

NESTERENKO, Galina Yefimovna

ALEKSEEROVA, Zamilya Selim; KARDASH, Ita Matveyevna; NESTERENKO, Galina Yefimovna; GUSEYNOV, D.A., redaktor; EADYRELI, A.M., tekhnicheskiiy redaktor

[Equipment of the laboratory of oil refining plants] Oborudovanie laboratorii neftepererabatyvaiushchikh zavodov. Baku, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, Azerbaidzhanskoe otdelenie, 1954. 42 p. (MIRA 8:6)

(Chemical laboratories--Apparatus and supplies)
(Petroleum--Refining)

DIATYAN, G., inzh.; NESTERENKO, I., inzh.; TATSIY, Ye., arkhitektor

Universal one-story industrial building. Proj.stroi.i inzh.soor.
4 no.1:5-10 Ja-F '62. (MIRA 15:8)
(Industrial buildings) (Precast concrete construction)

NESTERENKO, I., inzh.; SPIVAK, L., inzh.

Design of a large-span roof made of slabs sealed with poured
concrete. From.stroi.i inzh.soor. 4 no.5:19-24 S-0 '62.
(Roofing, Concrete) (MIRA 16:1)

SOKLAKOV, A.; NESTERENKO, I.

Facts, events, people. Kryl.rod. 13 no.12:12-13 D '62.
(MIRA 16:2)

1. Zamestitel' nachal'nika Moskovskogo oblastnogo aerokluba
(for Soklakov). 2. Zamestitel' nachal'nika otdela upravleniya
perevozok Aeroflota (for Nesterenko).
(Aeronautics)

NESTERENKO, I., starshiy inzhener

What are we expecting from city agencies? Grazhd.av. 17 no.10;26-
28 0 '60. (MIRA 13:9)

1. Glavnoye upravleniye Grazhdanskogo vozdushnogo flota.
(Aeronautics, Commercial)

ZAKHVATKINA, B.I., inzh.; NESTERENKO, I.G., tekhnik; TARASEVICH, L.I.,
inzh.

Results of industrial testing of the ADShV equipment (dispatcher
control of mine ventilators). Sbor. KuzNIUI no.10:71-89 '64.
(MIRA 18:9)

NESTERENKO, I.I.

Preserving ear corn. Zhivotnovodstvo 20 no. 10:47 0 '58.

(MIRA 11:10)

1. Glavnyy zootekhnik inspektsii po sel'skomu khozyaystvu Komarichskogo rayona, Bryanskoy oblasti.

(Corn(Maize))

(Ensilage)

NESTERENKO, I.M.

99-58-2-7/9

AUTHORS: Kuz'michev, V.Ye., and Nesterenko, I.M., Engineers

TITLE: Use of Excavators for Melioration Work During the Winter
(Ispol'zovaniye ekskavatorov na meliorativnykh rabotakh zimoy). From Working Experiences in the Karelian ASSR (Iz opyta rabot v Karel'skoy ASSR)

PERIODICAL: Gidrotekhnika i Melioratsiya, 1958, # 2, pp 50-52 (USSR)

ABSTRACT: Extremely -powerful types of excavators can be used in melioration work on peat bogs during the winter. As the peat bogs only freeze to a depth of 20 to 35 cm, excavating operations proceed satisfactorily with "E-505" and other, heavy excavators.
There is 1 table and 2 photos.

AVAILABLE: Library of Congress

Card 1/1

NESTERENKO, I.M.

~~Determining the infiltration coefficient of slightly permeable~~
earths. Izv. Kar. i Kol'. fil. AN SSSR no.1:121-129 '59.

(MIRA 12:9)

1.Sektor bolotovedeniya i lesnoy melioratsii Instituta lesa
Karel'skogo filiala AN SSSR.

(Soil percolation)

NESTERENKO, I.M.

Soil moisture and drainage standards. Izv.Kar. i Kol'.fil. AN SSSR
no.2:104-107 '59. (MIRA 12:11)

1. Institut lesa Karel'skogo filiala AN SSSR.
(Soil moisture) (Drainage)

3(7)

AUTHOR:

Nesterenko, I. M.

SOV/50-59-6-7/17

TITLE:

Observations of the Soil Ground Waters During Snow Break
(Nablyudeniya nad pochvogruntovymi vodami v period snegotayaniya)

PERIODICAL:

Meteorologiya i gidrologiya, 1959, Nr 6, pp 31 - 32 (USSR)

ABSTRACT:

The ice drill BL-GII-47 was used for investigations carried out at the Olonetskiy meliorativnyy statsionar (Olonetsk Amelioration Station) of the Karel'skiy filial AN SSSR (Karelian Branch of the AS USSR) in spring 1958 in connection with the study of the ground water conditions during snow break with frozen ground. Holes were bored with a diameter of approximately 4.5 cm. It was easier to drill frozen ground. The transition from frozen to thawed ground was recognizable. Observations were carried out at a temperature below zero in order to prevent the holes from filling with surface water. On the average ground froze to 25-30 cm and only at individual places 35 cm. 3-4 holes were bored on one place with a distance of from 10-20 cm from the next place. The first hole was bored to freezing depth, the second to the peat intermediate layer and the third to a

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Observations of the Soil Ground Waters During Snow Break SCV/50-59-6-7/17

depth of from 20-23 cm. As soon as water rose slowly in the first hole it attained a depth of 10 cm from the earth surface and in the third hole it did not appear at all. If, however, holes were drilled to 40-50 cm around the first holes water rose rather rapidly in the deeper holes. This gives evidence of the fact that during snow break the ground water under pressure is in the thawed layers below the frozen layer. An explanation is given for the existence of water under pressure in the filtering intermediate layers. The existence of ground water exerts an unfavorable effect upon the water - air conditions and the thawing of the ground. The fact that on a ceramic-drainage section where ground water had fallen to a depth of 60 cm by April 25, thawing proceeded predominantly from bottom to top, is very characteristic of this. The latter may be explained by the fact that water retards the process of thawing of the ground in ill-drained sections.

Card 2/2

NESTERENKO, I.M.

Effect of land improvement measures on the water and air balance of
mineral soils. Trudy Kar.fil.AN SSSR no.21:3-35 '59.

(MIRA 13:5)

(Gases in soil)

(Soil moisture)

(Drainage)

NESTERENKO, I.M.; ROZIN, V.A.

Using subsurface drainage in the Olonets Plain of the Karelian
A.S.S.R. Trudy Kar.fil.AN SSSR no.21:52-60 '59. (MIRA 13:5)
(Olonets Isthmus--Drainage)

NESTERENKO, L.M., Cand Tech Sci --(diss) "Drainage of mineral swamp
lands of the ice-lake flatland of Karel'ia ASSR," Leningrad, 1969, 20 pp
(All-Union Academy of Agricultural Sciences im V. I. Lenin. All-Union
Sci-Res Institute of Hydrotechnics and Melioration im A. N. Kostyaev)
(KL, 36-60, 115)

GORELIK, A.M.; NESTERENKO, I.P.

Using the electrical field of filtration for determining the radius
of the cone of depression during pumping from wells. Izv.AN SSSR.
Ser.geofiz. no.11:1361-1363 N '56. (MLRA 10:1)
(Water, Underground)

NESTERENKO, I.P., inzh.; GORELIKOV, N.A., tekhnik

Using electric geophysical exploration methods in detecting
frozen lenses in railroad beds. Transp.stroi. 10 no.1:
38-39 Ja '60. (MIRA 13:6)

(Prospecting--Geophysical methods)
(Railroads--Earthwork--Cold weather conditions)

RYAPOLOVA, V.A., kand.tekhn.nauk; NESTERENKO, I.P., inzh.

Geophysical investigations of boreholes lined with asbestos cement
pipes. Transp. stroi. 10 no.11:51-52 N '60. (MIRA 13:11)
(Prospecting--Geophysical methods) (Boring)

GORELIK, A.M.; NESTERENKO, I.P.; RYAPOLOVA, V.A.

Determination of the coefficient of flow in water-bearing
rocks by electrometric methods. Razved. i okh. nedr 27 no.6:
33-37 Je 61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut transportnogo
stroitel'stva. (Water, Underground) (Electric prospecting)

NESTERENKO, I.P., inzh.

Determining the depth of beds of frozen ground by electric
probing. Transp. stroi. 12 no.8:27-29 Ag '62. (MIRA 15:9)
(Frozen ground) (Railroad engineering)

GOBELIK, A. M.; NESTERENKO, I. P.; RYAPOLOVA, V. A.

Use of micrologging to study water wells. Razved. i otk. nedr
28 no.6:54-56 Je '62. (MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut transportnogo
stroitel'stva.

(Logging(Geology)) (Water, Underground)

GANZ, V.P.; NESTRENOV, I.P.; VILISOV, G.I.

Purification of fuel gases by the removal of nitrogen oxides
by means of flaked lime peat with the production of peat
nitrogenous fertilizers. Izv. vys. ucheb. zav.; khim. i khim.
tekhn. 7 no.3:441-444 '64.

LIBRA 17:10

L. Dnepropetrovskiy Khimiko-tekhnologicheskiy Institut imeni
Izraelinskogo, kafedra tekhnologii neorganicheskikh veshchestv.

GANZ, S.N.; NESTERENKO, I.P.; VILESOV, G.I.

Adsorption of nitrogen oxides by a peat-azmonia sorbent.
Zhur.prikl.khim. 38 no.9:1930-1935 S '65.

(MIRA 18:11)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

NESTERENKO, I.S.; SHURYGIN, A.P.

Differentiating crop rotations according to soil types.
Zemledelie 4 no.12:63-78 D '56.

(MLRA 10:2)

(Rotation of crops) (Soils)

И. С. НЕСТЕРЕНКО, И. С.

NESTERENKO, I.S., kand.sel'skokhozyaystvennykh nauk; SHURYGIN, A.P.,
kand.sel'skokhozyaystvennykh nauk.

Results of and measures for future introduction of crop rotations
on collective farms served by the Millerovo Machine-Tractor Station
[with summary in English]. Izv. TSKhA no.5:147-188 '57.

(MIRA 11:1)

(Rotation of crops)

NESTERENKO, I.S., starshiy nauchnyy sotrudnik, kand. nauk; SHURYGIN, A.P.,
starshiy nauchnyy sotrudnik, kand. nauk.

Differentiated crop rotations in connection with soil conditions.
Dokl. TSKhA no. 28:107-113 '57. (MIRA 11:4)
(Rotation of crops) (Soils)

USSR / Soil Science. Genesis and Geography of Soils. J-1

Abs Jour: Ref Zhur-Biol., No 8, 1958, 34320.

Author : Nostoronko, I. S.; Shurygin, A. P.
Inst : Moscow Agricultural Academy imeni K. I. Timiryazov.
Title : On the Industrial Utilization of Large-Scale Soil
Maps.

Orig Pub: Dokl. Mosk. s.-kh. akad. im. K.I. Timiryazova,
1957, vyp. 29, 231 - 236.

Abstract: Soil map of the territory Millorovo MTS of the Rostovskaya oblast has been compiled by the authors (1 : 25000). Approximate agro-industrial classification of soils has been brought forward for the purpose of introducing crop rotations, differentiated agrotechny and others. -- F. N. Sofiyeva.

Card 1/1

NESTERENKO, L.; SHELOMOV, B., nauchnyy sotrudnik

Notes on books. Sov. profsoiuzy 20 no.2:46-47 Ja'64.

(MIRA 17:2)

1. Moskovskaya vysshaya zaochnaya shkola profsoyuznogo dvizheniya
(for Shelomov).

TOGINOVA, A.L., prof.; MALIVANOVA, G.M.; LESHCHINSKAYA, Ye.N.; NESTERENKO,
L.A.

Data on the experimental study of dry glutamate BCG vaccine for
intracutaneous use. Probl. tub. 41 no.6:60-63 '63. (MIRA 17:9)

1. Iz Instituta epidemiologii i mikrobiologii imen Gamalei (dir. -
prof. P.A.Vershilova) AMN SSSR.

VAL'KOV, F.A.; NESTERENKO, L.A.

Demonstration experiments with halogens. Khim.v shkole 14
no.5:53-55 S-0 '59. (MIRA 12:12)

1. Pedagogicheskiy institut, Krasnodar.
(Halogens) (Chemistry--Experiments)

VAL'KOV, F.A.; NESTERENKO, L.A.

Experiments related to the topic of "iron". Khim. v shkole 15 no.5:
56-61 S-O '60. (MIRA 13:10)

1. Pedagogicheskiy institut, g.Krasnodar.
(Iron--Study and teaching) (Chemistry--Experiments)

VAL'KOV, F.A.; NESTERENKO, L.A.

Properties of sulfur and its compounds. Khim. v shkole 16 no. 3:74-
76 Ky-ye '61. (MIRA 14:5)

1. Pedagogicheskiy institut, Krasnodar.
(Sulfur)

FYATNITSKIY, Mikhail Petrovich; NESTERENKO, Larisa Andreyevna;
STUKOVNIN, N.D., red.; MURASHOVA, V.A., tekhn. red.

[Concise laboratory manual on organic and biological
chemistry] Kratkii praktikum po organicheskoi i biologi-
cheskoi khimii. Izd.2., dop. Moskva, Vysshaya shkola,
1962. 101 p. (MIRA 15:7)
(Chemistry, Organic--Laboratory manuals)

NESTERENKO, L.A.; KURS, V.S. (Pskov); OSOKINA, G.N.

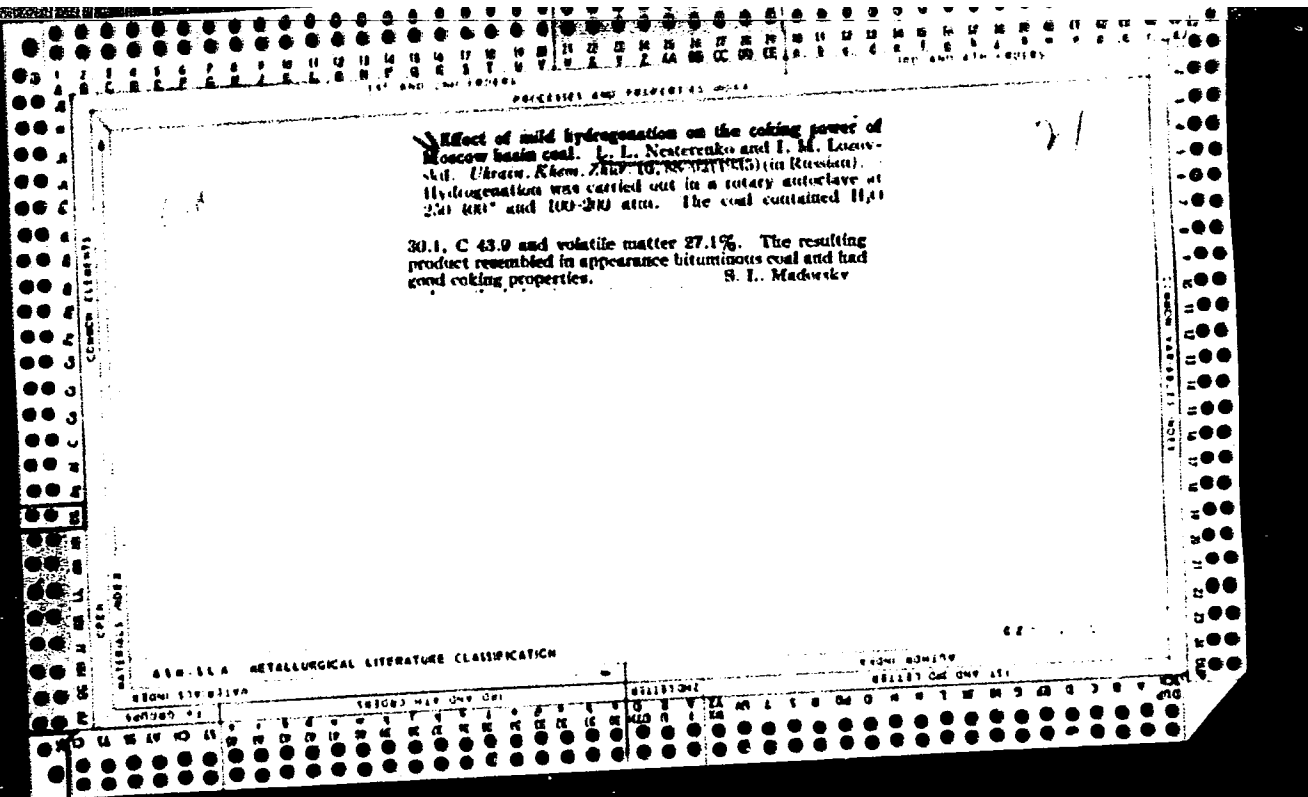
Editor's mail. Khim. v shkole 17 no.5:84-85 S-0 '62.
(MIRA 15:9)

1. Pedagogicheskiy institut, Krasnodar (for Nesterenko).
(Chemistry--Experiments)

SOLOKHA, A.P., inzh.; NESTERENKO, L.I., inzh.

Improving the starter systems for mine electrical drills. Ugol'
35 no. 4:15-17 Ap '60. (MIRA 14:4)

1. Zavod "Krasnyy metallist"
(Rock drills) (Remote control)



PROCESSES AND PROPERTIES INDEX

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CO

Action of organic solvents upon coal during extraction under pressure. M. F. Kuznetsov and L. L. Nesterenko. *Khim. Tverdogo Topliva* 8, 222-22(1937); cf. M. F. Kuznetsov, C. A. 50, 3618. —Coal "PZh" (32 mesh) from the Severnaya mine in Shtcherbinovsk, contg. moisture 1.60, volatile substances 30.92, ash 8.04, and S 2.51%, was extd. with pyridine (b. 115-50°), PhOH, C₆H₆, and anthracene in an autoclave under the pressure, yielding 39.78, 65.76, 70.48 and 94.80% (by wt. of org. substances in initial coal), resp., of the ext. The step-wise extn. with pyridine at 20°, 125°, 200°, 250°, 300°, 350° and 390° yielded 42.140% of the ext., (the extn. at 20° was carried out in the Soxhlet app. yielding 23.0% and at 125° by the Greffe method yielding 5.4%). A consecutive extn. with pyridine at 125° and then with PhOH at 350° yielded 88.02%, and with PhOH at 300°, pyridine at 350°, and then with C₆H₆ at 390° yielded 92.045%. Preliminary methods of the treatment of the solns. obtained are given, which, with the exception of the pyridine soln., require further improvements. The gas-evolution curves obtained by the Peters app. disclosed that the coal treated with pyridine at 390° and with PhOH and C₆H₆ at 380° had no sharp beginning of decompos. The work is of preliminary character. Thirty-seven references. A. A. Podgorny

455-354 METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNONYMS

GROUP 02	INDEXED MAY ONLY SEE	RELATIONS	SYNON. EQUIVALS
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

111 AND 110 CROSS
PROCESSED AND PROPERTIES MODE

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CA

The bitumens of coal in relation to the formation of coals and other problems of coal chemistry. M. I. Kuznetsov and L. L. Nestierenko. *Coke and Chem.* (U. S. S. R.) 1949, No. 9, 6-10; *Khim. Referat. Zhur.* 1940, No. 2, 100.—K. and N. propose to divide arbitrarily the org. part of coal into (a) the sol. part, vitrain plus most of the dysain, and (b) the invol. part, fusain and the plant elements or the org. mass and its impurities. The main org. mass is microscopically homogeneous, colloidal, and has a micellar structure. Micelles are the product of mutual transformations of all component parts of the plant. The soln. of the main org. mass is regarded as an action of the solvent on the micelle aggregates or on the single micelles. Debyeograms indicate that new products are formed and extd. during the soln. as a result of peptization or pyrolysis. The sintering of some residual coals is explained by the destruction of some micelles during the dissolving process. Coals contain only a small amt. of bitumens proper. These bitumens do not play a predominant role in the process of coal formation. W. R. Henn

COMMON ELEMENTS

MATERIALS INDEX

430-526 METALLURGICAL LITERATURE CLASSIFICATION

REGION BOMARV

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REGION TWO TWO 102

REGION THREE THREE 103

REGION FOUR FOUR 104

REGION FIVE FIVE 105

REGION SIX SIX 106

REGION SEVEN SEVEN 107

REGION EIGHT EIGHT 108

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REGION THIRTEEN THIRTEEN 113

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REGION FIFTEEN FIFTEEN 115

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REGION FORTY SEVEN FORTY SEVEN 147

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REGION FIFTY FIFTY 150

NESTERENKO, L. L.

32385 O Khimicheskoy Prirode i Sostave Kamennyykh Ugley. (Referat). Soobshch.
O Nauch. Rabotakh Chlenov Vsesoyuz. Khim. O-va im. Mendeleeyeva, 1949, vyp.
3, s. 45-47

SO: Letopis' Zhurnal'nykh Statey, Vol. 44

NESTYENKO, L. L.

22586 NESTYENKO, L. L. Struktura Zemnykh Ugley i Metody Yego izucheniya (Tossi Doklada). Soobshch. O Nauch. Rabotah Chlenov Boroznyuz. Khim. O-va in. Mendeleyeva, 1949, vyp. 3, s. 47-50.

SO: Letopis' Zhurnal'nykh Statey, Vol 49

NESTERENKO, L. L.

NESTERENKO, L. L. -- "INVESTIGATION OF THE STRUCTURE OF COAL IN CONNECTION WITH ITS
USE FOR CHEMICAL PROCESSING." SUB 16 DEC 52, INST. OF MINERAL FUELS, ACAD SCI USSR
(DISSERTATION FOR THE DEGREE OF DOCTOR IN TECHNICAL SCIENCES)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1952

Nesterenko, L. L.

CH ✓ The theory of coke formation and charging coking ovens. S. G. Aronov and L. L. Nesterenko. *Sol* 15, 678-87 (1953); cf. C.A. 48, 72847. A detailed study of thermal transformations in coking one coking and one gas Donets coal conducted both in the lab. and plants showed that in the 400-525° coking range both C and H in the side chains are more labile in the gas than in the coking coal, while O splits off at about the same rate. The max. splitting off of C occurs at 400-50° and that of O at 700°, both continuing to sup. at 900°. Gas coal contains less cyclically polymerized C and, therefore, of H directly connected with it than coking coal, so that O of the former has a better chance to react with this mobile portion converting it into gaseous phase which does not enter the formation of the plastic phase necessary for coking. Heating in a ring furnace indicated that the condensation of compds. with an increasing C:H ratio increases with higher temp., leading to an increased true sp. gr. of the solid residue. Structural transformations of coal constituents are a function of the max. heating temp., while phys. properties of the solid matter of the coke depend on heating conditions. Up to 475° the strength of gas-coal coke increases faster, but at 500° coking coal overtakes this difference, and above it the increase in strength for both of them slows down, though the final strength of the coking-coal coke remains higher. The final strength of coke depends on the sintering strength of coal grains in the semi-

J. D. Galt

(1)

Nesterenko, L.L.

✓ 140. THEORY OF COKE FORMATION AND CHARGING COKE OVENS. Aronov, S.G. and Nesterenko, L.L. (Dokl. Akad. Nauk SSSR, Moscow, 1955, vol. 15, 678-687; abstr. in Chem. Abstr., 1956, vol. 50, 2955-2956). A detailed study of thermal transformations in coking and coking and one gas Donetsk coal conducted both in the laboratory and plants showed that in the 400-525° coking range both carbon and hydrogen in the side chains are more liable in the gas than in the coking coal, while oxygen splits off at about the same rate. The maximum splitting off of carbon occurs at 400-500° and that of oxygen at 700°, both continuing to separate at 900°. Gas coal contains less cyclically polymerized carbon and, therefore, of hydrogen directly connected with it.

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full

... themselves during coking. C.A.

15-57-3-3458

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 3,
pp 142-143 (USSR)

AUTHOR: Nesterenko, L. L.

TITLE: Distinctive Features in the Chemical Structure and in
the Properties of the Microcomponents of Coal (Osoben-
nosti khimicheskoy struktury i svoystv mikrokomponentov
kamennykh ugley)

PERIODICAL: Tr. Labor. geol. uglya AN SSSR, 1956, Nr 6, pp 121-
130

ABSTRACT: Vitrain, fusain, and spore substances are genetic types
which have been traced from peat to brown coal, through
intermediate coals to anthracite. Chemical methods of
study may be related to geological and petrographic
characteristics of the coals. The nature of the nucleus
of the elementary structural units is studied by X-ray
analysis; the structure and distinctive features of the
peripheral part (side chains) are determined by chemical

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15-57-3-3458

Distinctive Features in the Chemical (Cont.)

study. In order to define the characteristics of the coal ingredients, technical and fundamental analyses are used, such as semicoking and coking, plasticity measurements, solubility in benzene and anthracene oils, oxidation by oxygen, and hydrogenation. The volatile constituents were studied independently, after separation from the microcomponents of the coal. The author explains that in coals of the same rank the properties of the different microcomponents, as indicated by most of the criteria, differ sharply. He states that the properties of ordinary coal are a function of the quantitative ratios of the microcomponents and of the qualitative peculiarities of these microcomponents. The hydrophilic properties of the microcomponents, especially well shown in vitrain, are determined by the presence of side chains of polar groups (carboxyl, hydroxyl, and amino groups). The hydrophobic properties are associated with the aliphatic and cyclic hydrocarbon radicals. The greatest thermal instability of atomic groupings occurs in exinitic spores, the least in fusain. The characteristic side chains in exinite and vitrain have an aromatic structure, which does not agree with the concept of a humus-sapropel origin of coal. From the chemical destruction of the
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15-57-3-3458

Distinctive Features in the Chemical (Cont.)

coal microcomponents the gas type at 550° (with a rate of heating of 50 per minute) indicates that the structural differences of the side chains are characterized by two properties: 1) $\sum VG_{550}$ determines the total thermally unstable atomic groupings; and 2) $\frac{C}{O}$ is the ratio of quantity of carbon expelled to the quantity of oxygen expelled. The structures of the microcomponents of low rank coals are, approximately, spore substances and an aromatic nucleus very slightly condensed. The side chains are long and branching, with large numbers of thermally unstable groups. In fusain the nucleus is aromatic with highly condensed rings. The side chains are short with a minimum number of thermally unstable groups. In vitrain the nucleus is aromatic with a intermediate condensed structure of exinite spores and fusain). The side chains, according to the number of thermally unstable groups, occupy an intermediate position between spore and fusain substances. Resin bodies have practically a hydrocarbon character, inasmuch as 30 atoms of C and 60 atoms of H are attached to one atom of O. A diagram was prepared from the parameters of the structural characteristics (see Figure), showing the general

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Distinctive Features in the Chemical (Cont.)

classification of solid mineral fuels. A high value of the parameter $\sum V_{550}^G$ is favorable for semicoking and hydrogenation. Sapropelite, liptobiolith, peat, lignite, and less mature bituminous coal with predominant spore and vitrain substance have this feature in common. Of these coals, some have a high value of C/O (bogheads, liptobioliths, spore coals, gas and fat vitrain coals, and kerogen oil shales) and others have comparatively little (sapropel, peat, brown coals, and vitrain long-flame coals). The first of these two groups is more valuable for hydrogenation than the second. Coals with low values of $\sum V_{550}^G$ are not useful for semicoking and hydrogenation. Caking qualities are found in coals in which a high C/O is combined with a relatively high $\sum V_{550}^G$, an association found in coals rich in spores and vitrain material and poor in fusain. The proposed classification permits one to draw a line between coals suitable for chemical reprocessing and coals for energy. It is not recommended that many microcomponents be distinguished for chemical studies, only vitrain, fusain ingredients, and the normal yellow elements (as distinguished from later resin inclusions). It is necessary to begin the study with ingredients of low-rank coals, in order to trace the

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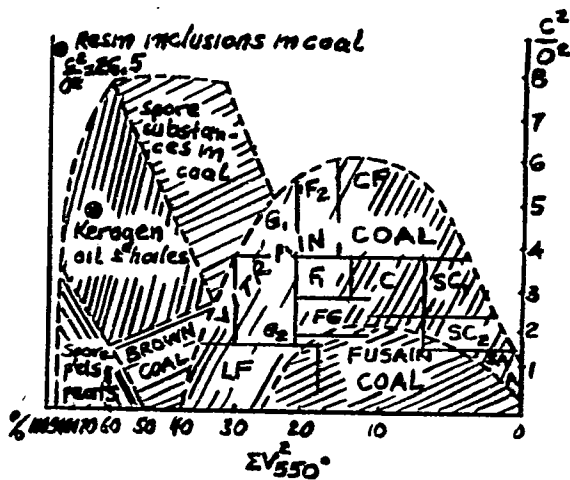
Distinctive Features in the Chemical (Cont.)

origin and alteration of their properties into the peat and brown-coal stages and beyond, through metamorphic processes, to coal. Microcomponents of coals which have essentially the same aromatic structures may have been formed from different initial plant substances by different conditions of transformation of the plants.

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Distinctive Features in the Chemical (Cont.)

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Explanation:

- LF longflame
- G gas
- F Fat
- C Coking
- CF Coking and Fat
- FG Fat and Gas
- SC Steam and Coking
- SA Semi-anthracite
- A Anthracite

A. N. G.

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END