POLYANSKIY, Yu.I., red.; SUKHANOVA,K.M., red.; USHAKOV,B.P., red.; FEL'DMAN,N.L., red.; ALEKSANDROV, V.Ya., red.

[Cell and the temperature of the medium; transactions] Kletka i temperatura sredy; trudy. Moskva, Nauka, 1964. 303 p. (MIRA 18:1)

1. International Symposium on Cytoecology, Leningrad, 1963. 2. Institut tsitologii AN SSSR, Leningrad (for Troshin, Arronet). 3. Laboratoriya kosmicheskoy biologii Instituta tsitologii AN SSSR, Leningrad (for Lozina-Lozinskiy).4. Laboratoriya tsitofiziologii i tsitoekologii Botanichskogo instituta im. V.L.Komarova AN SSSR, Leningrad (for Aleksandrov). 5. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad (for Zhirmunskiy, Kusakina, Ushakov). 6. Laboratoriya tsitologii odnokletochnykh organizmov Instituta tsitologii AN SSSR, Leningrad (for Sukhanova). 7. Botanicheskiy institut imeni V.L.Komarova AN SSSR, Leningrad (for Arronet).

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KUSAKINA, A.A.

Thermostability of hemoglobin and chloinestorase of muslces and liver in the representatives of three subspecies of the common toad (Bufo bufo L.). Sbor.rab.Inst.tsit. no.8:208-211 '65.

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1. Laboratoriya sravnitel'noy tsitologii Instituta tsitologii AN SSSR, Leningrad.

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ZMIYEVSKIY, P.K.; KUSAKINA, ~~G.M.~~

Using a redesigned atmospheric-vacuum pipe still in the Volgograd Petroleum Refinery. Neftianik 8 no.1:31-32 Ja '63. (MIRA 16:3)
(Volgograd—Distillation, Fractional)

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ZMIYEVSKIY, P.K.; KLYUKANOVA, T.N.; KUSAKINA, G.M.

Investigating thermal-cracking and retarded coking gasolines as raw stock for oxo-synthesis. Neft. i gaz. prom. no.41 48-49 O-D '64 (MIRA 18:2)

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Investigating the coking distillates from the refining residues of Volgograd oils. Izv. vys. ucheb. zav.; neft' i gaz 7 no.3: 59-62 '64. (MIRA 17:6)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.

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KUSAKINA, N.P.; YAKIMETS, Ye.M.

Preparation and properties of the sodium salt of Ce (III) ethylenediaminotetraacetate. Zhur.neorg.khim. 10 no.4:1010-1012 Ap '65. (MIRA 18:6)

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KUSAKINA, N.P.; YAKIMETS, Ye.M.

Preparation and properties of hydrogen aquaethylenediaminotetra-acetatoceriate (III). Zhur.neorg.khim. 10 no.4:1013-1014 Ap '65. (MIRA 18:6)

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KUSAKINA, N.P.; YAKIMETS, Ye.M.

Trilonometric method of analysis of lead vanadate. Trudy Ural.politekh. inst.no.121:91-94 '62. (MIRA 16:5)

(Lead vanadates) (Acetic acid)

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[illegible]

Int[illegible]tion of tel[illegible]alent [illegible]
politekh.inst. no.[illegible]:77-8[illegible] '[illegible]3. (MIRA [illegible])

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKINA, N.P.

Oxidation-reduction properties of acid chrome dark blue, chromogen black ET-00 and murexide indicators. Trudy Ural.politekh.inst. no.130:42-47 '63. (MIRA 17:10)

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Physics of the surface phenomena in petroleum technology. M. M. Kusakov, V. S. Kuznetzova and N. A. Semenenko. *J. Tech. Phys.* (U. S. S. R.) 4, 1877-94 (1934).— Data are given for the adsorption of isoamyl alc., stearic acid and oleic acid on the boundary water-medical oil. Surface tensions are given for various Soviet petroleum oils and refined products for the boundaries oil-water and oil-air. The data are used to judge the nature and extent of refining of the various petroleums.
F. H. Rathmann

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

The application of the H. Le Chatelier and the Fulcher-Tammann viscosity formulas to tractor oils at various temperatures. B. Deryagin and M. Kusakov. *Neftyanoe Khozyaistvo* **26**, No. 12, 55-9(1934).—The temp.-viscosity relationship of oils can be expressed (within 0-140°) by the Fulcher-Tammann equation $\log \eta/\eta_0 = C/(t - t_0)$ and with some approximation by the Le Chatelier equation $\log \log \eta/\eta_0 = A - Bt$, where η_0, A and B are empirical consts., and $\log \log \eta = A - Bt$. This conclusion is drawn on the basis of expts. carried out with 12 different oils.

A. A. Boehtlingk

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KUSAKOV, M. M.

Author, "Methods of Determining the Physicochemical Characteristics of Crude Oil Products," United Scientific and Technical Pub. Houses, Leningrad, 1936. About method of determination of the refraction of crude oils, in USSR

Soviet Source: M: Nefti SSSR, Moscow-Leningrad, 1945. Abstracted in USAF" Treasure Island", on file in Library of Congress, Air Information Division, Report No. 88259. UNCLASSIFIED.

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Properties of thin liquid layers and their effect upon the exchange process at solid surfaces. B. Deryagin and M. Kussakov. *Bull. acad. sci. U. R. S. S., Classe sci. math nat., Sér. chim.* 1936, 741-52 (in German 753). A method for detg. the relation and thickness of the layers, and thickness and energy characteristics of their solvate sheaths is described. For the case of a hydrophile microscopic layer the thickness is of the order of 1 μ; electrolytes cause radical variations therein. Theoretical explanations follow for stabilization and coagulation of disperse systems, swelling of lyophile colloids, and sediment vol. and filtration action of aq. solns. Gregg M. Evans

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PROCESSES AND PROPERTIES INDEX

The experimental investigation of solvation of surfaces and its application to the development of a mathematical theory of lyophile colloids. B. V. Deryagin and M. Kussakov. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. chim.* 1937, 1119-50(in English 1150-2). The disjoining action exhibited by a thin film of liquid sepg. 2 phases (2 micelles or a solid or liquid phase from a bubble of gas) is a fundamental property of solvate layers. Quantitatively, the property is characterized by the dependence of the equil. disjoining pressure P on the thickness h of the plane-parallel layer. This function $P = f(h)$ corresponds to an isotherm of the equation of state of the layer. For a water film on glass and mica and for a film of paraffin oil on steel a pressure P of 500 dynes per sq. cm. corresponds to a film thickness of 10^{-6} - 3×10^{-6} cm., which indicates that the solvation effect is more than a surface phenomenon. Addn. of KCl to water, even in normal concn., does not affect the order of thickness of the solvate layers, implying that the disjoining action is not exclusively due to the repulsion of diffuse ionic layers, common to both surfaces of the solvate film. Trivalent cations such as Al^{+++} have a strong desolvating action, reducing greatly the thickness of the wetting film and changing complete wetting into incomplete with a contact angle of 2-3°. The addn. of oleic acid to paraffin oil increases the thickness of the oil film on steel to several times its previous size, which indicates that the adsorption layer affects the thickness and disjoining effect of solvate layers, thus increasing solvation. J. L.

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1ST AND 2ND ORDER

PROCESSES AND PROPERTIES INDEX

Application of the formulas of Le Chatelier and Vogel-Fulcher-Tamman to the viscosity of strongly associated liquids at different temperatures. B. V. Deryagin and M. Kusakov. *Acta Physicochim. U. R. S. S.* 7, 459-66(1937) (in German).—The temp. dependence of the viscosity of oils in the range 0-140° corresponds to the V. F. T. formula (cf. *C. A.* 17, 2661). The formula of Le C. (cf. *C. A.* 19, 3573) is less satisfactory. Twelve different auto-tractor oils were investigated. W. George Parks

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PROCESSES AND PROPERTIES INDEX

Anomalous properties of thin multimolecular films. V. Experimental investigation of multimolecular solvate (adsorbed) films as applied to the development of a mathematical theory of the stability of colloids. B. DERJAGUIN and M. KUSSAKOV (Acta Physicochim. U.R.S.S., 1939, 10, 25—44).—An improved method of measuring the thickness of films of liquid between a solid surface wetted by them and a gas bubble is described (cf. A., 1937, I, 358; 1938, I, 194). The importance of such films for the conception of solvation and for the theory of colloid stability is discussed. F. L. U.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

A-1

Range of molecular action of surfaces and multimolecular solvate (adsorbed) layers. B. DERJAGUIN, M. KUSSAKOV, and L. LEBEDEVA (Compt. rend. Acad. Sci. U.R.S.S., 1939, **23**, 671—673; cf. A., 1937, I, 358).—The thickness, h, of a film formed by H_2O between a gas bubble and mica is $\sim 1 \cdot 2 \times 10^{-5}$ cm. Measured vals. of h at various vals. of the excess internal pressure P correspond with states in thermodynamic equilibrium, indicating a range of action of mol. surface forces of $2—3 \times 10^{-5}$ cm. For electrolytes, the film collapses when h becomes small, and an upper limit to the thickness of stable wetting layers of liquids on solids exists. Dissolved substances alter the form of the P-h curve. The variation of h with solute concn. shows that h of adsorbed layers at solution-solid interfaces is $\sim 10^{-5}$ cm. The interpretation of the pressure P in aq. solutions is discussed. W. R. A.

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CA

22

The physical chemistry of surface phenomena in the technology of petroleum. II. Molecular-surface properties of petroleums. M. M. Kusakov and K. R. Zinchenko. *Bull. acad. sci. U. R. S. S., Chem. sci. tech.* 1960, No. 4, 19-28.—Ten specimens of petroleum contained strong acids 0.001-0.043, weak acids and phenols 0.001-0.615, free bases 0.002-0.033, bound bases 0.002-0.010, asphaltenes 0.120-3.079, carbenes 0.016-0.102, silica gel tars 2.14-16.03 and solid paraffin 1.94-12.30%. The surface tensions of petroleum solns. in nonpolar medicinal oil (surface tension at the boundary with water at 20° is σ_{ow} 51.4 erg/sq. cm.) and in nonpolar gasoline (surface tension of the 70-90° fraction at the boundary with water at 20° is σ_{ow} 49.1 erg/sq. cm.) were detd. at the boundary with water. The mol.-surface characteristics of petroleums are valuable for detg. a no. of their properties. The content of the polar surface-active components in petroleum has an important effect on the movement of petroleum in the sand layer. The surface-active polar components of petroleum are mainly strong acids, bases and phenols, and the sum of these components decreases with the decrease of the initial surface activity of petroleums. The surface-active components of all petroleums investigated were more adsorbed (i. e., decreased the surface tension) at the boundary nonpolar gasoline-water than at the boundary nonpolar medicinal oil-water. In the very polar petroleums these differences are especially great. This fact can be explained, evidently, by the change of the colloidal state of the polar surface-active components of petroleum in soln. The soln. of petroleum in gasoline is less colloidal and resembles more a true mol. soln. Thirteen references.

W. R. Hess

Lab. of Petroleum Beds, Inst. of Mining, AS USSR

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22

The physics and chemistry of surface phenomena in petroleum technology. III. Washing the Ukhtin petroleum out of the natural formations. M. M. Kusakov, E. Prokof'eva and E. Fainglaz. *Bull. acad. sci. U. R. S. S., Classe sci. tech.* 1940, No. 5, 49-58; *cf. C. A.* 36, 1109[8].—Petroleum is best washed with weak solns. of alkalies, such as Na_2CO_3, NaOH and KOH, at 100°. Approx. 10 min. of washing is required. The temp. is very important. Five references W. R. Henn

Lab. of Petroleum Beds, Inst. of Mining, AS USSR

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

6a

2

Properties of multimolecular layers of nonaqueous liquids. M. Kusakov and A. Titievskaya. *Compt. rend. acad. sci. U. R. S. S.* 28, 332-5(1940)(in English); cf. *C. A.* 34, 4635[9].—Curves of capillary pressure vs. thickness of the layer of liquid between gas and solid surface for various satd. aliphatic hydrocarbons on lead glass are reproduced. The thickness of the liquid layer increases with the no. of C atoms in the mol. to a max. for 8 or 9 C atoms. The solid has a strong effect upon the thickness of liquid layers. The greatest thickness was observed on a metallic surface, a fact of great importance in lubrication practice. The effect of the solid is greatest in the region of comparatively thin layers. The thickness of multimol. layers on a solid depends on the length of the mols. of the liquid. Addn. of small amts. of surface-active substances (e. g., fatty acids), adsorbed at the surface, increases the thickness of the layers. 11 references. A. H. K.

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

B6

Surface phenomena in petroleum-filtration processes. M. M. Kusakov, P. A. Rebbinder, and N. E. Lisitschenko (*Compt. rend. Acad. Sci. U.R.S.S.*, 1940, 28, 433—437).—The effect of adsorption-solvated layers on the flow of hydrocarbon mixtures and H_2O through a layer of pure quartz powder of various particle size has been determined. The effect of surface-active components of petroleum and the addition of surface-active substances was investigated under conditions of isoviscosity, i.e., the rate of continuous filtration of two liquids having the same η was measured, one being a mixture of non-polar hydrocarbons of the paraffin series containing no surface-active substances, whilst the other was a natural petroleum or a mixture containing polar substances. Each series of experiments included filtration of H_2O, a non-polar liquid isoviscous with the petroleum, and the petroleum itself through dry quartz; the filtration of a non-polar liquid, and this liquid mixed with petroleum, and petroleum itself through quartz wetted with H_2O; and the filtration of H_2O through quartz pre-wetted with (*a*) a non-polar liquid, (*b*) a solution of petroleum in this liquid, and (*c*) pure petroleum. All measurements concerned true filtration, where all pores were filled with percolating liquid. The rate of filtration through dry quartz is decreased by polar surface-active components of petroleum. An explanation of this is proposed on the assumption that adsorption-solvated layers are colloid, attain a considerable thickness, and then have high η. Under natural conditions the rate of filtration may be further decreased by chemical fixation of adsorption layers, and by formation of Ca or Mg soaps. The rate of filtration of H_2O through quartz pre-wetted with petroleum increases as the content of surface-active substances in the petroleum is reduced. The reverse is the case if petroleum is filtered through quartz pre-wetted with H_2O. A. J. M.

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CA

The characteristic of the temperature dependence of the viscosity of lubricating oils. M. M. Kusakov (Colloid Electrochem. Inst., Acad. Sci. U.S.S.R.). *Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk, Inst. Mashinovedeniya, Soveshchanie Vyazkosti Zhidkostei i Kolloid. Rastvorov* (Conf. on Viscosity of Liquids and Colloidal Solns.) 1, 149-60(1941).—For practical purposes, the quality of a lubricating oil is characterized by the value of the viscosity η at a given temp. (viscosity level) and the slope of the $d\eta/dt$ curve in the given temp. interval. All existing systems expressing the quality of lubricating oil by a single viscosity index are unsatisfactory. A single index can never be sufficient to characterize the quality of a lubricating oil with regard to both viscosity level and temp. coeff. One parameter is needed to define the level at a given temp. and one or two more, depending on the accuracy demanded, to characterize the slope of the curve $\eta = f(t)$. The temp. dependence can always be represented in the form of a function of η linear with respect to temp., namely some function $\varphi(\eta) = At + B$, providing two parameters A and B. The choice of the function $\varphi(\eta)$ amounts to a "straightening" of the temp. curve of η by substituting a function of η linear in temp., for η itself. If higher accuracy is required, a third parameter C is needed; it must be included in $\varphi(\eta)$. Problems of interpolation and of extrapolation, and of classification of lubricating oils, can then be solved with sufficient accuracy with the aid of nomograms. As a three-const. equation, the Vogel-Fulcher-Tammann formula $\ln \eta/\eta_\infty = C(t - t_0)$ is proposed which, by substituting for η the kinematic viscosity $\nu = \eta/\zeta$ (where ζ = density), becomes $\nu = \nu_\infty e^{C(t - t_0)}$. The const. ν_∞ characterizes the viscosity level at an infinitely high temp., the coeff. C is that change in temp. for which the kinematic viscosity ν would be increased e times relative to ν_∞, at $C = t - t_0$, $\nu = \nu_\infty e$. The const. t_0 represents the temp. at which the viscosity would become infinite. Oils with a high value of ν_∞ have a high "viscosity level", high values of C and of t_0 mean gentle slope of $d\nu/dt$ and $d\eta/dt$, that is relatively slight temp. variation of ν and η. From experimentally found values of ν_∞, C, and t_0, $\varphi(\nu) = At + B$ can be written in the form $1/\ln(\nu/\nu_\infty) = (1/C)t - t_0/C$. This equation has been found without exception in good agreement with exptl. material.

N. Thon

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KUSAKOV, M. M.; KRYM, K. S.

Science

"Tribometer with a Flexible Axis for the Measurement of Kinetic Friction Under Conditions of Boundary Lubrication." Iz. AK. Nauk SSSR, Otdel. Tekh. Nauk, No. 4-5, 1944. Colloido-Electro-chemical Institute, Academy of Sciences, USSR. Submitted 1 Dec. 1943.

REPORT U-1556, 14 Nov 1951.

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KUSAKOV, M. M.

Laboratory of Physical-Chemistry of Petroleum, Institute of Mineral Fuels, Academy of Sciences, USSR (-1944-)

"Temperature and Concentration Dependence of the Viscosity of Lubricating Oils with High-Viscosity and Low-Viscosity Additives".

Lz Ak Nauk SSSR. Otdel, Tekh, Nauk.
Nos. 10-11 1944

[redacted]-52059019

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1ST AND 2ND ORDERS

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F

3035. VARIATION OF VISCOSITY WITH TEMPERATURE AND CONCENTRATION, IN LUBRICATING OILS CONTAINING HIGH AND LOW VISCOSITY ADDITIVES. Kusakov, M.M. (Bull. acad. sci. U.R.S.S., Cl sci, tech., 1944, 672-684; J inst. petrol. 1945, 31, 2144). Viscosity determinations on additive containing oils were made inan Ubbelohde viscometer in a special thermostat capable of maintaining a wide range(-50 to 100 C.) of accurately controlled (0.2-0.3) temperatures. High viscosity additives used were "paraton," Reuperol," and "vinipol," the two latter being polymerized vinyl esters; gasoline was used as low viscosity additive. At low temperatures viscosity determinations were carried out with a small applied pressure; limiting value of viscosity attained (at pressures in region of 400 mm. H_2O) was taken as true value. Effect of additives may be expressed by the relationship $\eta = n$, where c is concentration (wt.%) of additive and a is a constant. In the case of viscous additives a is prositive and characteristic of the additive, being independent of temperature. Relationship holds for such light products as gas oil and kerosine and for additive concentrations up to 15-20%. In the case of additives of low viscosity (i.e., gasoline) constant a becomes negative and varies with temperature, increasing

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as the latter falls. Effect of gasoline in lowering viscosity is more marked the greater the original viscosity. Cn (the concentration of its original value) is found to be a linear function of temperature when the latter is positive. Above relationships are of considerable value in preparation of blends having required viscosity characteristics. Effect of both types of additives is to cause a flattening of the viscosity/temperature curve. In the case of simultaneous addition of viscous and nonviscous additives the effect of the former is independent of that of the latter. Results are presented graphically in numerous diagrams.

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Bc

A-1

Capillary-gravitational waves at the interface between two viscous liquids of finite depth. M. Kusakov (*Acta Physicochim. U.R.S.S.*, 1944, 19, 260—294).—Mathematical. In the case of capillary-gravitational waves propagating along the interface between two liquids of small η and finite depth, the decrement depends on wave-length and on the density and η of the liquid. The decrement also depends on the depth of the liquid except for great depths. For waves propagating along the liquid-air boundary the decrement is independent of liquid depth. If η is high, damping prevents capillary-gravitational waves of very small depth being set up at liquid-liquid or at liquid-air interfaces. C. R. H.

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2

Viscosity measurement and fundamental rheological characteristics of a liquid by the blow-off method in a wedge-shaped slit. B. Deryagin, M. M. Kussakov, and K. Krim. *Acta Physicochim. U.R.S.S.* 20, 35-40(1945); cf. *C.A.* 39, 2919[1].—The new method is applicable only to nonvolatile liquids. A narrow slit of wedge-shaped cross-section is formed by a pair of well-polished rectangular steel plates sepd. along one side by means of a wire of small diam. (0.17 to 0.20 mm. used). By means of air pressure directed parallel to the edge along which the two plates meet, the main bulk of the liquid is quickly blown from the slit. As blowing continues the film of liquid remaining soon becomes thin in comparison with the narrow air wedge between the two plates—except that capillarity prevents escape of the liquid from the narrow region close to the thin side of the slit. The film finally becomes so thin that it will give a colored interference pattern in reflected white light. The form of these interference bands, which may be photographed, gives evidence on the form of the film surface and hence on the mech. properties of the liquid. The interference patterns radiate from the origin, i.e., the corner where the air enters the slit on the side having zero width. Approx. math. derivations show that Newtonian liquids should give straight bands diverging from the origin, whereas non-Newtonian liquids should give curved lines which diverge from or near the origin. These trends were confirmed qual. by expt. Thus a picture is obtained directly of the dependence of shearing stress on velocity gradient. For liquids showing anomalous viscosity, this means that the characteristic function may be obtained from a single expt. Little liquid is required and thermal equil. is quickly attained. Addn. of 1-2% Al naphthenate to an oil may cause a curvilinear dependence of shearing stress on velocity gradient.

Oscar T. Quimby

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CA

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

2

" Theory of the method of measuring the viscosity of liquids by blowing off a film in a narrow, wedge-shaped

slit. M. M. Kusakov. *Acta Physicochim. U.R.S.S.* 20, 47-60(1945); cf. preceding abstr.—Equations are derived for the case of laminar flow of a viscous fluid in a capillary whose cross-section is a circular sector of radius a. The crit. (max.) width of the wedge for which such a flow remains laminar was also calcd. The soln. permits calcn. of the force that the jet of air exerts on the surface of the liquid film being blown off the wedge surfaces. The result is fairly exact for small wedge angles (1-2°), and demands for Newtonian liquids a set of straight lines diverging from the origin. This confirms the approx. solution previously given and agrees with expt. Given a liquid of known viscosity η_1, this method can be used to det. the viscosity η_2 of another liquid as follows: Each is blown from the slit under the same conditions (air pressure, blowing time, temp.); the interference patterns are measured parallel to the direction of blowing at some fixed sector radius to det. x, which is the distance from the air inlet to the corresponding band. The viscosity of the unknown is given by the expression $\eta_2 = \eta_1 x_1/x_2$. Oscar T. Quimby

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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CA

A characteristic of the mechanical properties of liquids obtained by blowing off radially a liquid layer in a plane parallel slit. M. Kuzakov and K. Krim (Acad. Sci. U.S.S.R., Inst. Colloid Electrochem., Moscow). *Acta Physicochim. U.R.S.S.* 20, 848-60(1945); cf. C.A. 39, 5160.—The rheological properties of liquids, in particular *lubricating oil*, can be detd. by blowing-off the liquid by a radial air stream in a narrow plane-parallel slit. This method permits the detn. of the viscosity in the absence of anomalous viscosity, the characterization of the anomalous viscosity, and the detn. of the yield value if such exists. The advantage over the method of blowing-off in a narrow wedge-shaped slit is the high sensitivity to low yield values. The math. relation between the dimensions of the app. and the interference rings observed in monochromatic light are developed. When the difference between the radii of these rings is plotted against the mean

sym. form is more abundant than the unsym. form in salts of Na, Cu, Ag, and Hg, but the inverse was true for azides of Tl and Pb. W. F. Meggers

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

F T

3325. BLOWING METHOD FOR CHARACTERISING FLUIDITY OF LUBRICATING OILS AS FUNCTION OF TEMPERATURE. Koussakov, M. (Compt. Rend. Acad. Sci. U.R.S.S., 1946, vol. 54, 145-147). If a film of oil on a smooth plate is subjected to an air current and a temp. gradient is maintained across the film perpendicular to the air current, an interference pattern is observed if the film surface is viewed by reflected monochromatic light. The pattern can be photographed and measurements of the distances between the interference fringes can be made and compared with measurements made with a standard oil under the same conditions of temp. and pressure gradients. From these measurements the fluidity of the oil at any temp. within the range of the temp. gradient applied can be calc.

B.A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

F T

1233. MEASUREMENTS OF THE VISCOSITY AND DETERMINATION OF THE FUNDAMENTAL RHEOLOGIC CHARACTERISTICS OF LIQUIDS BY MEANS OF THE BLOW-OFF METHOD IN A WEDGE-SHAPED SLIT. Deryagin, B.V., Kusakov, M.M. and Krim, C. (J. Exptl. Theoret. Phys., 1946, 16, 179-86; Chem. Abstr., 1946, 40, 5922).

The blow-off method, described above, when combined with the use of a wedge-shaped slit, gives interference patterns that show directly whether the liquid examined, is following Newton's viscosity law. Straightline patterns of common oils indicate agreement with this law; upon addition of Al naphthenate the interference pattern is curved showing an increase of viscosity near the wall.

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

PROCESSES AND PROPERTIES INDEX

5A

A53
F

532.6032: 539.601 -82

A CHARACTERISTIC OF THE MECHANICAL PROPERTIES OF LIQUIDS OBTAINED BY FLOWING-OFF RADIALLY A LIQUID LAYER IN A NARROW PLANE-PARALLEL SLIT. Kusakov, M., and Kruim, K. J. Exp. Theor. Phys., 16 (no. 3) 266-78 (1946) In Russian. The method gives information on the rheological properties of liquids such as lubricating oils. A

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

F

2352. CHARACTERISTICS OF FLUIDITY - TEMPERATURE RELATION FOR LIQUIDS BY BLOWING-OFF METHOD. Kusakov, M. and Razumovskaya, E. (Acta Physicochim., U.R.S.S., 1947, 22, 289-302; Chem. Abstr., 1947, 41, 7185). An app. is described which enables the fluidity-temperature curve of a lubricant to be obtained in a single short expt. The method is a variant of the blowing-off method suggested by K. and consists of photographing the interference patterns when 2 oils are simultaneously blown off a narrow plane-parallel slit with a temperature gradient perpendicualr to the direction of blowing. The expt is rapid enough (usually 2-3 min.) to obivate the need of using a thermostat. The temperature distribution is determined expertly by simul taneously blowing off 2 oils, one of which is a standard. With the distribution known, the fluidity of the oil under investigation can be calculated for any temperature. Spindle oil, whose dynamic viscosity was measured by an ordinary capillary viscometer, is used as a standard. Viscosity values for machine oil determined by this method and values determined by an ordinary capillary viscometer fall fairly close on a single curve. The method is still preliminary, but improved microphotometric treatment of the interference pattern photographs should result in rapid and accurate measurements.

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23

Viscosity-Temperature Characteristics of Lubricating Oils. An Examination of Possible Relationships. M. M. Kusakov, *Petroleum*, v. 12, July 1949, p. 170-174, 186. Translated from "Symposium on the Viscosity of Liquids and Colloidal Solutions," Academy of Sciences of the USSR.

Discussion is confined to the hydrodynamic theory of lubrication. Considers viscosity index, parameters characterizing the viscosity-temperature curve, viscosity requirements, fundamental problems, examples of nomogram use, the Vogel-Fulcher-Tammann formula, and practical results. Data are plotted. 25 ref.

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KUSAKOV, M. M.

(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, 1585[3]) 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 *heptamethylionane*, *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

6/22/54

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

C.A.

22

Effect of the pressure and the temperature on the surface-tension of petroleum. M. M. Kusakov, N. M. Lubman, and A. Yu. Kosbevnik (Petroleum Inst., Acad. Sci. U.S.S.R.). *Doklady Akad. Nauk S.S.S.R.* 74, 319-22 (1950).—Measurements up to pressures of 300 kg./sq. cm. were made by method of hanging and of lying liquid drops, and checked, with satisfactory agreement, by the method of max. pressure of a gas bubble. For a Devon petroleum, the surface tension σ against N_2 was found to decrease regularly with increasing pressure, the faster the lower the temp. (20, 60, and 80°); e.g., at 20°, σ fell from 26 to 13 ergs/sq. cm. between 1 and 250 kg./sq. cm. However, the surface tension in contact with H_2O, at 20°, remained unchanged up to 300 kg./sq. cm. Likewise, under the const. pressure of 1 kg./sq. cm., σ at the boundary with H_2O is independent of the temp. The contact angle of calcite, in a N_2 atm., varies very little with the pressure. N. Thon

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FUKS, G.I.; KUSAKOV, M.M., professor, redaktor; L'VOVA, L.A., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskiy redaktor

[Viscosity and plasticity of petroleum products] Viazkost' i plastichnost' nefteproduktov. Pod red. M.M.Kusakova. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1951. 27 p. [Microfilm] (MIRA 10:1)

(Petroleum products)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M. M.

PA 243T11

USSR/Chemistry - Petroleum; Liquid Fuels — Jul 52

"Determining the Surface Tension of Liquid Hydro carbons and Petroleum Crudes by the Drop-Size-Measurement Method," M. M. Kusakov, N. M. Lubman A. Yu. Koshevnik

"Trudy Inst Nefti" Vol 2, pp 53-72

A critical review of methods for this type of measurement. Authors describe equipment for this purpose which they designed. Show on the basis of their data that the surface tension at the boundary oil-water of nonpolar oil and of crude

243T11

petroleum is practically independent of the temp in the range 20-80°. Established that the method of surface tension measurement in question can be used when other methods fail, and that it is applicable to highly viscous liquids which wet glass well.

243T11

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KUSAKOV, M. M.

(4) Physics

6

An attempt to reduce the wedge action of polymolecular liquid layers to the *electroviscous effect*. B. V. Deryagin and M. M. Kusakov (Inst. Phys. Chem., Acad. Sci., Moscow). *Zhur. Fiz. Khim.* 26, 1536-40(1952).—Contrary to Elton (*C.A.* 43, 4927a) the liquid films remaining between a gas bubble and a solid are equil. formations; the light interference patterns shown by these films are different from those reproduced in Elton's paper. J. J. Bikerman

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M. M.

Surface activity of Tulmazinsk crude oil M. M. Kusakov and L. I. Mekenitskaya. *Moskov. Neft. Inst. im. I. M. Gubkina, Trudy* 1953, No. 13, 164-70.—Surface tensions and interfacial tension with water were detd. at 20° on a sample of Tulmazinsk crude oil having d_4^{20} 0.8584; kinematic viscosity at 20° 15.3 centipoises; asphalt content 46%, S content 1.51%. In addn., interfacial tension detns. were made of the soln. of the crude oil in octane, isooctane, ligroine, cyclohexane, benzene, and toluene. It was found that the Tulmazinsk crude oil contains polar substances only in the fractions b. > 190°. V. H. Gottschalk

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M.M.; KOSHELEVA, I.M.

Determination of the surface tension on the boundary of two liquids by weighing drops with torsion balances. Trudy MMI no.13:171-180 '53. (MLRA 8:6)

(Surface tension)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M.M.

Chemical Abstracts
May 25, 1954
General and Physical
Chemistry

Determination of the surface tension of liquids from the dimensions of a sessile drop. A. Yu. Koshcynik, M. M. Kusakov, and N. M. Zubman (Petroleum Inst., Acad. Sci. U.S.S.R., Moscow). Zhur. Fiz. Khim. 27, 1887-90 (1953).—A detailed table, based on the calcns. of Bashforth and Adams (1883), is given for detg. surface tension from the width and height of sessile drops. J. J. B.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M. M.

USSR/Chemistry - Lubricants

Card 1/1

Authors : Razumovskaya, E. A., and Kusakov, M. M.

Title : Two-dimensional characteristics method expressing the thermal dependence of the viscosity of lubricants by the method of thin layer blow-off

Periodical : Zhur. Fiz. Khim., 28, Ed. 5, 936 - 944, May 1954

Abstract : A method, based on the blow-off of a thin oil layer in a narrow plain-parallel slot and leading to the derivation of a curve expressing the thermal dependence of volatility (value of reverse viscosity), is described. The method is called two-dimensional because with one test it is possible to obtain not only one point but a continuous curve. The method is also applicable in obtaining curves which characterize the rheological properties of lubrication oils. The instrument (thermorheometer), used in combination with this new method, is described. Six USSR references. Graphs, drawings, illustrations.

Institution : Acad. of Sc. USSR, Petroleum Institute, Moscow

Submitted : Nov. 18, 1953

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M. M

AID - P-190

Subject : USSR/Engineering

Card : 1/1

Authors : Kusakov, M. M., Lubman, N. M. and Koshevnik, A. Yu.

Title : Measuring Installation for Surface Tension of Oil and for Boundary Angle of Wetting in Strata Conditions. (Part I).

Periodical : Neft. khoz., v. 32, #2, 27-32, F 1954

Abstract : Method and optical apparatus for measuring of the surface tension of oil, water and gas are described with five detailed drawings. The test procedure and conclusion are given in the next issue (#3, p. 20).

Institution : Experimental Mechanical Plant of the Petroleum Inst. of the Academy of Sci., USSR.

Submitted : No date

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M. M.

AID P - 203

Subject : USSR/Engineering

Card : 1/1

Authors : Kusakov, M. M., Lubman, N. M. and Koshevnik, A. Yu.

Title : Measuring Installation for Surface Tension Oil and Boundary Angles of Wetting under Stratum Conditions (Part II)

Periodical : Neft. khoz., v. 32, #3, 20-22, Mr 1954

Abstract : A description of the general arrangement of testing equipment and of testing procedure for the determination of surface tension on the boundary with gas and water and boundary angles of wetting. One diagram and 6 Russian references (1930-51).

Institution : None

Submitted : No date

Kusakov, M. M.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007

Subject : USSR/Mining

Card 1/1 Pub. 78 - 13/21

Authors : Kusakov, M. M., Lubman, N. M. and Koshovnik, A. Yu.

Title : Surface tension of petroleum on boundary of gas and water phases at stratum conditions

Periodical : Neft. khoz., v. 32, #10, 62-69, O 1954

Abstract : The study of surface tension and density of petroleum of three types (Tuymazin, Termiz and Nebit-Dag) is described. The study was conducted at temperatures and pressures corresponding to the stratum conditions (about 80°C and 250 atm). The surface tension decreases with the rise of pressure and is faster at lower temperatures. The character of decrease is more complicated at a boundary with a water phase than with a gaseous phase. Eight charts, 1 table and 2 Russian references out of 12 (1950-1954).

Institution : None

Submitted : No date

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M.M.

AID P - 1146

Subject : USSR/Chemistry

Card 1/2 Pub. 78 - 24/25

Author : Kusakov, M. M.

Title : Review of the handbook Physicochemical Properties of Individual Hydrocarbons, Vol. IV, edited by Tilicheyev, Gostoptekhizdat, 1953

Periodical : Neft. khoz., v. 32, #11, 93-96, N 1954

Abstract : This is a review of a new edition of a handbook prepared by different professional specialists. Chapter I on heat of evaporation of low hydrocarbons C_1 - C_4 written by M. Kh. Karapetyants, specially analyzes empirical and semi-empirical relationships and evaluates the degree of precision or reproducibility of data. Chapter II on pressure of saturated vapor of the hydrocarbons C_9 - C_{40} was prepared by M. D. Tilichev. This chapter contains data on more than 200 hydrocarbons. However, most of this data

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AID P - 1146

Neft. khoz., v. 32, #11, 93-96, N 1954

Card 2/2 Pub. 78 - 24/25

is related only to the liquid phase, and some to the crystalline phase at temperatures about 80% of the critical temperature. Chapter III was prepared by A. B. Iogansen and contains information on ultraviolet spectra of hydrocarbon absorptivity. Other chapters discuss the thermodynamic properties of alkanes at the liquid phase, the coefficients of expansion, compressibility, and the meaning of the difference C_p and C_v for these hydrocarbons.

Institution : None

Submitted : No date

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M.M.; MEKENITSKAYA, L.I.

[On the thickness of thin layers of connate water] O tolshchine tonkikh solev "sviazannoi" vody; doklady na IV Mezhdunarodnom neftianom kongresse v Rime. Moskva, Izd-vo Akad.nauk SSSR, 1955. 43 p. (MLRA 8:9)

(Films(Chemistry)) (Petroleum engineering)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

KUSAKOV, M. M.

ORKIN, K.G.; KUCHINSKIY, P.K.; KUSAKOV, M.M.; professor, doktor fiziko-khimicheskikh nauk, retsenzent; GEYMAN, M.A., redaktor; PERSHINA, Ye.G., redaktor; TROFIMOV, A.V., tekhnicheskiy redaktor.

[Physics of oil reservoirs] Fizika neftianogo plasta. Moskva, Gos. nauchno-tekhn.izd-vo neftianoi i gorno-toplivnoi lit-ry, 1955. 299 p. (MLRA 8:10)

(Petroleum engineering)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000927820007-6

ANDREYEV, A.B.; ANTONOV, A.I.; ARAPOV, P.P., BARMASH, A.I., BEDNYAKOVA, A.B.; BENIN, G.S.; BERESNEVICH, V.V.; BERNSHTEYN, S.A.; BITYUTSKOV, V.I.; BLYUMENBERG, V.V.; BONCH-BRUYEVICH, M.D.; BORMOTOV, A.D.; BULGAKOV, N.I.; VEKSLER, B.A.; GAVRILENKO, I.V.; GENDLER, Ye.S., [deceased]; GERLIVANOV, N.A., [deceased]; GIBSHMAN, Ye.Ye.; GOLDOVSKIY, Ye.M.; GORBUNOV, P.P.; GORYAINOV, F.A.; GRINBERG, B.G.; GRYUNER, V.S.; DANOVSKIY, N.F.; DZEVUL'SKIY, V.M., [deceased]; DREMAYLO, P.G.; DYBETS, S.G.; D'YACHENKO, P.F.; DYURNBAUM, N.S., [deceased]; YEGORCHENKO, B.F. [deceased]; YEL'YASHKEVICH, S.A.; ZHEREBOV, L.P.; ZAVEL'SKIY, A.S.: ZAVEL'SKIY, F.S.; IVANOVSKIY, S.R.; ITKIN, I.M.; KAZHDAN, A.Ya.; KAZHINSKIY, B.B.; KAPLINSKIY, S.V.: KASATKIN, F.S.; KATSAUROV, I.N.; KITAYGORODSKIY, I.I.; KOLESNIKOV, I.F.; KOLOSOV, V.A.; KOMAROV, N.S.; KOTOV, B.I.; LINDE, V.V.; LEBEDEV, N.V.; LEVITSKIY, N.I.; LOKSHIN, Ya.Yu; LUTTSAU, V.K.; MANNERBERGER, A.A.; MIKHAYLOV, V.A.; MIKHAYLOV, N.M.; MURAV'YEV, I.M.; NYDEL'MAN, G.E.; PAVLYSHKOV, L.S.; POLUYANOV, V.A.; POLYAKOV, Ye.S.; POPOV, V.V.; POPOV, N.I.; RAKHLIN, I.Ye., RZHEVSKIY, V.V.; ROZENBERG, G.V.; ROZENTRETER, B.A.; ROKOTYAN, Ye.S.; RUKAVISHNIKOV, V.I.; RUTOVSKIY, B.N. [deceased]; RYVKIN, P.M.; SMIRNOV, A.P.; STEPANOV, G.Yu, STEPANOV, Yu.A.; TARASOV, L.Ya.; TOKAREV, L.I.; USPASSKIY, P.P.; FEDOROV, A.V.; FERE, N.E.; FRENKEL', N.Z.; KHEYFETS, S.Ya.; KHLOPIN, M.I.; KHODOT, V.V.; SHAMSHUR, V.I.; SHAPIRO, A.Ye.; SHATSOV, N.I.; SHISHKINA, N.N.; SHOR, E.R.; SHPICHENETSKIY, Ye.S.; SHPRINK, B.E.; SHTERLING, S.Z.; SHUTYY, L.R.; SHUKHGAL'TER, L. Ya.; ERVAYS, A.V.;

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ANDREYEV, A.B. (continued) .... Card 2.

YAKOVLEV, A.V.; ANDREYEV, Ye.S., retsenzent, redaktor; BERKEN-GEYM, B.M., retsenzent, redaktor; BERMAN, L.D., retsenzent, redaktor; BOLTINSKIY, V.N., retsenzent, redaktor; BONCH-BRUYEVICH, V.L., retsenzent, redaktor; VELLER, M.A., retsenzent, redaktor; VINOGRADOV, A.V., retsenzent, redaktor; GUDTSOV, N.T., retsenzent, redaktor; DEGTYAREV, I.L., retsenzent, redaktor; DEM'YANYUK, F.S., retsenzent; redaktor; DOBROSMYSLOV, I.N., retsenzent, redaktor; YELANCHIK, G.M. retsenzent, redaktor; ZHEMOCHKIN, D.N., retsenzent, redaktor; SHURAVCHENKO, A.N., retsenzent, redaktor; ZLODEYEV, G.A., retsenzent, redaktor; KAPLUNOV, R.P., retsenzent, redaktor; KUSAKOV, M.M., retsenzent, redaktor; LEVINSON, L.Ye., [deceased] retsenzent, redaktor; MALOV, N.N., retsenzent, redaktor; MARKUS, V.A. retsenzent, redaktor; METELITSYN, I.I., retsenzent, redaktor; MIKHAYLOV, S.M., retsenzent; redaktor; OLIVETSKIY, B.A., retsenzent, redaktor; PAVLOV, B.A., retsenzent, redaktor; PANYUKOV, N.P., retsenzent, redaktor; PLAKSIN, I.N., retsenzent, redaktor; RAKOV, K.A. retsenzent, redaktor; RZHAVINSKIY, V.V., retsenzent, redaktor; RINBERG, A.M., retsenzent; redaktor; ROGOVIN, N. Ye., retsenzent, redaktor; RUDENKO, K.G., retsenzent, redaktor; RUTOVSKIY, B.N., [deceased] retsenzent, redaktor; RYZHOV, P.A., retsenzent, redaktor; SANDOMIRSKIY, V.B., retsenzent, redaktor; SKRAMTAYEV, B.G., retsenzent, redaktor; SOKOV, V.S., retsenzent, redaktor; SOKOLOV, N.S., retsenzent, redaktor; SPIVAKOVSKIY, A.O., retsenzent, redaktor; STRAMENTOV, A.Ye., retsenzent, redaktor; STRELETSKIY, N.S., retsenzent, redaktor;

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ANDREYEV, A.V.,(continued) .... Card 3.

TRET'YAKOV, A.P., retsenzent, redaktor; FAYERMAN, Ye.M., retsenzent, redaktor; KHACHATYROV, T.S., retsenzent, redaktor; CHERNOV, H.V., retsenzent, redaktor; SHERGIN, A.P., retsenzent, redaktor; SHESTOPAL, V.M., retsenzent, redaktor; SHESHKO, Ye.F., retsenzent, redaktor; SHCHAPOV, N.M., retsenzent, redaktor; YAKOBSON, M.O., retsenzent, redaktor; STEPANOV, Yu.A., Professor, redaktor; DEM'YANYUK, F.S., professor, redaktor; ZNAMENSKIY, A.A., inzhener, redaktor; PLAKSIN, I.N., redaktor; RUTOVSKIY, B.N. [deceased] doktor khimicheskikh nauk, professor, redaktor; SHUKHGAL'TER, L. Ya, kandidat tekhnicheskikh nauk, dotsent, redaktor; BRESTINA, B.S., redaktor; ZNAMENSKIY, A.A., redaktor.

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ANDREYEV, A.V. (continued) .... Card 4.

[Concise polytechnical dictionary] Kratkii politekhnicheskii slovar'. Redaktsionnyi sovet; IU.A.Stepanov i dr. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1955. 1136 p. (MLRA 8:12)

1. Chlen-korrespondent AN SSSR (for Plaksin)
(Technology--Dictionaries)

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KUSSAKOV, M. M., and MERENITSKAYA, L. I.

"On the Thickness of Thin Layers of Connate Water," a paper presented at the 4th World Petroleum Congress, Rome, 6-15 June 55.

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KUSAKOV, M.M

USSR

The surface activity of crude oils and their components. V. G. Gutsalyuk and M. M. Kusakov. *Izvest. Akad. Nauk Kazakh. S.S.R., Ser. Khim.* No. 8, 122-32(1955)(in Russian).—The factors detg. the surface tension, σ, of crude oils were studied by exaing. 3 specimens with different contents of nonhydrocarbons. Components of the oils were also extd. and studied. The general characteristics of each crude oil were: No. 1 (I) d_4^{20} 0.8178; n_D^{20} 1.4560; mol. wt. 310; contg. 0.20% org. acids, 1.34% tar, 98.57% neutral oil, no asphalts; No. 2 (II) d_4^{20} 0.8822; n_D^{20} 1.4850; mol. wt. 270; contg. 0.88% org. acids, 2.78% tar, 96.34% neutral oil, traces of asphalts; No. 3 (III) d_4^{20} 0.8586; n_D^{20} 1.4902; mol. wt. 302; contg. 1.02% org. acids, 5.94% tar, 93.04% neutral oil, traces of asphalts. The crude oils contained the following %C, H, S, O + N: resp.: I, 85.03, 13.01, 0.10, 0.06; II, 86.44, 13.19, 0.18, 0.19; III, 86.00, 13.10, 0.22, 0.56. All σ were detd. at 20 ± 0.1° by a capillary-drop method. At the interface with air, σ (in ergs./sq. cm.) was: I, 26.5; II, 31.4; III, 31.6. At the interface with water σ

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V. G. GUTSALYUK

was: I, 27.2; II, 19.8; III, 26.1. σ at the water interface was also measured for the following hydrocarbons: a soln. of crude oil in ligroine (mol. wt. 94, b. 85-95°) contg. up to 10% of each crude, and a soln. of crude oil in naphtha (mol. wt. 156, b. 170-220°), contg. up to 3% crude oil. σ dropped sharply on addn. of the first 3% of crude oil but further addns. had little effect. II and III behaved similarly and were much more surface active than I. The generally lower surface activity in naphtha was attributed to greater assocn. of molecularly dissolved acids and resins. The neutral oil, acids, and resins in each sample were sepd. and studied individually. Each individual component was dissolved in ligroine (0 to 0.1% acids, 0 to 0.1% resins, 0 to 5% neutral oil) and σ of the interface of the soln. and water was detd. The extd. acids had high surface activity while the neutral oils had negligible activity. The resin extr. had intermediate activity. The relative surface activities (in arbitrary units) of all ligroine solns. vs. water were: I, 4.7; II, 20.0; III, 26.1; acids from I, 380.0; acids from II, 508.0; acids from III, 780.0; resins from I, 210.0; resins from II, 325.0; resins from III, 425.0. On the same basis the surface activities in naphtha were: I, 5.3; II, 14.0; and III, 18.6. In every case the activity of the extd. components increased with increasing mol. wt. of the parent crude oil.

R. D. Misak

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KUSAKOV M. M.

Investigation of liquid hydrocarbon filtration through porous medium containing water. S. L. Zaks and M. M. Kusakov. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1955, No. 11, 87-94.—An attempt is made to det. the effects of bound water in the porous medium on the filtration rates of mixts. of medicinal mineral oil and nonpolar ligroine, with addns. of naphthenic acids. The bound water occupied a total of 20-25% of the pore vol. and was bound by mol. forces with the solid phase surface, remaining stationary during the migration of the oil through the pores. The higher the naphthenic acid concn., the greater was the reduction of filtration rate of the hydrocarbon oils. The relative permeability through a porous medium is reduced by the water present, and with low naphthenic acid content is reduced chiefly because of the existence of the stationary water. The effect of the bound water must be taken into consideration in the hydrodynamic computations of the oil recovery when the water content exceeds 10% of the total pore space.

W. M. Sternberg

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KUSAKOV, M. M.

The effect of pressure and temperature on the [illegible] tension of crude oil in contact with gas. M. M. [illegible] N. M. Lubman, and A. Yu. [illegible] im. I. M. Gubkina 1953, No. 14, 115-34. [illegible]

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MEKENITSKAYA, L.I.; KUSAKOV, M.M.

Selective wetting of a solid surface by petroleum in relation to the pH of the water phase. Trudy MNI no.14:148-155 '55. (MLRA 8:11)

(Petroleum geology) (Fluid mechanics)

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