MUKHITDINOV, U.

Testing defoliants on cotton plants with different degrees of water availability and maturity. Uzb.biol.zhur. no.2:19-23 '60. (MIRA 14:5)

1. Institut genetiki i fiziologii rasteniy AN UzSSR.
(COTTON GROWING) (DEFOLIATION)

BERSONOVA, K.A.; MUKHITDINOV, U.

Testing herbicides on plants infesting drainage systems of the Golodnaya Steppe. Uzb. biol. zhur. 7 no.1:72-77 '63 (MIRA 17:7)

1. Institut genetiki i fiziologii rasteniy AN Uzbekskoy SSR.

BERSENOVA, K.A.; MUKHITDINOV, U.

Application of herbicides by the injection method for reed and cattail control in drains. Uzb. biol. zhur. 8 no.5:59-62 '64
(MIRA 18:2)

1. Institut genetiki i fiziologii rasteniy AN UzSSR.

VANYUKOV, M.P.; MURATOV, V.R.; MUKHITDINOVA, I.A.

Time resolved emission spectra from a spark discharge in nitrogen and air in the 5000 - 10,000 Å wavelength range. Opt. i spektr.10 no.4:561-563 Ap '61. (MIRA 14:3)
(Electric discharges through gases)

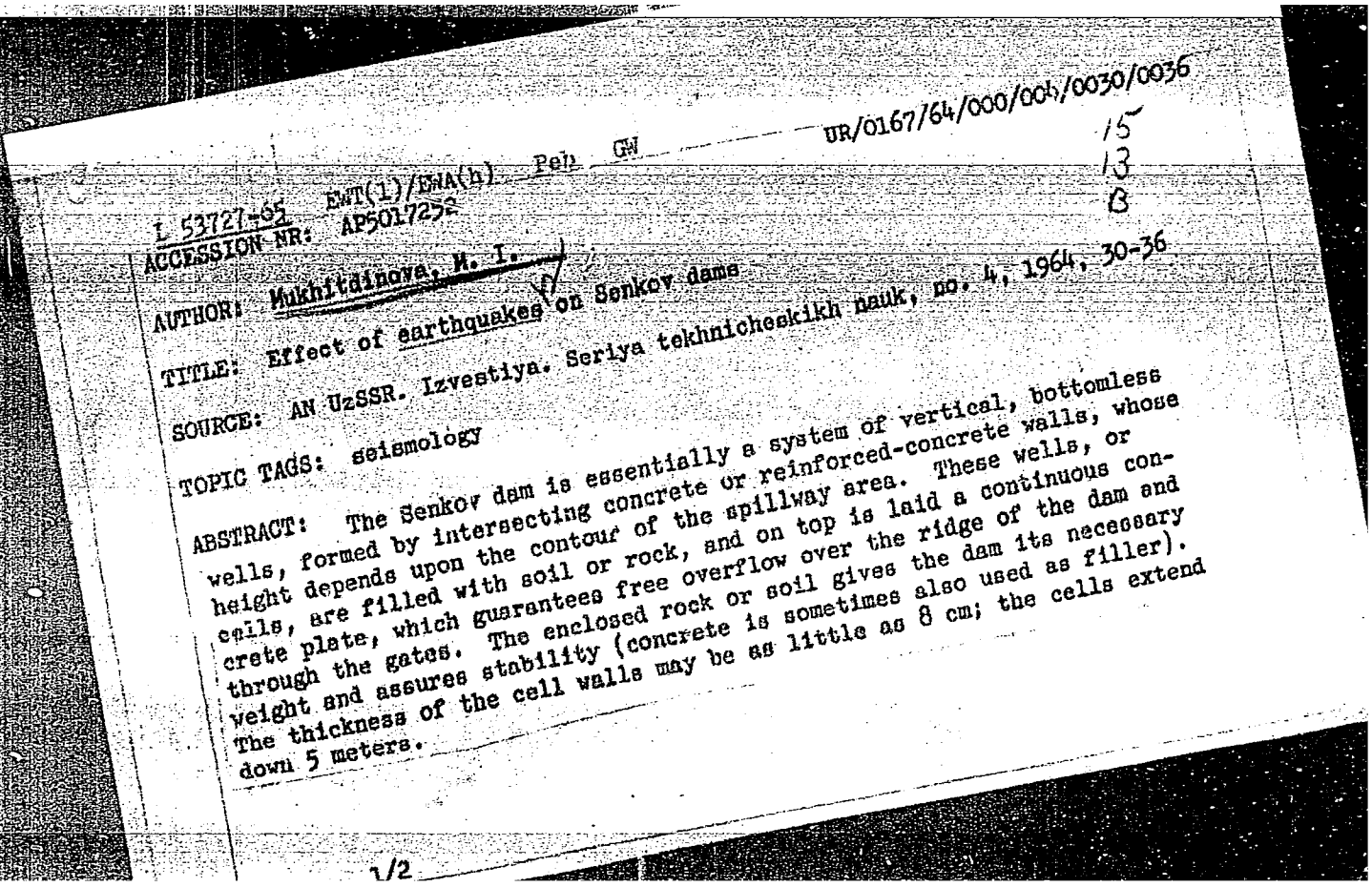
VANYUKOV, M.P.; MURATOV, V.R.; MUKHITDINOVA, I.A.

Time radiation spectra of spark discharges in inert gases in the region between 5,000 and 10,000 A. Opt. i spektr. 11 no.3:312-318 S '61. (MIRA 14:9)
(Electric discharges through gases)
(Radiation)

MUKHITDINOVA, M. I.
Acad Sci USSR. Inst of Physiology imeni I. P. Pavlov. Laboratory of Physiology and Pathology of Higher Nervous Activity.

MUKHITDINOVA, M. I.- "Investigation of the mobility of nervous processes in the syndrome of 'obtrusiveness.'" Acad Sci USSR. Inst of Physiology imeni I. P. Pavlov. Laboratory of Physiology and Pathology of Higher Nervous Activity. Leningrad, 1956.
(Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya Letopis' No. 20, 1956



L 53727-65 EWT(1)/EWA(h) Peb GW UR/0167/64/000/004/0030/0036
ACCESSION NR: AP5017252

15
13
B

AUTHOR: Mukhitdinova, M. I.

TITLE: Effect of earthquakes on Senkov dams

SOURCE: AN UzSSR. Izvestiya. Seriya tekhnicheskikh nauk, no. 4, 1964, 30-36

TOPIC TAGS: seismology

ABSTRACT: The Senkov dam is essentially a system of vertical, bottomless wells, formed by intersecting concrete or reinforced-concrete walls, whose height depends upon the contour of the spillway area. These wells, or cells, are filled with soil or rock, and on top is laid a continuous concrete plate, which guarantees free overflow over the ridge of the dam and through the gates. The enclosed rock or soil gives the dam its necessary weight and assures stability (concrete is sometimes also used as filler). The thickness of the cell walls may be as little as 8 cm; the cells extend down 5 meters.

1/2

L 53727-65

ACCESSION NR: AP5017252

2

The present article is a purely mathematical study of the effects of earthquakes on a Senkov dam. On the basis of two assumptions concerning the filler (assumed to be, first, an elastic medium, and then an incompressible liquid), two sets of formulas are derived for sag at the two ends and at the middle of a Senkov dam. The formulas require computer treatment for practical use. The article gives no details of the effectiveness of this type of construction on the practical level.

Orig. art. has:: 25 formulas.

ASSOCIATION: Institut mekhaniki AN UzSSR (Institute of Mechanics An UzSSR); Vychislitel'nyy tsentr AN UzSSR (Computing Center AN UzSSR)

SUBMITTED: 06Jan64 ENCL: 00 SUB CODE: ES, MA

NR REF SOV: 002 OTHER: 000 JPRS

Card 2/2

MESSINOVA, O.V.; SHAROVSKAYA, V.N.; MUKHITDINOVA, R.G.; YUSUPOVA, D.V.; BENING, G.P.

Deoxyribonuclease activity of Corynebacterium diphtheriae PW-8. Zhur. mikrobiol., epid. i immun. 40 no.11:12-15 N '63. (MIRA 17:12)

1. Iz Kazanskogo gosudarstvennogo universiteta i Kazanskogo instituta epidemiologii i mikrobiologii.

MUKHITOV, B.

Maximum admissible phenol concentration in atmospheric air. Zdrav. Kazakh. 21 no.6:65-68 '61. (MIRA 15:2)

1. Iz kafedry kommunal'noy gigiyeny (zav. - prof. V.A.Ryazanov) TSentral'nogo instituta usovershenstvovaniya vrachey.
(AIR--POLLUTION) (PHENOLS)

TIUNOV, K.V.; MUKHIYEV, Yu.D.

Age, thickness, and lithologic composition of the lower part of the middle Jurassic argillite formation of the Greater Balkhan. Izv. AN Turk. SSR. Ser. fiz.-tekh., khim. i geol. nauk no.4: 118-119 '61. (MIRA 14:12)

1. Upravleniye geologii i okhrany nedr pri Sovete Ministrov Turkmenskoy SSR.
(Balkhan Range—Geology stratigraphic—Jurassic)

MUKHLENOV, I.P.

"Concerning G1D. Sirotkin's Article "The Deterioration of the Vanadium Catalyst for the Oxidation of SO_2 in the Exploitation Process'", Zhur. Prik. Khim. No. 6, 1949. Leningrad Tech Inst. -c1949-.

Heavy-C Chemicals
15

Arsenic poisoning of vanadium catalysts in the production of sulfuric acid. I. G. Leushkin and I. P. Mukhlenov (Leningrad Technol. Inst.). *Zhur. Prikład. Khim.* (*J. Applied Chem.*) **23**, 449-58(1950). The effect of different amts. of As_2O_3 on the degree of oxidation of SO_2 to SO_3 was detd. in SO_2 + air mixts. contg. known concns. c of As_2O_3, flowing at a space velocity of 185-200 cc. (S.T.P.) cc. catalyst hr.$^{-1}$ at 485 and 500°. At any given c, the catalyst retains only a fraction, increasing with time, of the As_2O_3 passed, until a satn. amt. is reached. The plot of the rate const. k of the oxidation as a function of the amt. g of As_2O_3 retained (in g./l. satd. catalyst) consists of an initial rectilinear portion representable by $k = k_0 - ag$, where the poisoning coeff. $a = 0.2$ (in a mixt. contg. 7% SO_2, 93% air, at 485°, c = 0.5 mg. l.$^{-1}$). On further prolonged poisoning, absorption of As_2O_3 by the catalyst decreases and stops at 11-12% As_2O_3 (of the wt. of the satd. catalyst, or 15% of the wt. of the unsatd. catalyst). Over that range, the rate const. can be represented by $k = 75/g^{0.5}$, i.e. the decrease of the rate is hyperbolic. The limit of poisoning is represented by $a = (1/g)\ln(k_0/k)$ where the subscripts 0 and 1 refer to the initial and final k, resp. The values at 430, 475, 485, 490, 485°, with respect to the satd. catalyst, are $a = 0.0254$, 0.0189, 0.0185, 0.0182, 0.0179, and with respect to the unsatd. catalyst $a = 0.0292$, 0.0220, 0.0215, 0.0211, 0.0208. The activation energy E for the poisoned catalyst, in the temp. range 475-505°, is 20-22 kcal., i.e. close to the figure (18-20 kcal.) for the unpoisoned catalyst. However, below 475°, E for the poisoned catalyst is increased by a factor of 2, whereas on an unpoisoned catalyst the same increase is observed only at as low as 440°. Catalysts poisoned with small amts. of As_2O_3 cannot be regenerated by an air blast at 450-575°; only the As_2O_3 retained at higher c and over longer times can be removed in a hot-air stream. With c = 2.0 mg. l.$^{-1}$ and 24 hrs., the total amt. of As_2O_3 retained consists of an irreversible and a reversible part. Under production conditions, c is usually low, and therefore the poisoning is mostly irreversible. More efficient is the removal of As_2O_3 (in the form of $AsCl_3$) by HCl, this operation, however, entails a loss of activity of the catalyst. Some elimination of the As_2O_3 is also achieved by H_2O vapor. N. Thon

MUKHLENOV, I. P.

PA 228T2

USSR/Chemistry - Catalysts Aug 52

"The Mechanism of Arsenic Poisoning of a Vanadium Catalyst in the Production of Sulfur Acid," I. P. Mukhlenov, Leningrad Technol Inst imeni Lensovet

"Zhur Prik Khim" Vol 25, No 8 pp 793-796

States that poisoning action of arsenic trioxide takes following pattern: (1) sorption by the catalyst of arsenic trioxide; (2) oxidation of arsenic trioxide to arsenic pentoxide; (3) reaction of arsenic pentoxide with alkali metal

228T2

polyvanadate in soln, during which vanadium pentoxide is displaced: $mAs_2O_5 + Me_2O \cdot nV_2O_5 \rightleftarrows nV_2O_5 + Me_2O \cdot mAs_2O_5$. Parallel with the above reaction, but to a lesser deg, this reaction takes place: $mAs_2O_5 + Me_2S_2O_7 \rightleftarrows Me_2O \cdot mAs_2O_5 + 2SO_3$. By lessening the amt of solvent for alkali metal polyvanadate, this latter reaction contributes to the poisoning. States that, since all industrial vanadium catalysts contain alkali metals, they are all poisoned by arsenic. Those catalysts which do not contain alkali components cannot be poisoned by arsenic.

228T2

POZIN, M.Ye.; MUKHLENOV, I.P.; VOL'FKOVICH, S.I., akademik.

Foam conditions for the processing of gas-fluid systems. Dokl.AN SSSR 92 no.2: 393-396 S '53. (MLRA 6:9)

1. Akademiya nauk SSSR (for Vol'fkovich). 2. Leningradskiy tekhnologicheskiy institut im. Lensoveta (for Pozin and Mukhlenov).
(Foam) (Fluid dynamics)

MUKHLENOV, I. P.

Foam formation as a means for gas-liquid reactions. M. B. Pozin, I. P. Mukhlenov, E. S. Tumarkina, and E. Ya. Tarat (Lensovet Technol. Inst., Leningrad). *Zhur. Prikl. Khim.* 27, 12-21(1954).—The advantages of foam formation in mass- and heat-transfer reactions and dust and smoke removal are given analytically and mathematically. A diagrammatic sketch of a perforated plate column with liquid-sealed overflow from each plate is shown. The perforation of the plates can be of any shape and if desired at an angle to the direction of flow. The back pressure of such column approaches that of a packed tower while the reaction rate approaches the efficiency of a bubble tower at the flooding point. The surface of contact is increased many fold while diffusional resistances decreased. It is possible to operate such a column at a gas rate of 0.7–4.0 m./sec. with a wide range of liquid flow. — I. Berrowitz

MUKHLENOV, I.P., kandidat tekhnicheskikh nauk; TRABER, D.G., kandidat tekhnicheskikh nauk; RUMYANTSEVA, Ye.S.

Using a suspended layer of the catalyst in the oxidation of sulfur dioxide. Khim.prom. no.8:457-460 D '55. (MLRA 9:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Sulfur dioxide) (Catalysts)

AID P - 2258

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 3/19

Authors : Mukhlenov, I. P., and Ye. S. Tumarkina

Title : Heat transfer in foam apparatus

Periodical: Zhur. prikl. khim., 28, no.2, 135-144, 1955

Abstract : Heat transfer between water and air in foam was studied in various types of foam apparatus. Though there is a brief contact between water and air, the heat efficiency of a column plate reaches 95%. Formulas are given for determination of the heat transfer coefficient. Two tables, 6 diagrams, 11 references (8 Russian: 1940-54).

Institution: Leningrad Technological Institute (im. Lensovet)

Submitted : 0 1, 1953

Subject : USSR/Chemistry AID P - 2773

Card 1/1 Pub. 152 - 1/19

Authors : Mukhlenov, I. P. and Ye. S. Tumarkina

Title : Heat transfer in foam apparatus. Part II.

Periodical : Zhur. prikl. khim. 28, 4, 345-352, 1955

Abstract : The heat transfer coefficient increases with the increase in the height of the initial liquid layer. A formula is given for determination of the heat transfer coefficient. Three tables, 10 diagrams, 1 Russian reference: 1954.

Institution : None

Submitted : 0 1, 1953

MUKHLENOV I P

USSR/Chemical Technology - Chemical Products and Their Application. Mineral Salts. Oxides. Acids. Bases, I-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62087

Author: Pozin, M. Ye. Mukhlenov, I. P., Vasilesku, L. S.

Institution: None

Title: On Reduction of Ferric Sulfate with Sulfur Dioxide

Original Periodical: Zh. prikl. khimii, 1955, 28, No 6, 573-578

Abstract: Study of the effects of technological conditions (temperature and concentration of SO_2 and O_2 in gaseous mixture) on rate of reaction of reduction of $Fe_2(SO_4)_3$ to $FeSO_4$ in the process of production of H_2SO_4 by means of a Fe-catalyst from impure waste gases. Gaseous mixture fed at a rate of 30 l/hour through glass filter into reaction vessel containing 150 ml of $Fe_2(SO_4)_3$ solution (Fe ~ 30 g/l), contained in a thermostat at 20-80°, with a ratio $SO_2:O_2$ = 1:0.4 (concentration SO_2 7%). During first period (~1.5 hour) when in solution the amount of Fe^{3+} is still large rate of reaction of Fe^{3+}

Card 1/3

USSR/Chemical Technology - Chemical Products and Their Application. Mineral Salts. Oxides. Acids. Bases, I-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62087

Abstract: reduction predominated rate of Fe^{2+} oxidation. During second period the reversed conditions took place which was due to accumulation of Fe^{2+}, and also decrease in SO_2 solubility and lowering of dissociation degree of $Fe_2(SO_4)_3$ due to H_2SO_4 formation $AsFe^{3+}$ accumulated rate of oxidation decreased. Increase in temperature accelerated accumulation of H_2SO_4 but extent of maximum reduction of Fe^{3+} decreased with rise in temperature from 20 to 60° (solubility of SO_2 decreased more rapidly than solubility of O_2). On rise of temperature to 80° extent of reduction of Fe^{3+} increased again. Rate of acid formation which increases rapidly at the beginning of first period, and decreases at its end, remained constant during second period up to a considerable accumulation of H_2SO_4 after which it dropped again, especially at 60-80°. With increase in H_2SO_4 concentration optimal temperature of the process decreases. Experiments with SO_2 concentrations of 7-100% (at 60°) also showed at first a decrease in Fe^{3+} content of the solution with subsequent predominance of oxidation reacti... Only in the absence of O_2 (100% SO_2) no second period occurred. Increase in SO_2 concentration from 20 to

Card 2/3

USSR/Chemical Technology - Chemical Products and Their Application. Mineral Salts. Oxides. Acids. Bases, I-5

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 62087

Abstract: 100% increased at the beginning of the process the rate of acid formation and apparently decreased the maximum attainable concentration of acid in solution. Maximum concentration was obtained with 20% SO_2 in gas mixture. In all experiments degree of Fe^{3+} reduction was not less than 20%. Change in $SO_2:O_2$ ratio from 1:0.4 to 1:4 at 60° and 7% concentration of SO_2 has shown that degree of Fe^{3+} reduction decreases with increase in O_2 concentration while rate of summative process of acid formation increases (by 3 times). An H_2SO_4 concentration of 20.6% was attained which is not a maximal. The investigation has confirmed the possibility of concurrent utilization of waste gases and waste pickling solutions or the production of H_2SO_4 (after crystallization of $Fe_2(SO_4)_3$ from the solution).

Card 3/3

AID P - 3565

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 2/20

Authors : Pozin, M. Ye., I. P. Mukhlenov, and L. S. Vasilesku

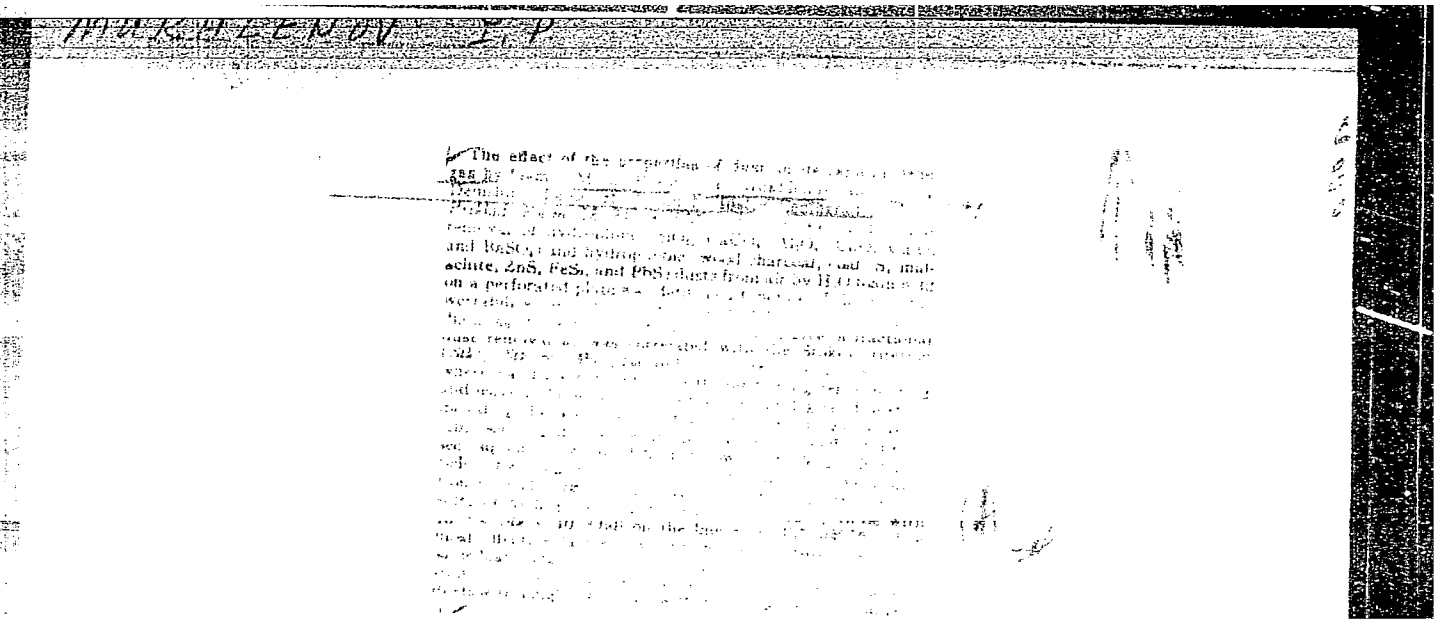
Title : Oxidation of sulfur dioxide in a ferrous sulfate solution

Periodical : Zhur. prikl. khim., 28, 7, 681-686, 1955

Abstract : Sulfur dioxide reacts with a ferrous sulfate solution forming ferric sulfate and sulfuric acid. Optimum temperature for the oxidation of ferrous sulfate to ferric sulfate is 60-80°C, and for the formation of sulfuric acid, 80-90°C. Six diagrams, 7 references, 5 Russian (1931-1955).

Institution : Leningrad Technological Institute im. Lensovet

Submitted : My 10, 1954



AID P - 3739

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 3/22

Authors : Mukhlenov, I. P. and V. Ya. Demshin

Title : Effect of the properties of wash liquids on removal of dust from gas by the foam method

Periodical : Zhur. prikl. khim., 28, 9, 922-926, 1955

Abstract : The addition of surface-active agents (sodium oleate) to wash water has a favorable effect on the removal of hydrophobic dust particles, but not on the removal of hydrophylic particles. Addition of electrolytes (Na_2CO_3) practically does not affect the removal of dust from gas. Five diagrams, 5 references, 3 Russian (1947-1955).

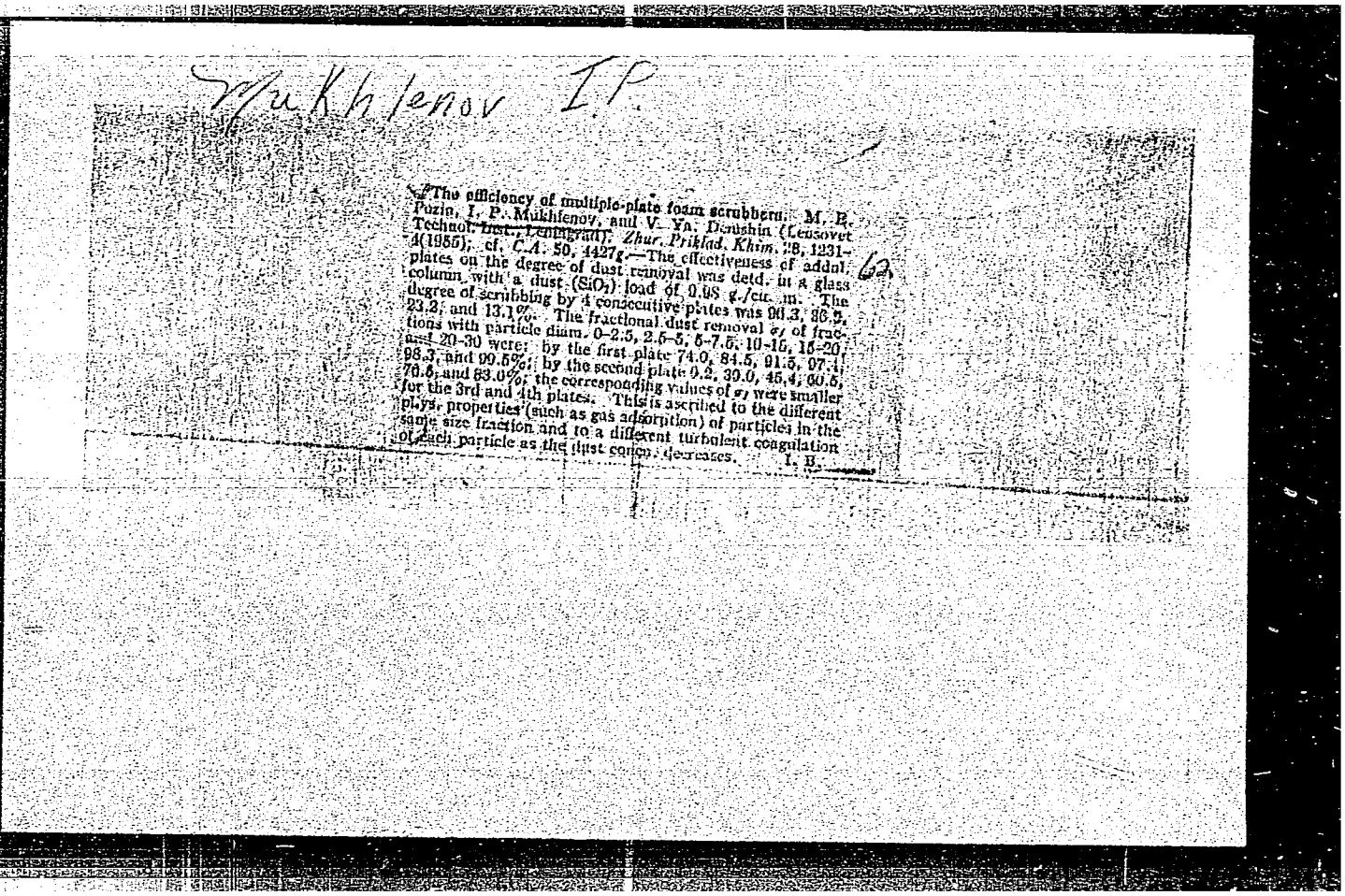
Institution : Leningrad Technological Institute im. Lensovet

Submitted : F 21, 1955

Makhlenay, I. P.

Analysis of the processes of dust removal in a foam scrubber. M. E. Pozin, I. P. Mukhlenov, and V. Ya. Demshin (Lensovet Technol. Inst., Leningrad). *Zhur. Prikład. Khim.* 28, 1116–20(1955); cf. *C.A.* 50, 3675g.—Two alternatives suggest themselves to account for the fact that in foam dust collectors the proportion of dust with larger particle diams. δ is larger in the H_2O passing through the plate (a) than in the H_2O (foam) passing over the wier (b). That it is not caused by normal settling during the period of retention in the collector is shown by expts. with pure air bubbling through a H_2O-dust suspension; the particle distribution in both streams remains the same. The second alternative, that classification occurs under the plate by the inertia effects of the plate, was tested by a careful material balance of the respective streams and the detn. of the size distribution in a and b. The fractional dust removal σ_δ is smaller in a than in b and does not exceed 80% in the former even with the coarser particles, $\delta = 60\ \mu$. This is accounted for by the fact that the free area of the plate is 16.65% so that less than 33.35% of the gas stream is affected by the inertia forces of the plate. This also accounts for the fact that σ_δ of hydrophobic dusts is smaller in a and is affected by the d. and by δ of the particles to a greater extent than hydrophilic dusts; for $\delta < 5\ \mu$ there is no difference between the 2 dusts.

I. Hencowitz



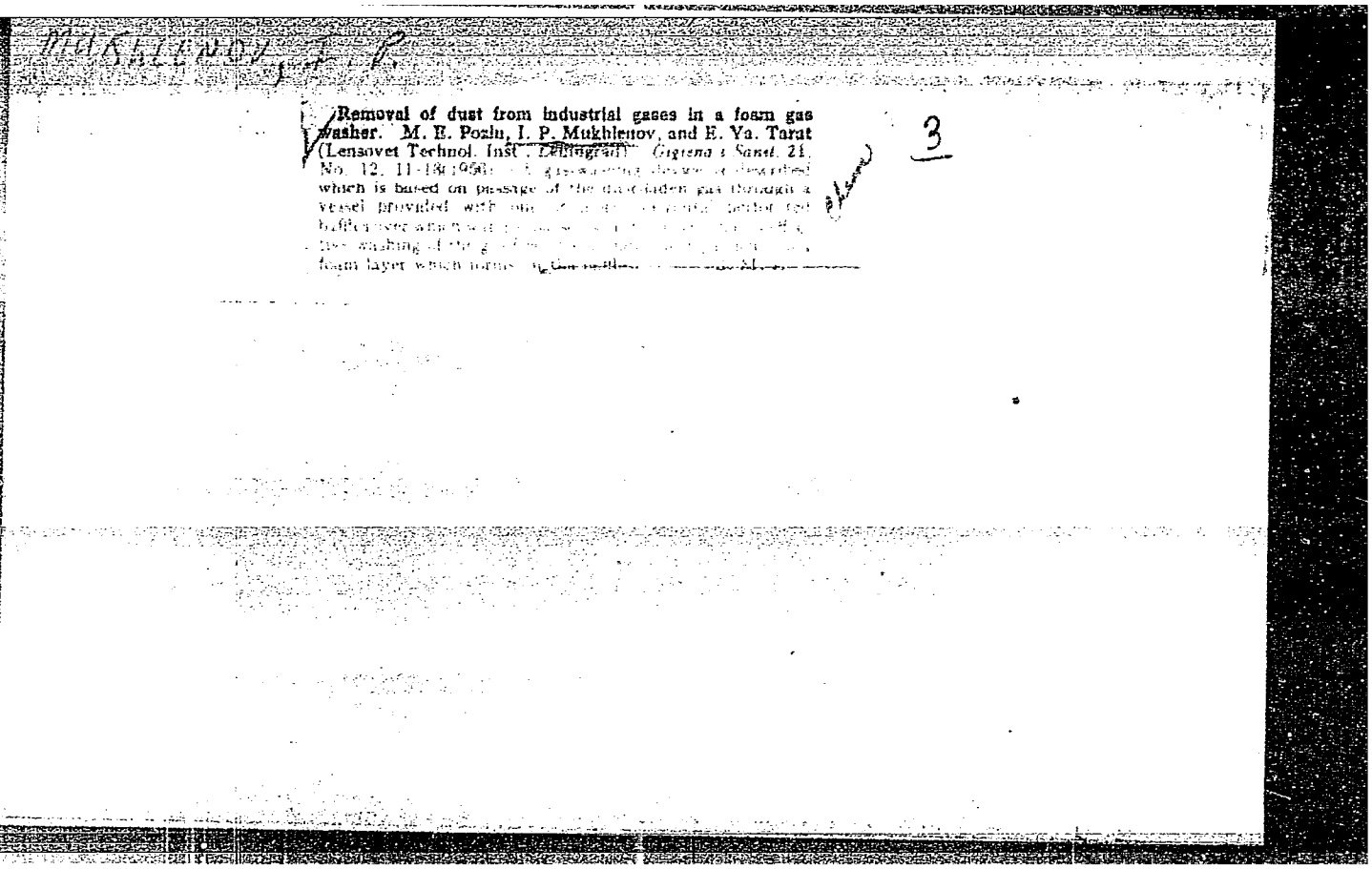
Mukhlenov I.P.

The efficiency of multiple-plate foam scrubbers. M. E. Pozin, I. P. Mukhlenov, and V. Ya. Dianshin (Leningrad Technol. Inst., Leningrad). *Zhur. Prikład. Khim.* 28, 1231-4(1955); cf. *C.A.* 50, 4427g.—The effectiveness of addnl. plates on the degree of dust removal was detd. in a glass column with a dust (SiO_2) load of 0.08 g./cu. m. The degree of scrubbing by 4 consecutive plates was 90.3, 86.5, 23.3, and 13.1%. The fractional dust removal σ_f of fractions with particle diam. 0–2.5, 2.5–5, 5–7.5, 10–15, 15–20, and 20–30 were: by the first plate 74.0, 84.5, 91.5, 97.1, 98.3, and 99.5%; by the second plate 9.2, 39.0, 45.4, 60.5, 70.6, and 83.0%; the corresponding values of σ_f were smaller for the 3rd and 4th plates. This is ascribed to the different phys. properties (such as gas adsorption) of particles in the same size fraction and to a different turbulent coagulation of each particle as the dust concn. decreases. I. B.

MUKHLENOV, I. P.

MUKHLENOV, I. P.: "Investigation of the foam method of ineraction between gases and liquids." Min Higher Education USSR. Leningrad Order of Labor Red Banner Technological Inst imeni Leningrad Soviet. Chair of General Chemical Technology. Leningrad, 1956. (DISSERTATION FOR THE DEGREE OF DOCTOR IN TECHNICAL SCIENCE)

So. : Knizhnaya letopis' No 15, 1956, Moscow



Removal of dust from industrial gases in a foam gas washer. M. E. Pozin, I. P. Mukhlenov, and E. Ya. Tarat (Lensovet Technol. Inst., Leningrad). *Gigiena i Sanit.* 21, No. 12, 11-18 (1956). A gas-washing device is described which is based on passage of the dust-laden gas through a vessel provided with [illegible] bubbles over a [illegible] foam layer which forms [illegible]

3

Name: MUKHLENOV, Ivan Petrovich

Dissertation: Study of the foam method of interaction of gases and liquids

Degree: Doc Tech Sci

Affiliation: [not indicated]

Defense Date, Place: 3 Apr 56, Council of Leningrad Order of Labor Red Banner Technological Inst imeni Lensovet

Certification Date: 29 Jun 57

Source: BMVO 18/57

MUKHLENOV, I.P.; TRAUER, D.G.; RUMYANTSEVA, Ye.S.

Reply on the remarks of LAroslav Beranek and Ivan Klumpar. Khim. prom. no.1:43-44 Ja-F '57. (MLRA 10:4)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Fluidisation)

MUKHLENOV, I. P.

27

Removal of sulfuric acid fog. K. K. Kil'dshtedt, V. M. Khalkva, L. F. Nikitina, I. P. Mukhlenov, and E. S. Tumarkina (Chem. Kombinat, Stalinogorsk). Khim. Nauka [illegible] — Different methods for the removal of H_2SO_4 fog [illegible] and concentrator with 70% H_2SO_4 at 170–110° were investigated. A 2-plate foam scrubber, a Venturi nozzle, packed column, and a film [illegible] vices were placed between the [illegible] precipitator. The gas contained SO_3 [illegible] 73, and steam 200 g./cu. m. The foam scrubber [illegible] at 3–4 m./sec. in the column and 15 m./sec. through the perforations and a packed tower at 2–2.5 m./sec. [illegible] cation range) were found most economical. [illegible] moved 70–80% of the total gases at a back pressure of 100 mm. H_2O and the 2nd 67% at a back pressure of [illegible] mm. H_2O.

Distr: 4E4j

MUKHLENOV, I. P.

Character of gas-liquid dispersed systems. M. E. Pozin, I. P. Mukhlenov, and [illegible] (Lensovet Technol. Inst., Leningrad). *Zhur. Prikl. Khim.* 30, 46-52 (1957).

The conditions in a sieve-plate app. are detd. primarily by the flow rate of the gas stream, and the bubbling process passes into a foaming process. Photographic examn. shows that the structure of the foam changes. The processes of heat- and mass-transfer proceed more vigorously in the layer of dynamically fluidized foam consisting of films and liquid mixed with gas bubbles. The criteria suggested by Mellkyan (preceding abstr.) are untenable for sieve plates and the concept of 3 streams is not always accurate.

I. B.

MUKHLENOV, I.P.

POZIN, M.Ye.; MUKHLENOV, I.P.; TARAT, E.Ya.

Foam technique for dust collection from gases. Zhur.prikl.khim. 30 no.2:293-297 F '57. (MLRA 10:5)

1.Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Dust collectors) (Gases)

MUKHLENOV, I.P.

MUKHLENOV, I.P.

Dynamics of a suspended layer of a liquid in a gas. Zhur.prikl. khim. 30 no.12:1750-1755 D '57. (MIRA 11:1)

1.Leningradskiy tekhnologicheskiy institut im. Lensoveta.
(Hydrodynamics) (Gases)

5(1) PHASE I BOOK EXPLOITATION SOV/2099

Mukhlenov, Ivan Petrovich, Professor

Tekhnologiya vazhneyshikh otrasley promyshlennosti, chast' III: Khimicheskaya promyshlennost' (Technology of the Major Branches of Industry, Pt. 3: Chemical Industry) Moscow, Izd-vo VPSh i AON pri TsK KPSS, 1958. 177 p. 25,000 copies printed.

Sponsoring Agency: Kommunisticheskaya partiya Sovetskogo Soyuza. Tsentral'nyy Komitet. Vysshaya partiynaya shkola.

General Ed.: G.I. Pogodin-Alekseyev, Professor (Higher Party School); Eds: G.F. Sofronov, Chief (Leningrad Higher Party School, Division of Manufacturing), and Z.I. Griva; Tech. Ed.: T.A. Fomkina.

PURPOSE: The book is intended as a textbook for students of party schools specializing in the technology of chemical industries.

Card 1/5

COVERAGE: A brief description is given of chemical industries of major importance to the national economy. The fundamental principles of general, organic, and physical chemistry are given as well as a general description of the basic equipment used in chemical industries. The book is based on the teaching experience of the Department of Industrial Production of the Leningrad Higher Party School. Contributions to this book were also made by the workers of Dnepropetrovsk, Gor'kiy and Kazan' Higher Party Schools. The book is the first attempt to compile a textbook on chemical technology for students of higher party schools. No personalities are mentioned. There are nine references, all Soviet.

TABLE OF CONTENTS:

Technology of the Major Branches (Cont.) SOV/2099

Card 3/5

Technology of the Major Branches (Cont.) SOV/2099

Card 4/5

AVAILABLE: Library of Congress

Card 5/5

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8-18-59

MUKHLENOV, I P

Investigation of mobile foam on sieve plates. I. P. Mukhlenov (Technol. Inst., Leningrad). *Zhur. Prikład. Khim.* 31, 45–54(1958); cf. *C.A.* 49, 12888c, 51, 10985h.—The characteristics of absorption by a mobile foam on sieve plates were studied. These addnl. data and the previous data (*loc. cit.*) were correlated with the theoretical equation previously developed (*C.A.* 52, 7757a). The height of the foam H is independent of the geometric parameters of the app. and is practically independent of the gas velocities within the plate perforations. It decreases as the surface tension σ and the kinematic viscosity ν_l of the liquid phase increase. Empirically, $H = \alpha w_s(h_s + \beta) + \gamma h_s$. The values of α, β, and γ for initial liquid heights h_s between 8 and 60 mm. are 0.35, 0.075, and 2, and for h_s between 60 and 100 mm. 0.1, 0.42, and 2, resp., at gas velocities in the column $w_s > 1.0$ m./sec. On the basis of these exptl. data the theoretical equation is reduced to $H/h_s = A_1 Re^{0.1} We^{-1.1}(\nu_g/\nu_l)^{2.25}(D/h_s)^2$, where $A_1 = 2.83 \times 10^{-4} \nu_g^{0.25} \nu_s^{-1.1}$, $Re = (w_s D/\nu_g)$, $We = \sigma/\gamma_l h_s^2$. D is the equiv. diam. of the app., and γ is the d.

I. Bencowitz

MUKHLENOV, I.P.

Heat exchange and mass transfer kinetics in foam layer. Zhur. prikl. khim. 31 no.9:1342-1348 S '58. (MIRA 11:10)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Heat--Transmission) (Mass transfer) (Foam)

MUKHLENOV, I.P.; TUMARKINA, Ye.S.

Kinetics of heat and mass transfer in a foam layer. Zhur.prikl.khim. 31 no.11:1647-1655 N '58. (MIRA 12:2)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Foam) (Heat--Transmission) (Mass transfer)

POZIN, M.Ye.; MUKHLENOV, I.P.; TARAT, E.Ya.; FOMKINA, T.A., tekhn.red.

[Froth apparatus for gas purification, heat exchange, and absorption; operation and calculation for froth apparatus] Pennye gazoochistiteli, teploobmenniki i absorbery; rabota i raschet pennykh apparatov. Leningrad, Gos.nauchno-tekhn. izd-vo khim.lit-ry, 1959. 122 p. (MIRA 12:12)
(Gas purification) (Chemical engineering)

SOV/67-59-3-5/27

14(1)

AUTHORS: Pozin, M. Ye., Doctor of Technical Sciences, Professor, Mukhlenov, I. P., Doctor of Technical Sciences, Tarat, E. Ya., Candidate of Technical Sciences

TITLE: On the Height of the Initial Liquid Layer on the Bottom of a Sifting Apparatus (O vysote iskhodnogo sloya zhidkosti na tarelke sitchatogo apparata)

PERIODICAL: Kislorod, 1959, Nr 3, pp 26 - 31 (USSR)

ABSTRACT: The height of the initial layer is one of the most important parameters determining the operation of the bottom of a sifting apparatus. The rate of heat- and of mass exchange depends on the height H of the mixture of gas and liquid which forms at the bottom of the sifter (Refs 1,2). H is proportional to the h_o of the initial height. In this connection most of the authors do not consider the superelevation of the layer h_o over the discharge threshold which forms due to the intensive stream of liquid. In the papers by the authors (Ref 1) it was shown that also without threshold a considerable height H forms due to the stream. Other authors (Aksel'rod,

Card 1/3

Usyukin, and Dil'man, Refs 8,9) assumed only low velocities of the liquid and a constant specific weight of the gas-liquid mixture. This changed, however, from 0.1 to almost 1. In this paper a method of determining h_o - for apparatus with a discharge device in which h_o depends on the height of the threshold h_S - , on the liquid stream i and on the diameter of the discharge opening, is described. The most simple case is a free discharge without discharge threshold (h_o depends only on i) a scheme with external discharge is shown on figure 1, a, with threshold and external discharge figure 1,b. 3rd case with consideration of the diameter of the discharge opening figure 1v ($H > a_c + h_S$). In the present investigations two models with a rectangular cross section and with a sifter of the dimensions 500 to 80 and 200 to 60 mm and a variation of the threshold from 0 to 40 mm, and a variation of the discharge opening from 40-120 mm was used. The sifters had circular or slotted openings. The intensity of the liquid stream was varied from 1-75 m^3/m hour. The experiments were made

On the Height of the Initial Liquid Layer on the Bottom SOV/67-59-3-5/27
of a Sifting Apparatus

with air-water of 18-20° and with increasing temperature also with salt and acid solutions. Moreover, also the formulas for the determination of h_o (equations 1-13) are developed. The figures show the individual dependences in the variation of different parameters. h_o may be computed on general practical conditions according to formula $h_o = \psi h_s + 3\epsilon\sqrt[3]{i^2}$, mm (8). ψ and ϵ may be determined from a comparison of the data of the two types of apparatus. A more general computation of h_o is then carried out which may be used for all gas-liquid systems in using different apparatus with a foam formation method (Equations 9-13). From this the equation for h_o was found: $h_o^{0.6} = 1.24\ H/w^{0.5}$, m (13) where w denotes the velocity of gas. There are 7 figures and 12 references, 11 of which are Soviet.

Card 3/3

MUKHLENOV, I.P.

Interaction of phases and classification of two-phase dispersed systems used in the chemical industry. Trudy LTI no.54:5-13 '59. (MIRA 13:8)

(Systems (Chemistry))

22220

S/124/61/000/003/010/028
A005/A105

11.9400

AUTHORS: Mukhlenov, I. P.; Traber, D. G., and Sarkits, V. B.

TITLE: The influence of hydrodynamical factors on the heat emission process from a suspended layer into a heat exchange surface

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1961, 62-63, abstract 3B427 (Tr. Leningr. tekhnol. in-ta im. Lensoveta, 1959, no. 54, 24-36)

TEXT: The authors measured the heat emission from a heated boiling layer into a spiral tube submerged into the latter, which cooling water flows through. The diameter of the reactor was 49 mm, the diameter of the spiral tube coil was 20 mm. There were measured: the temperatures of the water at entrance (10-24°C) and outlet (17-57°C), and the temperatures of the layer at the levels of the lower and upper cooler boundary (130-150°C). The temperature head was calculated as logarithmic mean for counterflow. A sloping maximum of the heat emission coefficient α_{max} was observed for expansion of the layer by 1.5-1.6 times. The value α_{max} decreased from 270 to 193 kcal m^2 h °C with mean diameter of the grains increasing from 0.38 to 2.5 mm; and for d = 3.5 mm this value increased up to 200 kcal m^2 h °C. The absolute value of the flow velocity, most favorable for

Card 1/2

The influence of hydrodynamical ... S/124/61/000/003/010/028
A005/A105

heat emission, increased by ten times, and its ratio to the critical velocity of the start of liquefaction decreased from 8.8 to 3.8. The value α_{max} increased proportional to $H_o^{0.45}$ with increasing initial height of the layer. The coefficient of heat emission decreased when lifting the cooler into the upper part of the boiling layer, which points out the thermal inhomogeneity of the boiling layer.

O. Todes

[Abstractor's note: Complete translation]

Card 2/2

ANOKHIN, V.N.; TRAHER, D.G.; MUKHLENOV, I.P.; HUMYANTSEVA, Ye.S.

Conversion of carbon monoxide in a suspended catalyst bed. Trudy LTI no.54:37-46 '59. (MIRA 13:8)
(Carbon monoxide) (Catalysis)

TRABER, D.G.; RUMYANTSEVA, Ye.S.; MUKHLENOV, I.P.

Effect of the particle size of a nanadium catalyst in a suspended bed on its activity during the oxidation of sulfur dioxide. Trudy LTI no.54:47-52 '59. (MIRA 13:8)
(Sulfur dioxide) (Oxidation) (Catalysis)

TRABER, D.G.; MUKHLENOV, I.P.; RUMYANTSEVA, Ye.S.

Kinetics of oxidation of sulfur dioxide in a suspended catalyst bed. Trudy LTI no.54:53-62 '59. (MIRA 13:8)
(Sulfur dioxide) (Oxidation) (Catalysis)

MUKHLENOV, I.P.; ROZOVA, T.N.; LAZAREV, L.S.

Removing dust from gases in froth-type gas washers. Trudy LTI no.54:94-102 '59. (MIRA 13:8)
(Gases--Cleaning) (Dust collectors) (Metallurgy)

MUKHLENOV, I.P.; TUMARKINA, Ye.S.; KIL'SHTEDT, K.K.; KHALEPA, V.M.; NIKITINA, L.F.

Removing the sulfuric acid fog. Trudy LTI no.54:103-116 '59. (MIRA 13:8)

(Sulfuric acid) (Gases—Purification)

MUKHLENOV, I.P.; TUMARKINA, Ye.S.

Effect of the surface tension on the hydrodynamics of a fluidized liquid bed (Bubble bed). Trudy LTI no.54:117-124 '59.
(MIRA 13:8)

(Fluidization) (Surface tension)

MUKHLENOV, I.P.; AVERBUKH, A.Ya.; TUMARKINA, Ye.S.

Use of the frothing method of interaction between liquid and gas in organic technology. Trudy LTI no.54:125-128 '59.
(MIRA 13:8)

(Gases—Purification)
(Chemical engineering--Equipment and supplies)
(Chemistry, Organic)

5.4700, 5.1190

75666
SOV/80-32-10-15/51

AUTHORS: Sarkits, V. B., Traber, D. G., Mukhlenov, I. P.

TITLE: Heat Transfer From Fluidized Catalyst Layer to the Heat Exchange Surface. Communication 2

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2218-2225 (USSR)

ABSTRACT: The study deals with the relation between Nusselt criterion, and the Reynolds and Froude criteria; with the effect of the geometric parameters of the apparatus; and with the effect of the initial height of the layer in heat transfer from a fluidized catalyst layer to the heat exchange surface:

$$Nu = \varphi\left(Re, Fr, \frac{D}{d}, \frac{H_0}{d}\right)$$

where D is the diameter of the heat exchange apparatus; d is the size of the catalyst particles; H_0 is the initial height of the catalyst layer. The experiments were made with BAV-type catalyst of d = 0.127 to 3.5

Card 1/5

mm. The apparatus and the experimental procedure have been previously described by the authors (this journal, 1959, Vol 32, Nr 6, p 1291; Tr. LIT, 1959, p 54). Values of the coefficient of heat transfer were plotted against the velocity of the air flow for various sizes of the catalyst particles, and the curves were expressed by Eq.(1)-(4). Eq. (1) and (3) described the part of the curve from the critical value of air velocity to the optimum value; Eq. (2) and (4) described the curve portion from the optimum value of air velocity to the velocity at which the catalyst particles were carried away from the apparatus. The equations for the laminar flow are:

$$Nu = 0.065 \cdot Re^{0.35} \cdot Pr^{0.37} \cdot \left(\frac{D}{d}\right)^{0.18} \cdot \left(\frac{H_0}{d}\right)^{0.45}. \quad (1)$$

$$Nu = 0.15 \cdot Re^{0.04} \cdot Pr^{0.43} \cdot \left(\frac{D}{d}\right)^{0.18} \cdot \left(\frac{H_0}{d}\right)^{0.45}. \quad (2)$$

Those for the turbulent flow are:

$$Nu = 0.14 \cdot Re^{0.85} \cdot Pr^{0.17} \cdot \left(\frac{D}{d}\right)^{0.13} \cdot \left(\frac{H_0}{d}\right)^{0.16}, \quad (3)$$

$$Nu = 0.56 \cdot Re^{1.0} \cdot Pr^{0.56} \cdot \left(\frac{D}{d}\right)^{0.13} \cdot \left(\frac{H_0}{d}\right)^{0.16}, \quad (4)$$

where

$$Nu = \frac{\alpha \cdot d}{\lambda_T}; \quad Re = \frac{w \cdot d}{\nu}; \quad Fr = \frac{g \cdot d}{w^2};$$

Here, α is the coefficient of heat transfer; d is the size of the catalyst particles; w is the linear velocity of the gas in the free cross section of the apparatus; λ_T is the thermal conductivity of the gas; ν is the kinematic viscosity of the gas; g is the free fall acceleration; D is the diameter of the apparatus; and H_0 is the initial height of the catalyst layer. The values of the numerical coefficients and exponents in Eq. (1)-(4) were determined from the

various diagrams expressing the effect of the initial height of the catalyst layer and of the apparatus diameter on the heat transfer process, the effect of $Re = \frac{w \cdot d}{\nu}$ on the heat exchange process, and the effect Fr on the heat exchange process. The last diagram also gave numerical values of Fr which made possible the determination of the optima velocities of the air for the investigated catalyst in laminar and turbulent flow; the respective equations are (5) and (6):

$$w_{opt.} = \sqrt{\frac{g \cdot d}{0.0415}} = 15.35 \cdot \sqrt{d}, \qquad (5)$$

$$w_{opt.} = \sqrt{\frac{g \cdot d}{0.00374}} = 51.2 \cdot \sqrt{d}. \qquad (6)$$

Heat Transfer From Fluidized Catalyst Layer to the Heat Exchange Surface. Communication 2

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There are 7 figures; and 10 references, 4 U.S., 6 Soviet. The U.S. references are: Dow, W. M., Jacob, M., Ch. Eng. Progr., 47, 12 (1951); Heerden, C., Nobel, A. P., Krevelen, D. W., Ind. Eng. Ch., 45, 6 (1953); Ju-Chin Chu, Fluidization, New York, 1956; Leva, M., et al., Ch. Eng. Progr., 45, 9 (1949); 48, 6 (1952).

ASSOCIATION: Leningrad Institute of Technology imeni Lensoveta (Leningradskiy Tekhnologicheskiy institut imeni Lensoveta)

SUBMITTED: April 28, 1959

Card 5/5

ANOKHIN, V.N.; TRABER, D.G.; MUKHLENOV, I.P.

Conversion of carbon monoxide in the fluidized bed of a catalyst.
Zhur. prikl. khim. 33 no.8:1740-1745 Ag '60. (MIRA 13:9)
(Carbon monoxide)

MUKHLENOV, I.P.; TRABER, D.G.; SARKITS, V.B.

Heat transfer from the fluidized bed of granular materials to the surface of heat exchange. Zhur.prikl.khim. 33 no.10:2206-2212 O '60. (MIRA 14:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Heat—Transmission) (Granular materials)

MUKHLENOV, I.P.; TRABER, D.G.; MIKHALEV, M.F.; SHMEKKER, Ya.M.

Oxidation of sulfur dioxide in an apparatus with a fluidized catalyst bed. Khim.prom. no.1:42-46 Ja '61. (MIRA 14:1)

1. Leningradskiy technologicheskiy institut imeni Lensoveta i zavod "Krasnyy Khimik."

(Sulfur dioxide) (Fluidization)
(Oxidation)

MUKHLENOV, I.P.; TRABER, D.G.; SARKITS, V.B.; RUMYANTSEVA, Ye.S.; MIKHALEV, M.F.; SHMEKKER, Ya.M.; CHERNYAK, M.A.

Testing an apparatus for the oxidation of concentrated sulfur dioxide in a fluidized catalyst bed. Khim.prom. no.11:770-775 N '61. (MIRA 15:1)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta, i Leningradskiy zavod "Krasnyy khimik".
(Chemical apparatus) (Sulfur dioxide)
(Catalysis)

24000
S/080/61/034/006/001/020
D247/D305

5 1140 1209

AUTHORS: Mukhlenov, I.P., Traber, D.G., Rumyanteseva, Ye.S., and Pomerantsev, V.M.

TITLE: Hydrodynamics of a fluidized catalyst bed under high pressure

PERIODICAL: Zhurnal prikladnoz khimii, v. 34, no. 6, 1961, 1181 - 1185

TEXT: With a continuous expansion of the chemical industry and increased demands for natural and synthetic gases, it has been found necessary to study more closely conversions and syntheses, based on monoxide, carried out in a fluidized bed, and to confirm the existing hydrodynamic equations for processes conducted under pressures exceeding 30 atm. in order to obtain data for more efficient construction of plants. The investigations were carried out with a gas mixture normally used in methanol synthesis under pressures of 1 - 230 atm. temperature 15-20°C using spherical gra-

Card 1/4

Hydrodynamics of a ...

nules of catalyst of variable particle size, 0.75 - 4.5 mm. The experiments considered of measuring, under different conditions, the hydraulic resistance of the fluidized bed, Δp, determining critical velocity of gas corresponding to the transition of the solid from stationary to fluidized state, apparent gas velocity W_{fv} being calculated instead of real W_f, and determining the specific height of the fluidized bed H_{sp} in terms of a ratio of heights of bed in fluidized, H, and stationary, H_o, states. Under high pressures Δp has been found to exceed, in all cases, the ratio of the weight of the contact mass to the cross sectional area of the apparatus by 20 - 35 % and the final equation for Δp has been established as follows:

$$\Delta p = H_o(\gamma_T - \gamma_\Gamma)(1 - \varepsilon_o)$$

($\gamma_T = \gamma_S$ and $\gamma_\Gamma = \gamma_G$) where γ_S and γ_G - density of solid and gaseous phases: ε and ε_o - porosity of fluidized and stationary beds;

Card 2/4

Hydrodynamics of a ...

and c - the coefficient of resistance of the fluidized bed. For pressures of 50 - 230 atm the coefficient c showed a slight increase corresponding to 1.2 - 1.35 depending upon the particle size of the solid. The critical velocity of gas has been found to decrease with the increasing pressure, the effect being more pronounced for larger particles (d = 3.5 mm). The experimental results were worked out according to A.I. Rychkov, and N.A. Shakhova (Ref. 5: I.F.Zh. II, 9, 96, 1957) and who used equations (Ref. 6: O.M. Todes, and A.K. Bondareva. Khim. nauka i prom. II, 2, 223, 1957) [Abstractor's note: Equations not given] and for lower pressures showed good agreement with the latter. For higher pressures 50 - 230 ats, Pomerantsev submitted the following equation

$$Re_e = 1.3\ Ar_e^{0.5},$$

where Re_e Reynolds number and

Card 3/4

24000
S/080/61/034/006/001/020
D247/D305

Hydrodynamics of a ...

$$Re_{\varepsilon} = \frac{w_{\varepsilon} B \cdot d_e}{\nu}, \qquad Ar_e = (1 - \varepsilon_0)\frac{\bar{\varepsilon} d_e^3}{\nu^2}\cdot\frac{\gamma_g - \gamma_g}{\gamma_g}$$

- Archimedes number and d_e - equivalent channel diameter (m) determined by Ry...'s method, ν - kinetic viscosity coefficient (m^2/sec), g - acceleration due to gravity. This equation is represented graphically. The experiments also established that intensive working of the contact mass is achieved for gas velocities corresponding to H_{sp} ... 2.0 is under such conditions the solid mass is subjected to high turbulence while still maintaining a sufficiently high concentration of catalyst in the working space. There are 5 figures, 1 table and 6 Soviet-bloc references.

SUBMITTED: November 29, 1960

Card 4/4

S/080/62/035/001/003/013
D245/D304

AUTHORS: Anokhin, V. N., Mukhlenov, I. P., Traber, D. G., Chekhnov, O. S., Shekun, B. N., and Khiterer, R. Z.

TITLE: Study of the ammonia synthesis in a suspended catalyst layer

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 1, 1962, 37-42

TEXT: The authors studied NH_3 synthesis using a suspended layer of activated Fe catalyst (type ГК-1 (GK-1)) with an average particle diameter of 0.18 mm. The temperature dependence of the reaction rate was found to conform to the Arrhenius equation and the activation energy of the catalyst was calculated to be 41,000 kcal/kg-mole., which is in agreement with results obtained by other workers. At pressures of 100, 200 and 300 atm., and over the temperature range studied (400 - 560°C) the reaction rate depended considerably on the grain size of the catalyst. The linear rate of gas flow also affected the degree of uniformity of mixing the gaseous and fluidized catalyst phases and, accordingly, the reaction rates.

Card 1/2

MUKHLENOV, I.P.; ROZOVA, T.N.; MIKHALEV, M.F.

Burning of molten sulfur in a fluid bed. Zhur.prikl.khim. 35 no.7:1511-1516 Jl '62. (MIRA 15:8)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Sulfur) (Combustion)

SARKITS, V.B.; TRABER, D.G.; MUKHLENOV, I.P.

Mixing of gas and the character of motion of the solid phase in the suspended layer. Zhur.prikl.khim. 35 no.10:2213-2219 O '62. (MIRA 15:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Fluidization)

TRABER, D.G.; POMERANTSEV, V.M.; MUKHLENOV, I.P.; SARKITS, V.B.

Heat transfer from a fluid-bed catalyst to the surface of heat exchange. Zhur.prikl.khim. 35 no.11:2386-2393 N '62. (MIRA 15:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Heat exchangers) (Fluidization) (Heat—Transmission)

MUKHLENOV, I.P.; SARKITS, V.B. [deceased]; OSIPOVA, Ye.N.

Use of contact apparatus with a fluidized bed of the catalyst in the production of sulfuric acid. Khim.prom. no.11:833-836 '63. (MIRA 17:4)

MUKHLENOV, I.P.; AVERBUKH, A.Ya.; SARKITS, V.B. [deceased]; VITVITSKIY, A.I.

Wear resistant catalyst for the conversion of methanol to formaldehyde in a fluidized bed. Khim.prom. no.11:847-849 '63. (MIRA 17:4)

MUKHLENOV, I.P.; IVANOVA, R.S.; SCHROKO, V.Ye.

Effect of water vapors and iron compounds on the activity of a vanadium catalyst in a fluidized bed. Zhur. prikl. khim. 36 no.4:730-736 Ap '63. (MIRA 16:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Vanadium catalysts) (Water vapor)
(Iron compounds)

IVANOVA, R.S.; MUKHLENOV, I.P.

Poisoning of a vanadium catalyst in a fluidized bed by arsenic trioxide. Zhur. prikl. khim. 36 no.4:737-742 Ap '63. (MIRA 16:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Vanadium catalysts) (Arsenic oxides)

POMERANTSEV, V.M.; MUKHLENOV, I.P.; TRABER, D.G.

Synthesis of methanol in a fluidized bed of catalyst. Zhur. prikl. khim. 36 no.4:754-764 Ap '63. (MIRA 16:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Methanol) (Fluidization)

AVERBUKH, A.Ya.; VITVITSKIY, A.I.; MUKHLENOV, I.P.; GUZENKOV, V.K.

Fluidized bed in formalin production. Izv.vys.ucheb.zav.; khim. i khim.tekh. 7 no.2:301-306 '64. (MIRA 18:4)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta i zavod "Metil". Kafedra obshchey khimicheskoy tekhnologii.

L 52551-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 RPL WW/RM

ACCESSION NR: AP5011195 UR/0366/65/001/004/0799/0802

AUTHORS: Vitvitskiy, A. I.; Mukhlenov, I. P.; Averbukh, A. Ya.

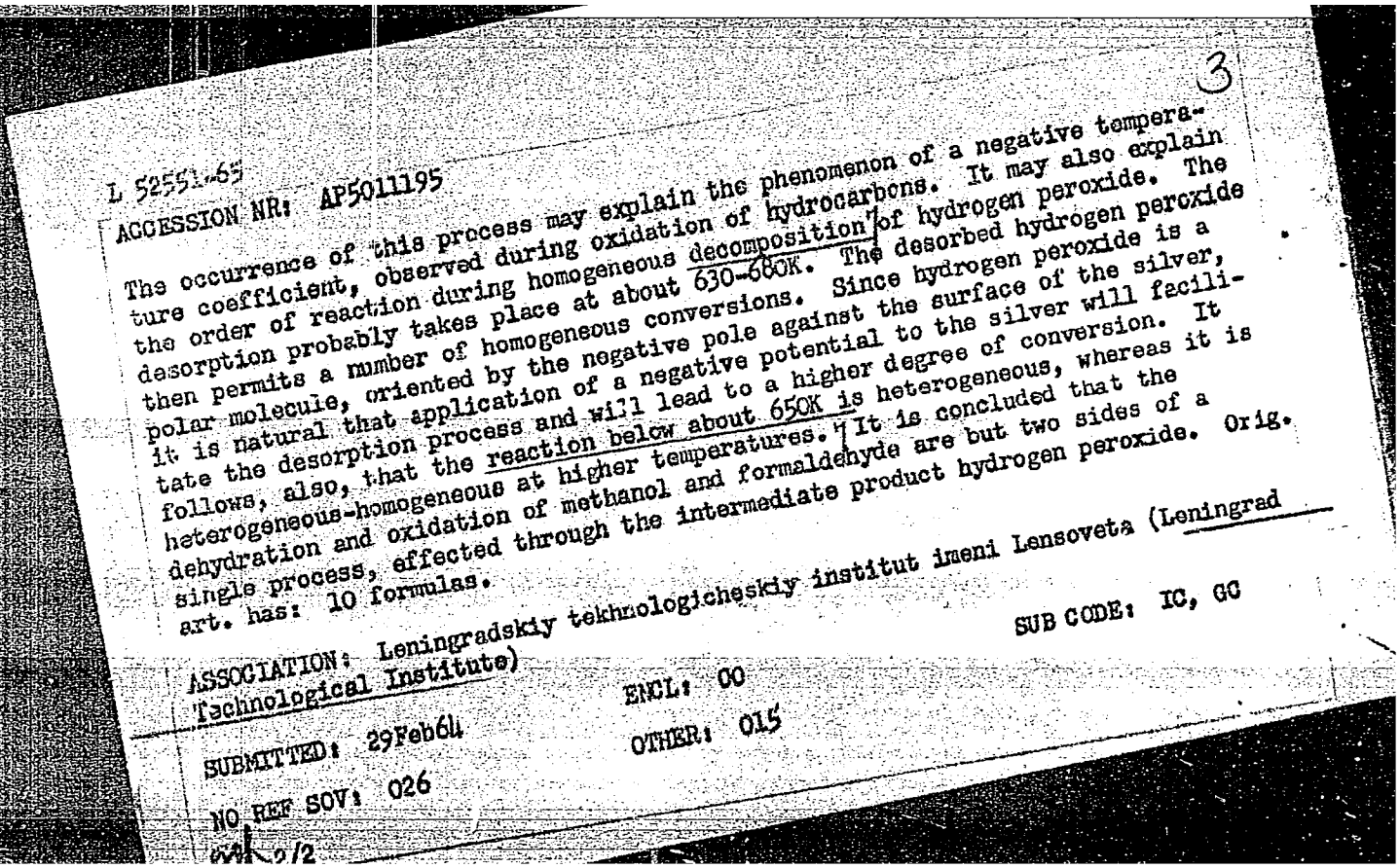
TITLE: The conversion of methanol through the intermediate product hydrogen peroxide

SOURCE: Zhurnal organicheskoy khimii, v. 1, no. 4, 1965, 799-802

TOPIC TAGS: hydrogen peroxide, conversion reaction, methanol, catalyst, formaldehyde

ABSTRACT: The literature appears contradictory in regard to dehydration and oxidation of formaldehyde and methanol, indicating that both may take place with the same catalyst, without explaining the mechanism. The authors suggest that hydrogen peroxide as an intermediate product explains the conversion process. Oxygen is adsorbed on silver. Methanol and formaldehyde, in reacting with this adsorbed oxygen, form hydrogen peroxide and formaldehyde (from methanol) or hydrogen peroxide and CO (from formaldehyde). This adsorbed hydrogen peroxide may react with CO, formaldehyde, or methanol to form water and, respectively, CO_2, CO, or formaldehyde. With increase in temperature, the atoms on the surface of the silver regroup and form free hydrogen peroxide molecules, which then desorb.

Card 1/2



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ACCESSION NR: AP5011195

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The occurrence of this process may explain the phenomenon of a negative temperature coefficient, observed during oxidation of hydrocarbons. It may also explain the order of reaction during homogeneous decomposition of hydrogen peroxide. The desorption probably takes place at about 630-660K. The desorbed hydrogen peroxide then permits a number of homogeneous conversions. Since hydrogen peroxide is a polar molecule, oriented by the negative pole against the surface of the silver, it is natural that application of a negative potential to the silver will facilitate the desorption process and will lead to a higher degree of conversion. It follows, also, that the reaction below about 650K is heterogeneous, whereas it is heterogeneous-homogeneous at higher temperatures. It is concluded that the dehydration and oxidation of methanol and formaldehyde are but two sides of a single process, effected through the intermediate product hydrogen peroxide. Orig. art. has: 10 formulas.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute)

SUB CODE: IC, GC

SUBMITTED: 29Feb64 ENCL: 00

NO REF SOV: 026 OTHER: 015

Card 2/2

MUKHLENOV, I.P.; TABER, D.G.; DOBKINA, Ye.I.

Mechanically resistant iron catalyst for the oxidation of sulfur dioxide. Khim. prom. no. 4:241-243 Ap '64. (MIRA 17:7)

CHERNYAK, M.A.; MEGVINOV, A.A.; MIKHLENOV, I.F.; DOBKINA, Ye.I.; DEPYUZHKINA, V.I.

Ignition temperature of a wear-resistant vanadium catalyst for the oxidation of sulfur dioxide. Khim. prom. 41 no.2:35-36 F '65. (MIRA 18:4)

MUKHLENOV, I.P.; TRABER, D.G.; ANOKHIN, V.N.; SAVILOV, D.M.; SHEKUN, B.N.

Synthesis of ammonia in a fluidized catalyst bed. Zhur. prikl. khim. 37 no.2:233-239 F '64. (MIRA 17:9)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta i Novomoskovskiy khimicheskiy kombinat.

MUKHLENOV, I.P.; AVERBUKH, A.Ya.; VITVITSKIY, A.I.

Effect of catalyst mixing on the process of conversion of methanol to formaldehyde in a fluid bed. Zhur. prikl. khim. 37 no. 4:705-710 Ap '64. (MIRA 17:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

YESELEV, I.M.; MUKHLENOV, I.P.; TRABER, D.G.

Use of an iron catalyst in the contact-tower process. Zhur. prikl. khim. 37 no. 4:722-727 Ap '64. (MIRA 17:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

MUKHLENOV, I.P.;TABOLKIN, A.F.; TUMARKINA, Ye.S.

Desorption of chlorine from a saturated solution of sodium chloride. Zhur.prikl. khim. 37 no. 5:960-964 My '64. (MIRA 17:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

VITVITSKIY, A.I.; MUKHLENOV, I.P.; AVERBUKH, A.Ya.

Effect of temperature, space velocity, and properties of the catalyst on the conversion of methanol to formaldehyde in a fluidized bed. Zhur.prikl. khim. 37 no. 5:984-988 My '64. (MIRA 17:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

YESELEV, I.M.; MUKHLENOV, I.P.; TRABER, E.G.

Certain problems involved in the operating conditions of a combined contact-tower process. Zhur. prikl. khim. 37 no.6:1204-1210 Je '64. (MIRA 17:3)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

GORSHTEYN, A.Ye.; MUKHLENOV, I.P.

Critical velocity of gas corresponding to the beginning of spray drying. Zhur. prikl. khim. 37 no.9: 887 1893 S '64.
(MIRA 17:10)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

RUMYANTSEV, O.V.; SO[illegible] V.A.; MUKHLENOV, I.P.; POMERANTSEV, V.V.

Optimum design of reactors with internal heating for the synthesis of ammonia and methanol. Khim. prom. 40 no. 9, 605-610 Ag '64. (MIRA 18:4)

1. Moskovskiy institut khimicheskogo mashinostroyeniya (for Rumyantsev, Sokolinskiy). 2. Leningradskiy ordena Trudovogo Krasnogo Znameni tekhnologicheskiy institut im. Lensoveta (for Mukhlenov, Pomerantsev).

DOBKINA, Ye.I.; DERYUZHKINA, V.I.; MUKHLENOV, I.P.

Effect of thermal treatment on the porous structure of catalysts.
Kin. i kat. 6 no.2:352-355 Mr-Ap '65. (MIRA 18:7)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

SOROKO, V.Ye.; MUKHLENOV, I.P.; MIKHALEV, M.F.

Calculating the minimum hydraulic resistance of gas destribution grids of apparatus with a fluidized bed. Izv.vys.ucheb.zav.; khim.i khim.tekh. 8 no.4:668-673 '65. (MIRA 18:11)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta, kafedra obshchey khimicheskoy tekhnologii.

MUKHLENOV, I.P.; GORSHTEYN, A.Ye.

Studying a spouting layer. Khim.prom. 41 no.6:443-446 Je '65.
(MIRA 18:8)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

MUKHLENOV, I.P.; DOBKINA, Ye.I.; TRABER, D.G.; DERYUZHKINA, V.I.; FILIPPOVA, Z.G.

Effect of the concentrations of impregnating solutions on the chemical composition and structure of a mechanically strong contact vanadium mass. Khim. prom. 41 no.10:751-754 O '65. (MIRA 18:11)

VITVITSKIY, A.I.; MUKHLENOV, I.P.; AVERBUKH, A.Ya.

Mechanism of the conversion of methanol through hydrogen peroxide as an intermediate product. Zhur. org. khim. 1 no.4:799-802 Ap '65. (MIRA 18:11)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

MUKHLENOV, I.P.; IVANOVA, R.S.

Poisoning of a vanadium catalyst for the oxidation of sulfurous anhydride in fluidized bed. Zhur. prikl. khim. 38 no. 10: 2328-2330 O '65. (MIRA 18:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
Submitted Sept. 13, 1963.

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AUTHOR: Mukhlenov, I. P.; Gorshteyn, A. Ye.

TITLE: Hydrodynamics of reactors with a fountaining layer of a granular material

SOURCE: Ref. zh. Mekhan., Abs. 1 [illegible]

REF SOURCE: Sb. Vses. konferentsiya po khim. reaktoram. T. 3., Novosibirsk, Sib. otd. AN SSSR, 1965, 553-562

TOPIC TAGS: gas dynamics, hydrodynamics

TRANSLATION: A basic advantage of a fountaining layer is the absence of a gas-distribution grating. In this report results are given of research by the authors in the hydraulics and structure of a fountaining layer, and their generalizations and empirical correlations are presented. Such correlations are given for the determination of the value of peak pressure, the pressure loss when fountaining develops, the velocity of initial fountaining, the porosity in the fountaining nucleus, and the particle velocity in it. O. M. Todes.

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Card 1/1

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AUTHOR: Vol'fkovich, S.I., Academician; Mukhlenov, P.P., Professor; Averbukh, A.Ya., Docent.

TITLE: Courses in General Chemical Technology

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 5, pp 60 - 65 (USSR)

ABSTRACT: In connection with the 7-year Plan the author stresses the necessity of training chemist-technologists and chemist-researchers with a broad scientific-technical outlook and profound understanding of chemical engineering. To this end instruction in chemical technology must be properly organized at technological institutes and universities. Contemporary chemical technology makes a broad use of the basic laws, regulations and methods of chemistry, physics, physical chemistry, as well as of mechanics, thermotechnics, electrical engineering and several other theoretical and economic subjects. Being the generalizing and basic course,

Card 1/3