"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

KUTATELADZE, Samson Semenovich. Prinimali uchastiye: LEONT'YEV, A.I.; BORISHANSKIY, V.M.; ZYSINA, L.M., doktor tekhn. nauk, retsenzent; GORDOV, A.N., kand. fiz.-mat. nauk, red.; ONISHCHENKO, R.N., red. izd-va; MITARCHUK, G.A., red. izd-va; SHCHETININA, L.V., tekhn. red.

[Fundamentals of the heat transfer theory] Osnovy teorii teploobmena. Izd.2., dop. i perer. Moskva, Mashgiz, 1962. 455 p. (MIRA 15:7)

(Heat—Transmission)

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S/862/62/002/000/006/029
A059/A126

AUTHOR: Borishanskiy, V.M.

TITLE: Critical loads in boiling and the thermodynamic analog

SOURCE: Teplo- i massoperenos. t. 2: Teplo- i massoperenos pri fazovykh i khimicheskikh prevrashcheniyakh. Ed. by A.V. Lykov and B.M. Smol'skiy. Minsk, Izd-vo AN BSSR, 1962, 80 - 86

TEXT: The critical formulas:

$$K = 0{,}8\, N^{-1/2}, \tag{1}$$

and

$$K = 0{,}13 + 4\, N^{-0{,}4}, \tag{2}$$

where

$$K = \frac{q}{r\,\gamma''^{0.5}\,[g^2\sigma(\gamma-\gamma'')]^{0.25}}\,;\quad N = \frac{\gamma\sigma^{3/2}}{g\,\mu^2(\gamma-\gamma'')^{0.5}}$$

were analyzed from the point of view of their use at low values of N. For this purpose, the critical loads of ethyl alcohol boiling on a horizontal tube in a

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great volume were measured at saturation pressures between 33 and 63 kg/cm^2. It has been found that the use of a criterion involving viscosity is advantageously considered in the calculation of the critical loads for the region of $N < 100{,}000$. A thermodynamic method of generalization for the physical characteristics of the working environments, heat-transfer coefficients, and critical loads in developed nucleate boiling has been suggested which is based on the fundamental relation:

$$\frac{\gamma}{\gamma_*} = f\left(\frac{p}{p_{cr}}\right);\ \frac{\gamma''}{\gamma''_*} = f_1\left(\frac{p}{p_{cr}}\right);\ \frac{\sigma}{\sigma_*} = f_3\left(\frac{p}{p_{cr}}\right);\ \frac{r}{r_*} = f_4\left(\frac{p}{p_{cr}}\right); \tag{4}$$

$$\frac{\mu}{\mu_*} = f_5\left(\frac{p}{p_{cr}}\right);\ \frac{\lambda}{\lambda_*} = f_6\left(\frac{p}{p_{cr}}\right);\ \frac{cT}{c_*T_*} = f_7\left(\frac{p}{p_{cr}}\right) \text{ etc.}$$

which leads to the equation

$$\lambda_p = \lambda_{p*} f(p/p_{cr}),$$

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where λ_{p*} is the value of the characteristic at the measuring pressure p_* and $f(p/p_{cr})$ the ordinate of the curve for a given p/p_{cr}. The equation

$$\frac{q_{cr.\,p}}{q_{cr.\,p*}} \sim \varphi_1\left(\frac{p}{p_{cr}}\right)\varphi_2\left(\frac{p}{p_{cr}}\right)\ldots = F\left(\frac{p}{p_{cr}}\right) \qquad (10)$$

is derived, where $q_{cr.\,p}$ and $q_{cr.\,p*}$ are the critical thermal loads at the current pressure p and at the measuring pressure p_*, respectively. The critical loads can be determined also from the formulas

$$q_{cr.\,p} = q_{cr.\,p*}\,F_1\,(p/p_{cr}), \qquad (11)$$

where F_1 is the ordinate of the generalizing curve for the given relative pressure p/p_{cr}, and

$$q_{cr.\,p*} = q_{cr.\,p_0}/\,f\,(p_0/p_{cr}), \qquad (12)$$

where $q_{cr.\,p_0}$ is the critical load at random pressure p_0, and $f\,(p_0/p_{cr})$ the ordinate of the curve for the relative pressure p_0/p_{cr}. V.G. Morozov, S.M. Lukomskiy, M.A. Styrikovich, and G.M. Polyakov are mentioned. There are 3 figures.
ASSOCIATION: TsKTI im. Polzunova (TsKTI imeni Polzunov)

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S/862/62/002/000/014/029
A059/A126

AUTHORS: Borishanskiy, V.M., Maslichenko, P.A., Fokin, B.S.

TITLE: Some data on the mechanism of film boiling in a large volume of liquid

SOURCE: Teplo- i massoperenos. t. 2: Teplo- i massoperenos pri fazovykh i khimicheskikh prevrashcheniyakh. Ed. by A.V. Lykov and B.M. Smol'skiy. Minsk, Izd-vo AN BSSR, 1962. 128 - 131

TEXT: Theoretical formulas for the calculation of the coefficient of heat transfer developed by V.M. Borishanskiy, L.A. Bromley, and S.S. Kutateladze were derived on the assumption of continuous laminar flow of the vapor layer near the surface. The formula for the mean coefficient of heat exchange on boiling at the vertical heated surface is:

$$\overline{\alpha_c} = \frac{\overline{\lambda''}}{\delta} = \beta \lambda'' \sqrt[3]{\frac{\varphi r \gamma'' (\gamma' - \gamma'')}{\mu'' qL}}, \quad q = \text{const}, \qquad (1)$$

where L is the vertical size of the heated surface, q the thermal stress of the

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surface, $\beta = 0.3$ to 0.6 (constant varying with the given boundary conditions for the velocity at the liquid-vapor interface),

$$\varphi = 1 + c_p'' \frac{t_{wall} - t''}{2r},$$

γ'', λ'', c_p'', and μ'' are the specific gravity, heat conductivity, heat capacity, and viscosity of the vapor, t_{wall} is the surface temperature, t'' the boiling point, γ' the specific gravity of the liquid, and r the latent heat of evaporation. The coefficient of heat transfer α is independent of the linear size in the film boiling at a vertical heated surface. The substitution

$$L = \left(\frac{\sigma}{\gamma' - \gamma''}\right)^{0.5}$$

was found to be advantageous, where σ is the surface tension. Moving-picture scanning was used to clarify the nature of vapor-film flow at a vertical surface and the mechanism of evaporation into the vapor film. In addition, the influence of the design of the boundaries of the heated surface on the stability of vapor-layer flow and the expediency of the mentioned substitution

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for L were examined. The experiments were performed in the tube shown in Figure 2. By the moving-picture films, it was shown that vapor flow and vapor-film shape in boiling at horizontal and vertical surfaces are very different from each other. In the former case, laminar flow occurs at the small-diameter surface, with large, flat bubbles entering the volume and horizontal wave-like oscillations of the interface; when the thermal stress is lowered, the film thickness decreases and so does the frequency of bubble separation, but the size of the bubbles remains unchanged. The vapor film at a vertical surface represents an assembly of large vapor bubbles of various shapes near to pear-shape, separated by short sections of a very thin vapor film; at great enlargements, a strong turbulent motion of the vapor is observed. With increasing thermal stress, the horizontal dimension of the vapor bubbles and their rate of ascent are increased. Average data on the vapor thickness of various boiling liquids at a vertical surface in time and along the operating section were obtained by measuring the area of the vapor film with a planimeter. From the measured data, the mean film thickness in time δ_{red} of the vapor was calculated. It was shown by these calculations that the film thicknesses obtained this way are 10 to 15 times greater than those calculated from equation (1), and also λ''_{red} is about 20 times great-

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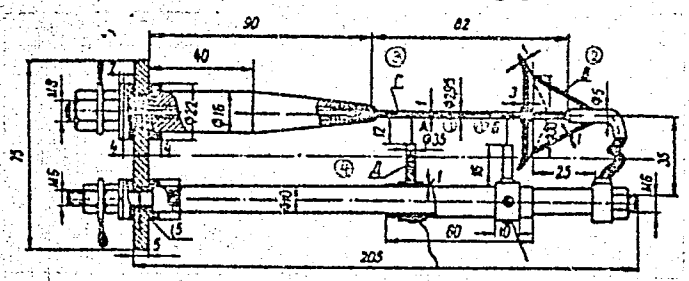
er than λ", which indicates the turbulent nature of vapor flow in the film. Heat transfer was experimentally shown to be independent of the length of the heat-transmitting surface in a vertical position. There are 3 figures and 1 table.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M.I. Kalinina (Leningrad Polytechnic Institute imeni M.I. Kalinin)

Figure 2: Experimental tube with a steam collector at the working position: 1 - working section; 2 - collector; 3 - working tube 1 X18 H9 T (1Kh18N9T); 4 - voltaic lead-out.



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E194/E455

26.5200

AUTHORS: Borishanskiy, V.M., Doctor of Technical Sciences, Mitskevich, A.I., Candidate of Technical Sciences

TITLE: Criterial working-out of complicated cases of convective heat-transfer

PERIODICAL: Energomashinostroyeniye, no.8, 1962, 18-20

TEXT: In the general case of convective heat-transfer, the temperature is not uniform over the surface and the heat-transfer coefficient accordingly varies from place to place on the surface. Complicated temperature distributions arise in ribbed cooling surfaces. Here the criterial heat-transfer relationship should include, in addition to the usual criteria, complexes obtained for the heat balance conditions on the boundary of separation between the surface and the heat-transfer medium i.e.

$$Nu = f_1 \left(Re, Pr, \frac{\lambda_T L_M}{\lambda_M L_T} \right) \quad (1)$$

or

$$St = f_2 \left(Re, Pr, \frac{\lambda_T L_M}{\lambda_M L_T} \right) \quad (2)$$

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where $Nu = (qd_э)/(\Delta t \lambda_T)$; $d_э$ - a typical mean dimension of the system; λ_T and λ_M - thermal conductivity coefficients of the heat-transfer medium and surface material; L_T and L_M - typical linear dimensions that govern motion of the heat-transfer medium and the surface geometry at the place of flow. To simplify the calculations an experimental relationship must be found between the parameters by specially working up the experimental data. In engineering practice, the final criterial formulae can often be considerably simplified by obtaining a combination criteria and solving the equations of heat distribution for an element of surface geometry, assuming a heat-transfer law. Two examples show that test results are best worked out in the form $St = f\,(Re_{meas}, Pr_{meas})$ where $Re_{meas} = Re(\lambda_T/\lambda_M)^p$ and $Pr_{meas} = Pr(\lambda_T/\lambda_M)^q$. The cases examined are the most typical elements of heat-transfer surfaces; a rod and a circular rib with uniform cooling over the perimeter. The following expression is obtained for a rod

$$St_{av} = f\left[Re_{meas},\ Pr_{meas},\ u\frac{L_1 + L_2}{f},\ \frac{L_2}{L_1}\right] \qquad (11)$$

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where L_1 is the length of rod over which heat transfer takes place and L_2 the remaining length of the rod. A corresponding expression is obtained for a circular rib cooled by an axial flow of heat-transfer medium. The method of working out the experimental data described here is recommended for other cases of complex heat-transfer, for instance for transverse flow over tubes or longitudinal flow over closely-packed bundles of tubes when the heat transfer coefficient is not constant over the tube perimeter. However, the use of these analytical relationships for unfamiliar arrangements requires experimental verification.
There are 2 figures.

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B104/B186

26.5400

AUTHORS: Borishanskiy, V. M., Kozyrev, A. P.

TITLE: Generalization of experimental data on heat transfer in nucleate boiling on the basis of thermodynamic similarity

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 12, 1962, 3 - 8

TEXT: In a previous paper (V. M. Borishanskiy, Voprosy teplootdachi i gidravliki dvukhfaznykh sred - Problems of heat transfer and hydraulics of two-phase media, Gosenergoizdat, 1961, p. 18) the formula $\alpha^*_p = \alpha^*_{p*} F_1(p/p_{cr})$ was derived for the case of nucleate boiling where $\alpha^* = \alpha/q^n$, α is the heat transfer coefficient, q the thermal load of the heating surface. This formula makes it possible to allow for the pressure effect on the heat transfer of a medium over strongly varying physical properties in a wide range of pressures. Formula

$$\alpha = B\left(\frac{g}{M}R\right)^{1/6}\frac{p_{кр}^{1/3}}{T_{кр}^{5/6}}q^{1/3}F_3\left(\frac{p}{p_{кр}}\right). \quad (5)$$

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(p_{kp} - critical pressure, T_{kp} - critical temperature) is derived with the aid of thermodynamic similarity (I. I. Novikov, Voprosy teplootdachi i gidravliki dvukhfaznykh sred - Problems of heat transfer and hydraulics of two-phase media, Gosenergoizdat, 1961, p. 7 and 14), allowing for the experimentally proved fact that the heat transfer coefficient α is a function of the thermal load q and of the physical parameters of the medium when a nucleate boiling occurs with free convection. The function $F_3(p/p_{kp})$ is universal for thermodynamically similar substances and characterizes the effect of reduced pressure on the heat transfer. The shape of this curve is determined graphically by a method due to Borishanskiy. Formulas

$$\alpha = 600 \frac{p_{кр}^{1/3}}{T_{кр}^{5/6} M^{1/6}} q^{2/3} \left(0{,}37 + 3{,}15 \frac{p}{p_{кр}}\right) \text{ при } \frac{p}{p_{кр}} < 0{,}2; \qquad (6)$$

$$\alpha = 600 \frac{p_{кр}^{1/3}}{T_{кр}^{5/6} M^{1/6}} q^{2/3} \exp\left[1{,}85 \left(\frac{p}{p_{кр}} - 0{,}2\right)\right] \text{ при } \frac{p}{p_{кр}} > 0{,}2.$$

are given for practical application. Only p_{cr}, T_{cr} and M of the medium

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need to be known in order to calculate the heat transfer coefficient at increased pressure and with free convection. The results obtained with these formulas agree with the experimental data given in a large number of papers within ± 30 %. There are 2 figures and 2 tables.

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut imeni I. I. Polzunova, g. Leningrad (Central Boiler and Turbine Institute imeni I. I. Polzunov, Leningrad)

SUBMITTED: February 26, 1962

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M.; ANDREYEVSKIY, A.A.; ZHINKINA, V.B.

Heat transfer to a staggered bank of tubes in transverse flow of molten sodium. Atom. energ. 13 no.3:269-271 S '62. (MIRA 15:9)

(Heat—Transmission) (Sodium)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M., red.; KUTATELADZE, S.S., red.; LEL'CHUK, V.L., red.; NOVIKOV, I.I., red.; ROMANOVA, L.A., red.; MAZEL', Ye.I., tekhn. red.

[Liquid metals] Zhidkie metally; sbornik statei. Moskva, Gosatomizdat, 1963. 326 p. (MIRA 16:12)
(Liquid metals—Thermal properties)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACCESSION NR: AT4013171 S/3059/63/000/000/0005/0026

AUTHOR: Borishanskiy, V. M.; Ivashchenko, N. I.; Zablotskaya, T. V.

TITLE: Calculation of heat transfer into liquid metals in a turbulent flow when q is constant

SOURCE: Zhidkiye metally*. Sbornik statey. Moscow, Gosatomizdat, 1963, 5-26

TOPIC TAGS: liquid metal, turbulent flow, hydraulics, molecular heat exchange, heat exchange, heat transmission

ABSTRACT: When calculating turbulent flow in pipes, heat exchange is considered either in two layers (Prandtl, Taylor) or in three layers (von Karman, Shvab). This investigation further develops the three-layer thermal flow theory proposed by V.M. Borishanskiy (Vtoroye soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike. Riga, Izd-vo AN Latv. SSR, 1962.) Flow is divided into three layers: a thermal sub-layer where heat is distributed by molecular transfer; an intermediate thermal core where heat is transferred both by molecules and by turbulent flow, and a turbulent thermal core where heat is transferred only by turbulent flow. The investigation clearly shows that in the general case the laws of turbulent transfer for low Prandtl figures are the same as for liquids when $P_r \geqslant 1$. The calculation of heat loss and temperature fields according to the proposed

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ACCESSION NR: AT4013171

scheme allows one to find the specific importance of heat transfer and momentum depending on the Reynolds and Prandtl numbers. Comparative calculations have been made of temperature fields and exchange rates by the three-layer flow theory for $P_r \leqslant 1$, showing the agreement between theory and tests. For calculating heat loss for turbulent flow of liquid metal in pipes ($R_e > 3,000$), a simple formula is proposed:

$$N_u = 7.5 + 0.005\, P_e \qquad (1)$$

for an interval where $200 < P_e < 20,000$ and $P_r < 0.1$. Orig. art. has: 6 tables, 10 figures and 54 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 20Feb64 ENCL: 00

SUB CODE: MM, TD NO REF SOV: 013 OTHER: 011

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M., doktor tekhn.nauk, prof.

Generalized calculation of the critical loads in bubble boiling. Energomashinostroenie 9 no.11:42-43 N '63. (MIRA 17:2)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

S/089/63/014/003/013/020
B102/B186

AUTHORS: Borishanskiy, V. M., Zablotskaya, T. V., Ivashchenko, N. I.

TITLE: Heat transfer to liquid metals flowing in tubes

PERIODICAL: Atomnaya energiya, v. 14, no. 3, 1963, 320 - 322

TEXT: The authors continue previous research (Atomnaya energiya, 11, no. 5, 426, 1961) on heat transfer to highly heat-conductive liquids ($Pr \leqslant 1$) and on temperature fields in these. They discuss the consequences of Borishanskiy's suggestion (Second Riga Conference on Theoretical and Applied Magnetohydrodynamics, Publ. 1962) of a superposed three-layer system of momentum and heat transfer. For two superposition modes of the thermal and dynamic layers, Nu is calculated as a function of Pe for $10^2 \leqslant Pe \leqslant 10^3$ and the curves obtained are compared with that calculated, using the empirical relation $Nu = 7.5 + 0.005\ Pe$, as well as with experimental data. These data were obtained for liquid Na flowing in a vertical Cu tube of d = 40 mm, $q = (23 - 64)10^3 kcal/m^2hr$, $Re = (21 - 128)10^3$ and Pe = 100 - 1000. The empirical curve, lying between the two theoretical, fits best. The temperature distribution calculated according to the

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three-layer system agrees very good with the measured one. The thermal contact resistance was calculated by $R_k(\lambda/d) = 1/Nu - 1/Nu_0$ (Atomnaya energiya, 11, no. 3, 255, 1961) and plotted as a function of Re for $Re \leqslant 12 \cdot 10^4$, different oxygen concentrations in the sodium current and $Pr \approx 7.5 \cdot 10^{-3}$. The lower the oxygen concentration the lower is $R_k(\lambda/d)$ and the weaker it depends on Re. In all cases $R_k(\lambda/d)$ decreases with increasing Re. There are 3 figures.

SUBMITTED: June 22, 1962

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L 10293-63 EPR/EPF(c)/EWT(1)/EPF(n)-2/EWP(q)/
EWT(m)/T-2/BDS--AFFTC/ASD/SSD--Ps-4/Pr-4/Pu-4--WW/JD/JG

ACCESSION NR: AP3002269 S/0089/63/014/006/0584/0585

AUTHOR: Borishanskiy, V. M.; Fursova, E. V.

TITLE: Heat transfer in longitudinal flow of metallic sodium about a bank of tubes

SOURCE: Atomnaya energiya, v. 14, no. 6, 1963, 584-585

TOPIC TAGS: heat transfer, metallic sodium, liquid metal, mercury, bank of tubes

ABSTRACT: A study has been conducted of heat transfer to metallic sodium (0.017% oxygen content by weight) in longitudinal flow about a bank of tubes with relative spacing s/d = 1.2, temperature of 210--310C, Pr = 0.0072--0.0057, and flow velocity between tubes of 0.16--2.02 m/sec. The test section of the closed-circulation-loop experimental setup consisted of a bank of seven heated tubes 700 mm in length and 22 x 2.5 mm in diameter enclosed in a cylindrical shell. Measurements were made of the surface temperature of the central tube, whose working section was made of copper. The heat transfer from the central tube to the sodium as a function of velocity was studied. Experimental data on heat transfer in the region behind the stabilization section are shown in Fig. 1 of

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ACCESSION NR: AP3002269

Enclosure. The results obtained were found to be in good agreement with those of A. Friedland et al. (International Developments in Heat Transfer, Part III. N. Y., 1961, p. 526) for mercury at Pr = 0.005--0.02 and s/d = 1.2--1.75, with the tube bank arranged in the form of an equilateral triangle. Formula (1) of Enclosure is recommended for the calculation of heat transfer in the longitudinal flow of a liquid metal about a triangularly arranged tube bank with s/d = 1.2--1.75, Pe greater than 30 and less than 4000, and Re greater than 10 sup 4. The results can be used in developing generalized formulas for the calculation of heat transfer in tube banks of various configurations. Orig. art. has: 2 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 06Sep62 DATE ACQ: 12Jul63 ENCL: 02

SUB CODE: 00 NO REF SOV: 002 OTHER: 004

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M., red.; PALEYEV, I.I., red.; MOCHAN, S.I., nauchn. red.

[Convective heat transfer in two-phase and single-phase flows] Konvektivnaia teploperedacha v dvukhfaznom i odnofaznom potokakh; sbornik statei. Moskva, Energiia, 1964. 447 p. (MIRA 18:4)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M.; KOZYREV, A.P.; SVETLOVA, L.S.

Heat transfer in boiling water with wide variations in pressure and saturation. Teplofiz. vys. temp. 2 no.1:119-121 Ja-F '64. (MIRA 17:3)

1. TSentral'nyy kotloturbinnyy institut im. I.I.Polzunova.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M., doktor tekhn. nauk, prof.; [illegible], F.N., inzh.

Consideration of pressure in the calculation of the heat transfer of condensing saturated steam. Energomashinostroenie 10 no.10:38-40 O '64 (MIRA 18:2)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, V.M.; MASLICHENKO, P.A.; FOKIN, B.S.

Mechanism of the motion of phases in film boiling in a large volume of liquid. Usp.nauch.fot. 9:222-227 '64.

(MIRA 18:11)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 15344-66 EWT(1)/EWP(m)/EWT(m)/ETC(F)/EPF(n)-2/EWG(m)/EWA(d)/EWP(t)/EWP(b)/ETC(m)-6/EWA(1

ACC NR: AT5016896 SOURCE CODE: UR/0000/64/000/000/0377/0384

IJP(c) JD/WW/JG

AUTHOR: Borishanskiy, V. M.; Firsova, E. V.

ORG: none

104
103
B+1

21, 44, 55 1, 55

TITLE: Heat transfer during longitudinal flow of metallic sodium around a bundle of tubes

SOURCE: Konvektivnaya teploperedacha v dvukhfaznom i odnofaznom pototakh (Convective heat transfer in two-phase and single-phase flows). Moscow, Izd-vo Energiya, 1964, 377-384

TOPIC TAGS: heat transfer, sodium, liquid metal, fluid flow

ABSTRACT: The paper gives results of an experimental study of heat transfer in the space between tubes arranged in a triangular bundle. Relative pitches of 1.2 and 1.5 were studied using liquid sodium as the coolant at Peclet numbers of 20-350 and Prandtl numbers of 0.057-0.0072. The experimental equipment is described with the aid of a schematic diagram. Heat transfer from the central tube to the sodium was studied as a function of the rate of flow of the coolant. A formula is given

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L 15344-66
ACC NR: AT5016896

for calculating the heat exchange coefficient. The results are tabulated and graphed. Analysis of the graphs for the temperature field show a section of heat transfer stabilization approximately 50 mm long. A comparison of experimental data for heat exchange by mercury and liquid sodium shows satisfactory agreement with the empirical formula Nu = 6 + 0.006 Pe. Orig. art. has: 6 figures, 2 formulas, 2 tables.

SUB CODE: 20 11/ SUBM DATE: 17Nov64/ ORIG REF: 006/ OTH REF: 004

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACCESSION NR: AP4036535

S/0089/64/016/005/0457/0458

AUTHOR: Borishanskiy, V. M.; Firsova, E. V.

TITLE: Heat transfer in separated systems of bars daring longitudinal flow of metallic sodium

SOURCE: Atomnaya energiya, v. 16, no. 5, 1964, 457-458

TOPIC TAGS: heat transfer, liquid sodium flow, nuclear reactor, mercury flow heat transfer, metallic sodium

ABSTRACT: In a previous communication (Atomnaya energiya 14, 584 (1963)) the authors have reported some results of their investigation of heat transfer during the flow of metallic sodium ($Pr \simeq 0.007$) in the space between a system of tubes located in the vertices of an equilateral triangle with a relative slope $\frac{s}{d} = 1.2$. These results are now being compared with the data of A. Friedland et. al. (International Developments in Heat Transfer 1961, Part III, ASME, N. Y., 1961) who used mercury in a similar geometry with $\frac{s}{d} = 1.38$ and 1.75. A formula is deduced from these experiments: $Nu = 6 + 0.006\ Pe$. Orig. art. has: 1 figure.

Card 1/2

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ACCESSION NR: AP4036535

ASSOCIATION: None

SUBMITTED: 25Jul63 DATE ACQ: 03Jun64 ENCL: 00

SUB CODE: [illegible] NP [illegible] NO REF SOV: 005 OTHER: 002

Card 2/2

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACCESSION NR: AP4041453 S/0089/64/016/006/0524/0526

AUTHORS: Borishanskiy, V. M.; Zablotskaya, T. V.; Ivashchenko, N. I.

TITLE: Heat transfer of metallic sodium moving in a pipe

SOURCE: Atomnaya energiya, v. 16, no. 6, 1964, 524-526

TOPIC TAGS: liquid metal cooled reactor, heat transfer fluid, temperature distribution, Reynolds number, Peclet number, Nusselt number

ABSTRACT: Heat transfer from turbulent sodium flowing in a heated tube was measured in a closed-loop installation with the working section in the form of a vertical copper tube 40 mm in diameter. The wall temperatures were measured along the tube, and the temperature distributions were measured over the section of the flow at 40 diameters from the entrance to the tube and 25 diameters from the start of the heating. The experiments were made at 175--300°C, flow

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ACCESSION NR: AP4041453

velocities 0.6--1.5 m/sec, Reynolds numbers 6000--12,000, Peclet numbers 35--1000, and constant heat flux to the wall. The heat transfer is determined from measurements of the temperature fields over the flow cross section and from measurements of the wall temperatures, and empirical relations are obtained between the Nusselt and Peclet numbers for several ranges of the latter. The increase in contact resistance, which hinders heat transfer between the heating surface and the flowing metal, is found to be due to contamination of the laminary layer at the wall by suspended oxides and other impurities, to sorption and desorption near the wall, and to the joint action of both effects. Orig. art. has: 4 figures and 4 formulas.

ASSOCIATION: None

SUBMITTED: 25Jul63

ENCL: 02

SUB CODE: NP, ME NR REF SOV: 005 OTHER: 002

Card 2/4

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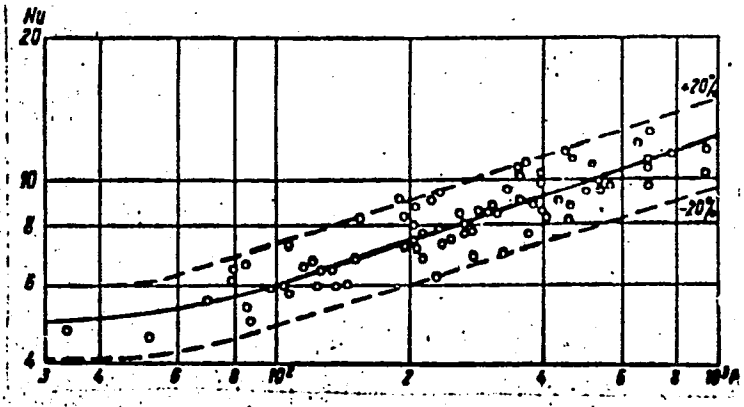
ACCESSION NR: AP4041453 ENCLOSURE: 01

Heat transfer beyond thermal-stabilization section
o - experimental data
——— - averaging line



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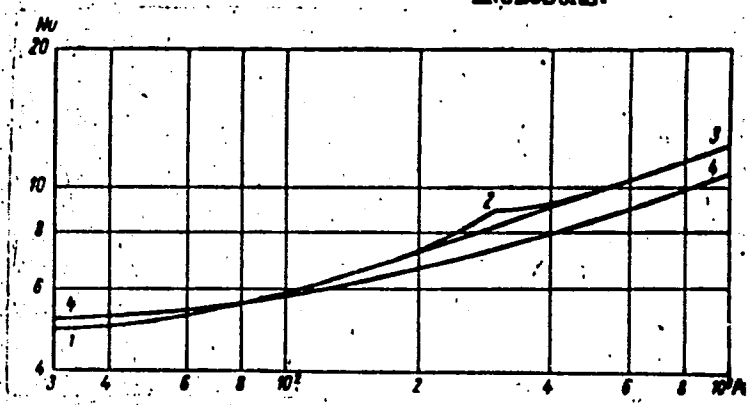
ACCESSION NR: AP4041453

ENCLOSURE: 02



Comparison of experimental and calculated Nu vs. Pe curves:
1-2, 2-3, 4-4 - calculated
1-3 - average line joining experimental curves of this investigation

Relative heat transfer vs. oxygen and sodium content for different Pe numbers:
1, 2 - data by others, 3 - data by present authors

Card 4/4

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L 43176-65 EPF(c)/EPF(n)-2/EPR/EWT(1)/EWG(m) Pr-4/Ps-4/Pu-4 WW

ACCESSION NR: AP5009765 UR/0170/65/008/003/0290/0293

36
35
B

AUTHORS: Borishanskiy, V. M.; Fokin, B. S.

21

TITLE: Generalization of heat transfer data in stable film boiling on vertical surfaces under conditions of free convection in large volumes

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 8, no. 3, 1965, 290-293

TOPIC TAGS: heat transfer, free convection, liquid film boiling, Nusselt number

ABSTRACT: A parametric study was made to correlate a large body of experimental data pertaining to liquid-film boiling on vertical surfaces. An analogy was developed between liquid-film boiling and free convection of liquids expressed by $Nu''_{k\delta} = F_s\left\{Ga''_\delta\left(\frac{\gamma-\gamma''}{\gamma''}\right)\right\}$, where the double primes indicate the vapor phase, γ is the specific gravity and δ is the mean vapor film thickness. For no interaction between vapor bubbles δ is given by $\delta'' = 31\left(\frac{\sigma}{\gamma-\gamma''}\right)^{0,5}\left(\frac{q\mu}{r\gamma''\sigma}\right)^{0,53}$. The semiempirical expressions (accurate to within 25%) for the Nusselt number in moderate thickness

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ACCESSION NR: AP5009765

film boiling are then given by

$$Nu''_{k2} = 0{,}28\left[Ga''_3\left(\frac{\gamma-\gamma''}{\gamma''}\right)\right]^{0{,}33} \text{ при } 2\cdot10^4 < Ga''_3\left(\frac{\gamma-\gamma''}{\gamma''}\right) < 1{,}4\cdot10^6;$$

$$Nu''_{k2} = 0{,}0094\left[Ga''_3\left(\frac{\gamma-\gamma''}{\gamma''}\right)\right]^{0{,}57} \text{ при } 1{,}4\cdot10^6 < Ga''_3\left(\frac{\gamma-\gamma''}{\gamma''}\right) < 1{,}5\cdot10^7.$$

Orig. art. has: 11 equations and 2 figures.

ASSOCIATION: Tsentral'nyy kotloturbinnyy institut im. I. I. Polzunova g. Leningrad (Central Steam-Turbine Institute)

SUBMITTED: 24Mar64 ENCL: 00 SUB CODE: ME, TD

NO REF SOV: 005 OTHER: 007

Card 2/2 cc

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 39677-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EWG(m)/EWP(t)/
EPA(bb)-2/EWP(b) Pr-4/Ps-4/Pt-10/Pu-4 IJP(c) JD/WW/JG
ACCESSION NR: AP5009128 S/0089/65/018/003/0294/0296

AUTHOR: Borishanskiy, V. M.; Zhokhov, K. A.

TITLE: Accounting for the effect of pressure on the heat transfer in nucleate boiling of liquid metals

SOURCE: Atomnaya energiya, v. 18, no. 3, 1965, 294-296

TOPIC TAGS: heat transfer, liquid metal, nucleate boiling, heat transfer pressure dependence

ABSTRACT: To establish general correlations between the heat transfer coefficient and pressure, published experimental data on the heat transfer in nucleate boiling of mercury-magnesium amalgam, mercury, sodium, and water were treated under the corresponding states law. The generalization of the experimental data on heat transfer for the compounds listed is given graphically in the following coordinates: $\alpha_p^*/\alpha_{p*}^* = f(p/p_{cr})$, where $\alpha_p^* = \alpha/q^n$, the value of the physical characteristic at a pressure p (α, heat transfer coefficient; q, specific thermal load); α_{p*}^* is the value of the characteristic at a reference pressure $p_* = 0.003\ p_{cr}$; and p_{cr} is the critical pressure. This

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ACCESSION NR: AP5009128

permits comparison of heat transfer data for metallic and nonmetallic heat transfer agents. The comparison shows that in the relative pressure (p/p_{cr}) range studied, the experimental data on heat transfer for the metals are consistent with those for water. In the first approximation, the dependence of the heat transfer on the pressure in the range of $0.0001 \leq p/p_{cr} \leq 0.1$, may be taken as close to 0.15, and, therefore,

$$\frac{\alpha_p^*}{\alpha_{p_0}^*} = A_1 (p/p_{cr})^{0.15},$$

where

$$A_1 = (p_0/p_{cr})^{-0.15} = 2.39.$$

Thus, in the given pressure range,

$$\alpha = A_1 \alpha_{p_0}^* q^n (p/p_{cr})^{0.15},$$

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ACCESSION NR: AP5009128

where the reference value of α^*_{p*} in the general case is a function of the complex of physical properties of the liquid. It can be determined from the equation:

$$\alpha^*_{p*} = \frac{\alpha^*_{p*}}{A_1}(p/p_{cr})^{-0,22}.$$

This comparative study showed that nucleate boiling of liquid metals and the boiling of liquids probably have similar boiling mechanisms. Thus the previously proposed method for the treatment of experimental data on heat transfer in liquids (S. S. Kutateladze, et al. Zhidkometallicheskiye teplonositeli. Prilozheniye No. 2 k zhurnalu "Atomnaya energiya" za 1958 g.) may be used for treating experimental data on nucleate boiling of liquid metals. Orig. art. has: 1 figure, 1 table, and 5 formulas. [PS]

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L 39677-65
ACCESSION NR: AP5009128

ASSOCIATION: none

SUBMITTED: 30Jun64 ENCL: 00 SUB CODE: TD, MM

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Card 4/4

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 1050-66 EWT(1)/EPF(c)/ETC/EPF(n)-2/EWG(m) WW/GS

ACCESSION NR: AT5016894 UR/0000/64/000/000/0350/0362

AUTHOR: Borishanskiy, V. M.; Gel'man, L. I.; Zablotskaya, T. V.; Ivashchenko, N. I.; Kopp, I. Z.

TITLE: Investigation of heat transfer during the flow of mercury through horizontal and vertical tubes

SOURCE: Konvektivnaya teploperedacha v dvukhfaznom i odnofaznom potokakh (Convective heat transfer in two-phase and single-phase flows). Moscow, Izd-vo Energiya, 1964, 350-362

TOPIC TAGS: mercury, heat transfer, liquid flow, forced flow

ABSTRACT: The transfer of heat to mercury is studied during forced flow in horizontal and vertical tubes. The experimental equipment and procedure are described briefly. The following parameters are measured during the experiments: the rates of flow of the liquid, the power input for heating the working section of the equipment, the temperature of the mercury entering and leaving the working section, the temperature fields at various points through the cross section of the tube, the wall temperature at these points and along the tube, the temperatures within and on

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ACCESSION NR: AT5016894

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the surface of the insulation for the working section. The results are tabulated. Experimental and theoretical data show excellent agreement. Heat transfer beyond the section of thermal and hydrodynamic stabilization in the absence of thermal contact resistance for Péclet numbers from 10^3 to $2 \cdot 10^4$ may be calculated from the formula $Nu = 7.5 + 0.005Pe$. A relationship is found between thermal contact resistance and Reynolds numbers for a vertical tube. Orig. art. has: 9 figures, 5 formulas, 4 tables.

ASSOCIATION: none

SUBMITTED: 17Nov64 ENCL: 00 SUB CODE: TD, ME

NO REF SOV: 007 OTHER: 004

Card 2/2 DP

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 00049-66 EPF(c)/EPF(n)-2/EWT(1)/EWT(m)/ETC/EWG(m)/EWP(b)/EWP(t) IJP(c)

ACCESSION NR: AT5016895 WW/JD/GS UR/0000/64/000/000/0363/0377

AUTHOR: Borishanskiy, V. M.; Zablotskaya, T. V.; Ivashchenko, N. I.

TITLE: An investigation of heat exchange and temperature fields during eddy flow of metallic sodium in tubes

SOURCE: Konvektivanaya teploperedacha v dvukhfaznom i odnofaznom potokakh (Convective heat transfer in two-phase and single-phase flows). Moscow, Izd-vo Energiya, 1964, 363-377

TOPIC TAGS: heat transfer, liquid flow, liquid metal, sodium, turbulent flow

ABSTRACT: Heat transfer to metallic sodium is experimentally studied for the case of eddy flow in circular tubes. The experimental equipment is briefly described. The working section was a copper tube 1970 mm long with an inside diameter of 40 mm and walls 4 mm thick. The following parameters were measured: the electric input, the output, and through the cross section of the working segment, temperature of the walls along the tube, and insulation temperature. The heat balance was calculated from the difference between the heat content of the sodium at the input and output of the working section, and from the electric input power in each experiment.

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ACCESSION NR: AT5016895

The results are tabulated. Experimental and theoretical data show excellent agreement. The following empirical formula is derived for the thermal contact resistance as a function of the Reynolds number and the oxygen content in the sodium:

$$R\frac{\lambda}{cD} = FPe^{-0.7},$$

where $F = -0{,}5\cdot 10^4 C_{O_2}^2 + 16\cdot 10^2 C_{O_2} - 30$ at $0.025 < C_{O_2} \leq 0{,}1\%$.

The experimental results are analyzed for a first approximation of the thermal contact resistance regions in which heat exchange is reduced during motion of a liquid metal near heating surfaces. These regions are divided into three categories: 1) the outer diffusion region near the wall where the laminar sublayer is filled with suspended oxides and other impurities which are in dynamic equilibrium with the main flow; 2) the internal diffusion region where contact resistance is apparently determined first of all by the physicochemical processes which take place directly at the wall (sorption, desorption, and other phenomena associated with a change in the surface energy of the system); and 3) the intermediate region where both these mechanisms affect the intensity of heat exchange to a certain degree. Orig. art. has: 12 figures, 10 formulas, 3 tables.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 00049-66

ACCESSION NR: AT5016895

ASSOCIATION: none

SUBMITTED: 17Nov64 ENCL: 00 SUB CODE: TD,ME

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L 3929-66 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/ETC/EPF(n)-2/EWG(m)/EWP(t)/EWP(b) IJP(c)
ACCESSION NR: AP5022643 JD/WW/JG UR/0089/65/019/002/0191/0193
621.039.553.3 91
B

AUTHOR: Borishanskiy, V. M.; Zhokhov, K. A.; Andreyevskiy, A. A.; Putilin, M. A.; Kozyrev, A. P.; Shneyderman, L. L.

TITLE: Heat transfer from boiling alkaline metals

SOURCE: Atomnaya energiya, v. 19, no. 2, 1965, 191-193

TOPIC TAGS: sodium, potassium, heat transfer, convective heat transfer, heat transfer coefficient, liquid metal cooled reactor

ABSTRACT: The authors summarize the results of a large research program, dating back to 1956, on boiling sodium and potassium under a variety of conditions. The experiments on boiling sodium were made at heat loads of (14—125) x 10^3 kcal/m^2·h, with the pressure and saturation temperatures in the ranges 0.15—1.25 atm and 697—905C. The experiments with potassium were made at absolute pressures 0.04, 0.4, 0.75, and 1.5 atm at heat loads 150,000—140,000 kcal/m^2·h. The effect of pressure on the heat transfer was not investigated in great detail in the case of sodium, but the results show a slight tendency for the heat transfer coefficient to increase with increasing pressure (proportional to the pressure

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raised to the 0.1—0.2 power in the case of sodium and to the 0.5 power in the case of potassium). In both metals, the heat transfer coefficient under conditions of free convection in a large volume is proportional to the heat load raised to approximately 0.7. In the case of nucleate boiling, the heat transfer can be given by the empirical formula $\alpha = Ap^{0.15}q^{0.7}$ kcal/m^2·h-degC, with A = 7.0 for sodium and A = 3.0 for potassium. The same formula can be used to calculate the heat transfer for fully developed nucleate boiling in tubes and annular channels if the vapor content is not decisive. Orig. art. has: 3 figures and 2 formulas. [02]

ASSOCIATION: none

SUBMITTED: 03Nov64 ENCL: 00 SUB CODE: NP, TD

NO REF SOV: 004 OTHER: 002 ATD PRESS: 4130

Card 2/2

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 40879-66 EWT(1)/EWP(m) WW/GD

ACC NR: AT6021843 (A) SOURCE CODE: UR/0000/65/000/000/0162/0165

AUTHOR: Borishanskiy, V. M.

ORG: Central Boiler and Turbine Institute im. I. I. Polzunov (Tsentral'nyy kotloturbinnyy institut)

53

B+1

TITLE: Generalization of heat transfer in two phase flow

SOURCE: Teplo- i massoperenos. t. III: Teplo- i massoperenos pri fazovykh prevrashcheniyakh (Heat and mass transfer. v. 3: Heat and mass transfer in phase transformations). Minsk, Nauka i tekhnika, 1965, 162-165

TOPIC TAGS: heat transfer, flow analysis

ABSTRACT: The integro-differential system of equations describing the heat transfer process leads to the following solution:

$$F_1(K_1 \ldots K_n) = 0. \qquad (1)$$

In this equation the dimensionless complexes $K_1 \ldots K_n$ determine the association of the calculated parameters and the physical properties of the heat transfer medium. The system of equations describing, in the most general form, the connection between the physical properties of the

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heat transfer medium and the main physical and thermodynamic parameters of the heat transfer medium is determined by the law of corresponding states and, in the light of the modern molecular theory of gases and liquids, can be written in the following form:

$$F_2\left(\chi_i, P_{кр}, T_{кр}, M, g, R, \frac{P}{P_{кр}}, \frac{T}{T_{кр}}, \frac{c_v}{R}\right) = 0. \quad (2)$$

Simultaneous solution of Equation (1) and (2) should lead to the general solution

$$F_3(F_1, F_2) = 0, \quad (3)$$

corresponding to a closed system of the starting equations. The article proceeds to a detailed mathematical exposition of the above generalized scheme. Orig. art. has: 12 formulas.

SUB CODE: 20/ SUBM DATE: 09Dec65/ ORIG REF: 012

Card 2/2 MLP

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

L 46314-66 EWT(1) WW/GD

ACC NR: AT6021840 (A) SOURCE CODE: UR/0000/65/000/000/0125/0130

AUTHOR: Borishanskiy, V. M.; Gotovskiy, M. A.

ORG: Central Boiler and Turbine Institute im. I. I. Polzunov, Leningrad (Tsentral'nyy kotloturbinnyy institut, Leningrad)

TITLE: Theory of the breakdown of the hydraulic stability of a two phase boundary layer in boiling under conditions of free and forced convection

SOURCE: Teplo- i massoperenos. t. III: Teplo- i massoperenos pri fazovykh prevrashcheniyakh (Heat and mass transfer. v. 3: Heat and mass transfer in phase transformations). Minsk, Nauka i tekhnika, 1965

TOPIC TAGS: boiling, heat convection, boundary layer stability

ABSTRACT: The liquid is assumed to be only slightly viscous. Following the usual method for investigating stability with respect to small vibrations, we impose on the vapor-liquid interface a system of small disturbances of the form $e^{\alpha t}$. Then the equation connecting the increment of the vibrations with the wave number assumes the form

$$\alpha^2 = \frac{\sigma k}{\rho a^2}[1 - k^2 a^2]\frac{I_1(ka)}{I_0(ka)} + \frac{\rho'' k^2 u''^2}{\rho}\frac{k_0(ka)}{k_1(ka)}\frac{I_1(ka)}{I_0(ka)}. \quad (1)$$

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ACC NR: AT6021840

Here d is the increment of the vibrations; k is the wave number; ρ'' is the density of the vapor; ρ is the density of the liquid; u" is the relative velocity of the vapor and the liquid; a is the radius of the undisturbed jet of liquid; $I_1(ka)$, $k_1(ka)$ are the Bessel functions of the imaginary argument. The article develops appropriate equations for the case of free convection. Applying the theory to correlated experimental data, it is found that

$$\frac{S_1}{S_2} \sim \left(\frac{\rho''}{\rho}\right)^{\frac{1}{2}}.$$

where S_1 is the part of the surface occupied by the liquid, and S_2 is the part of the surface occupied by the vapor. A corresponding mathematical treatment is given for the case of forced convection. Orig. art. has: 17 formulas and 2 figures.

SUB CODE: 20/ SUBM DATE: 09Dec65/ ORIG REF: 007

Card 2/2 egh

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACC NR: AP6024544 SOURCE CODE: UR/0089/66/021/001/0058/0059

AUTHOR: Borishanskiy, V. M.; Andreyevskiy, A. A.; Zhokhov, K. A.; Bykov, G. S.; Svetlova, L. S.

ORG: none

TITLE: Heat transfer during the boiling of potassium in a tube in the region of moderate vapor content

SOURCE: Atomnaya energiya, v. 21, no. 1, 1966, 58-59

TOPIC TAGS: potassium, boiling, heat transfer, liquid metal, ~~two phase flow~~ dimensional flow

ABSTRACT: The results of an investigation of heat transfer during the boiling of potassium in round tubes 10 mm in diameter and 600 and 800 mm long are described. The tube wall temperature was measured at 10 positions along the test section. The potassium temperature was measured at the inlet into the test section, at distances of 30, 90, and 210 mm from the inlet, and 30 mm from the exit. The experiment was conducted in the range of saturation pressure p_s = 0.42—3.38 atma (t_s = 678—910C) at heat loads of up to 53,000 kcal/m^2·hr. The vapor content at the inlet reached ~15% by weight. The investigation shows that the temperature head and the heat transfer coefficient along the length of the test section are almost constant. It was noted during

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L 40381-66

ACC NR: AP6024544

the experiment that when subcooled liquid metal was fed into the test section, superheating (30—50C) of the potassium takes place. Then, the temperature dropped sharply to about the saturation temperature. This process was accompanied by significant fluctuations in the wall and vapor-liquid media temperatures along the whole length of the test section. The maximum amplitude of temperature fluctuation reached ±20C. The following formula previously obtained for pool boiling can be used to calculate heat transfer for potassium boiling in a tube:

$$\alpha = 3q^{0.7}p^{0.15},$$

where α is the heat transfer coefficient in kcal/m^2·hr·°C; q, heat load in kcal/m^2·hr; and p is pressure in atma. Orig. art. has: 4 figures and 1 formula. [AV]

SUB CODE: ~~21,20~~ 11,20/ SUBM DATE: 018Feb66/ ORIG REF: 004/ OTH REF: 003/

ATD PRESS: 5053

Card 2/2 MLP

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACC NR: AP7002916 SOURCE CODE: UR/0170/66/011/006/0765/0772

AUTHOR: Aref'yev, K. M.; Paleyev, I. I.; Borishanskiy, V. M.; Khomchenkov, B. M.; Ivashchenko, N. I.

ORG: Polytechnical Institute im. M. I. Kalinin, Leningrad; (Politekhnicheskiy institut); Central Boiler and Turbine Institute, Leningrad (Tsentral'nyy kotloturbinnyy institut)

TITLE: Thermal diffusion of cesium gases in helium

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 6, 1966, 765-772

TOPIC TAGS: cesium, helium, thermal diffusion, gas kinetics, helium cesium mixture

ABSTRACT: A study was made of the thermal diffusion of cesium vapor in helium using the Enskog-Chapman kinetic theory and taking into account the factor of condensation in Stefan flow. Thermal diffusion was found to comprise 55% of the concentrated diffusion and 35% of the total diffusion flow. It follows that in the case of the condensation of cesium gas from a cesium-helium mixture, thermal diffusion

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ACC NR: AP7002916

must be considered to be an essential effect. Orig. art. has: 4 figures, and 7 formulas. [GC]

SUB CODE: 20/SUBM DATE: 14Jul66/ORIG REF: 007/OTH REF: 002/

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHANSKIY, Valentin Vladimirovich, inzh.; GOL'DENBERG, Yefim Ionovich, inzh.; KATS, A.S., dotsent, kand.ekon.nauk, retsenzent; POGODIN, B.A., inzh., red.; LEYKINA, T.L., red.izd-va; DLUGOKANSKAYA, Ye.A., tekhn.red.

[Organization of technical preparation of production in a machinery plant] Organizatsiia tekhnologicheskoi podgotovki proizvodstva na mashinostroitel'nom predpriiatii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 81 p. (MIRA 13:1)
(Machinery industry) (Factory management)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHCHEV, K.V.; YEMETS, D.V.; BLAZHEVICH, P.V.; PEVZNER, A.S., zav. redaktsiyey izd-va; OSENKO, L.M., tekhn.red.

[Uniform time and pay standards for construction, assembly, and repair operations in 1960] Edinye normy i rastsenki na stroitel'nye, montazhnye i remontno-stroitel'nye raboty, 1960 g. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. Sbornik 5. [Making and assembling steel construction elements] Montazh i izgotovlenie stal'nykh konstruktsii. No.5. [Making steel construction elements] Izgotovlenie stroitel'nykh stal'nykh konstruktsii. 1960. 54 p. (MIRA 13:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Normativno-issledovatel'skaya stantsiya No.5 (NIS-5) Ministerstva stroitel'stva RSFSR (for Borishchev, Yemets).
(Steel, Structural) (Wages)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHCHEV, V.V. (Engr.)

Shortcomings in a pamphlet on trawling ("Tedhnology of trawling in the Baltic Sea." I.G. Smyslov. Reviewed by V.V.Borishchev).
Ryb. khoz. 28, no. 7, 1952

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ALEKSANDROV, Mikhail Tikhonovich; BLINOV, Aleksandr Aleksandrovich; LITOVAL'TSEV, Petr Fedorovich; YANISON, Tamara Aleksandrovna[deceased]; BORISHCHEVA, M.M., red.; CHICHERIN, A.N., tekhn.red.

[Preparatory operations and printing on four-page rotation machines] Podgotovitel'nye operatsii i pechatanie na chetyrekhlistnoi rotatsionnoi mashine. Moskva, Gos.izd-vo "Iskusstvo," 1957. 30 p. (MIRA 10:12)
(Printing)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

REMEN, Mikhail Semenovich; BORISHCHEVA, M.M., red.; IVANOVA, L.A., tekhn.red.

[Fixtures for type-setting shops] Mebel' nabornykh tsekhov. Moskva, Gos.izd-vo "Iskusstvo," 1957. 92 p. (MIRA 12:3)
(Fixtures for type-setting shops)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

KISELEVA, Nadezhda Alekseyevna; BEREZIN, B.I., kand.tekhn.nauk; BORISHCHEVA, M.M., red.; CHICHERIN, A.N., tekhn.red.

[Chemical analysis of printing industry materials] Khimicheskii analiz poligraficheskikh materialov. Moskva, Gos.izd-vo "Iskusstvo." Pt.1. [Testing printing industry materials] Ispytaniia poligraficheskikh materialov. 1958. 183 p. (MIRA 12:4)
(Printing machinery and supplies)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BELOZERSKIY, Leonid Konstantinovich; SMIRNOV, Georgiy Pavlovich; LAPITSKIY, Sh.A., retsenzent; NEZNAMOVA, Ye.N., red.; BORISHCHEVA, M.M., red.; CHICHERIN, A.N., tekhn.red.

[Stitching and bookbinding machines] Broshiurovochno-perepletnye mashiny. Moskva, Gos.izd-vo "Iskusstvo," 1960. 551 p. (MIRA 13:10)

(Bookbinding--Equipment and supplies)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

GEODAKOV, Aleksandr Ivanovich; BORISHCHEVA, M.M., red.; KUZ'MINA, E.B., red.; MALEK, Z.N., tekhn. red.

[Zincography]TSinkografiia. Moskva, Izd-vo "Iskusstvo," 1962. 309 p. (MIRA 15:12)

(Zincography) (Photography)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

KHUDOSOVTSEV, N.M.; PAK, V.S., akademik; BORISHENKO, K.S.; PYATKIN, A.M., kand. tekhn. nauk; GOL'DIN, M.A., kand. tekhn. nauk

Urgent problems in the development of the coal industry.
Ugol' 38 no.6:62-63 Je '63. (MIRA 16:8)

1. Predsedatel' Donetskogo soveta narodnogo khozyaystva (for Khudosovtsev). 2. AN UkrSSR (for Pak). 3. Chlen-korrespondent AN UkrSSR (for Borisenko).
(Coal mines and mining)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHEVSKIY, A. P.

"Invluence of Outside Conditions on Heat Transfer in Protecting constructions and in Footing of Buildings."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

USSR / Microbiology - Microorganisms Pathogenic to Humans and Animals. F-4

Abs Jour: Ref Zhur-Biol., No 8, 1958, 38451.

Author : Borishpolets, Dandiy.
*Inst : Not given.
Title : A Method of Obtaining Immune Hemolysins.

Orig Pub: Zh. mikrobiol., epidemiol. i immunobiologii, 1957, No 7, 137.

Abstract: A hemolytic serum was obtained in a titer of 700-1200 by 5-fold intravenous injection into rabbits of sheep erythrocytes and by hypodermic (14-fold) or intravenous (less protracted) horse immunization. Anaphylaxis in rabbits was prevented by

Card 1/[illegible] * Iz SANITARNO-BAKTERIOLOGICHESKOGO INSTITUTA MNR.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

USSR / Microbiology - Microorganisms Pathogenic to Humans and Animals. F-4

Abs Jour: Ref Zhur-Biol., No 9, 1958, 38451.

Abstract: intravenous injection of 1 ml 0.1 N sodium citrate solution directly before erythrocyte injection; in horses by suspending erythrocytes in the same solution, containing 0.85% NaCl.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, V.I.

Effectiveness of correcting ametropia in children. Vest.oft. 69 no.5: 15-19 S-O '56. (MLRA 9:12)

1. Iz 2-y polikliniki 4-go upravleniya (glavnyy oftalmolog - prof. M.L.Krasnov) Ministerstva zdravookhraneniya SSSR.
(REFRACTIVE ERRORS, in inf. and child
ametropia, corrction in early age)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, V.I.

Surgical-orthoptic treatment of concomitant strabismus. Vest. oft. 70 no.5:37-45 S-O '57. (MIRA 12:6)

1. Kafedra glaznykh bolezney (zav. - prof.M.L.Krasnov) TSentral'nogo instituta usovershenstvovaniya vrachey.
(STRABISMUS, ther.
orthoptic management & surg. in concomitant convergent strabismus)
(ORTHOPTICS
same)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

MOROZOV, M.A.; BORISHPOLETS, V.I.; BORISHPOLETS, Z.I., kand.med.nauk

Clinical aspects, etiology, and treatment of Behcet syndrome. Vest. oft. 71 no.2:22-27 Mr-Ap '58. (MIRA 11:4)

1. Deystvitel'nyy chlen AMN SSSR (for Morozov). 2. Kafedra glaznykh bolezney (zav.-prof. M.L. Krasnov) TSentral'nogo instituta usovershenstvovaniya vrachey i ospennyy otdel Instituta epidemiologii i mikrobiologii imeni N.F. Gamaleya AMN SSSR.

(BEHCET SYNDROME
clin. aspects, etiol. & ther.)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, V.I.

Late results of surgical treatment of concomitant strabismus. [with summary in English]. Vest.oft. 71 no.6:3-11 N-D'58 (MIRA 11:11)

1. Kafedra glaznykh bolezney (zav. - zasluzhennyy deyatel' nauki prof. M.L. Krasnov) TSentral'nogo instituta usovershenstvovaniya vrachey.

(STRABISMUS, surg.
concomitant, remote results (Rus))

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

KRASNOV, M.L., prof.; BORISHPOLETS, V.I.

Potentiated medicinal preparation of patients in ophthalmic surgery. Akt. vop. obezbol. no.2:31-36 '59. (MIRA 14:5)

1. Iz kafedry glaznykh bolezney (zav. - zasluzhennyy deyatel' nauki prof. M.L.Krasnov) TSentral'nogo instituta usovershenstvovaniya vrachey.
(AUTONOMIC DRUGS) (ANESTHESIA IN OPHTHALMOLOGY)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, V.I.

Treatment and prevention of concomitant strabismus; a survey. Vest.oft. 72 no.2:36-43 Mr-Ap '59. (MIRA 12:4)

1. Kafedra glaznykh bolezney (zav. - zaslushennyy deyatel' nauki prof. M.L. Krasnov) TSentral'nogo instituta usovershenstvovaniya vrachey.

(STRABISMUS
concomitant, prev. & ther., review (Rus))

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

KRASNOV, M.L., prof., zasluzhennyy deyatel' nauki; BORISHPOLETS, V.I.

Problems of anesthesia and potentiating premedication of surgical patients in ophthalmology. Vest. oft. 72 no.3:3-10 My-Je '59. (MIRA 12:7)

1. Kafedra glaznykh bolezney TSentral'nogo instituta usovershenstvovaniya vrachey.

(EYE, surg.
anesth. & premedication, review (Rus))
(ANESTHESIA,
premedication in ophth., review (Rus))

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, V. I.

Cand Med Sci - (diss) "Treatment and prophylaxis of concommitant strabismus." Moscow, 1961. 13 pp; (Second Moscow State Medical Inst imeni N. I. Pirogov);250 copies; price not given; (KL, 5-61 sup, 201)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

MOROZOV, M.A.; BORISHPOLETS, V.I.; BORISHPOLETS, Z.I., kand.med.nauk

Clinical aspects, etiology, and treatment of Behcet syndrome. Vest. oft. 71 no.2:22-27 Mr-Ap '58. (MIRA 11:4)

1. Deystvitel'nyy chlen AMN SSSR (for Morozov). 2. Kafedra glaznykh bolezney (zav.-prof. M.L. Krasnov) TSentral'nogo instituta usovershenstvovaniya vrachey i ospennyy otdel Instituta epidemiologii i mikrobiologii imeni N.F. Gamaleya AMN SSSR.
(BEHCET SYNDROME
clin. aspects, etiol. & ther.)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

Cand Med Sci

BORISHPOLETS, Z. I.

Dissertation: "Experimental Data on Studying the Antigens of the Microbe of Abdominal Typhus."
8/6/50

Acad Med Sci USSR

SO Vecheryaya Moskva
Sum 71

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, Z. I., (Institute of Epidemiology and Mictobiology imeni Gamaleya)

"Concerning mass and centralized production of dry hemolysin."

Veterinariya, Vol 39, no. 1, Jan 1962. pp 77

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISHPOLETS, Z.I.

Mass centralized production of dry hemolysin. Veterinariia 39 no.1:77-79 Ja '62. (MIRA 15:2)

1. Institut epidemiologii i mikrobiologii imeni Gamaleya.
(Hemolysis and hemolysins)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

TIKHONENKO, T.I.; KOUDELKA, Ya.; BORISHPOLETS, Z.I.

Concentration and purification of phages by the method of column chromatography. Mikrobiologiia 32 no.4:723-726 Jl-Ag '63. (MIRA 17:6)

1. Institut epidemiologii i mikrobiologii imeni N.F. Gamaleya AMN; Institut biofiziki AN Chekhoslovatskoy SR, Brno.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACC NR: AP6033197 SOURCE CODE: UR/0219/66/062/010/0075/0078

AUTHOR: Borishpolets, Z. I.; Tikhonenko, T. I.; Biryulina, T. I.

ORG: Department of Immunology and Oncology /Director - Active Member SSSR L. A. Zil'ber/, Institute of Epidemiology and Microbiology im. N. F. Gamaleya /Director - Corresponding Member AN SSSR O. V. Baroyan/, AMN SSSR (Otdel immunologii i onkologii Instituta epidemiologii i mikrobiologii AMN SSSR)

TITLE: Antigenicity of DNA bacteriophages

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 62, no. 10, 1966, 75-78

TOPIC TAGS: antigen, DNA, bacteriophage, ~~T2 bacteriophage~~, medical experiment

ABSTRACT: The antigenic properties of DNA bacteriophages have been debated in the literature. To determine whether or not DNA phages possess antigenic properties, DNA preparations from T2 phages consisting mostly of phage protein were used as the antigenic component in the diffusion precipitation in agar and complement-fixation reactions. Only partially "deproteinized" DNA protein (denatured by phenol) yielded

Card 1/2 UDC: 576.858.9.098.396.332.092.7

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

ACC NR: AP6033197

positive results. More denaturation deprived DNA preparations of their antigenic properties. Orig. art. has: 2 tables. [W.A. 50]

SUB CODE: 06/ SUBM DATE: 21May65/ ORIG REF: 011/ OTH REF: 011

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

18

Ca

The possibility of the utilization of titanomagnetites in the Levig process. E. I. Zinov'ev and V. I. Borisikhina. *Trudy Ural. Ind. Inst. Kirova* 1938, No. 5, 66-8; *Chem. Referat. Zhur.* 1, No. 11-12, 89(1938).—The possibility of substitution of Ti-magnetites for Fe ore in the process of producing NaOH by the Levig method was investigated. Preliminary expts. in 1934 gave unsatisfactory results, owing to fusing of the mass in primary roasting of the concentrate with soda. The NaOH yield was small, and a large part of the soda was in a combined form, from formation of Na titanates, which are not decompd. by leaching with H_2O. Later expts. with Ti-magnetites directly gave more satisfactory results. The mixt. of Ti-magnetites with soda was roasted in a Pt crucible at 950-1000° for 30 min., and did not fuse, even at 1100°. At optimum compn. of the mixt. (Ti-magnetites 77, soda 23%) primary roasting at 1100° gave a 65% yield of NaOH, and secondary roasting a 93.5% yield. Leaching of the mass after primary roasting extd. 95% of the V_2O_5 contained in the Ti-magnetites, while CrO_3 was extd. completely only after the secondary roasting. From the results obtained it is concluded that Ti-magnetites can be used successfully, after a preliminary roasting with soda, as substitute for Fe ore in the Levig process. The spent ore can be used for the production of TiO_2.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISIKHINA, V. I.

Membrane ultra- and polyultrafilters. S. G. Mokrushin and V. I. Borisikhina. *Zhur. Prikhod. Khim.* 25, 1182-6 (1952). The basic material for these membranes was obtained from cellulose nitrate films heated in slightly alk. H_2O at 85-90° and, finally, digested in 96% alc. The best membranes were obtained from 5-6% solns. of the treated film in cold AcOH; 8-10% solns. gave coarse, thick membranes; 1-2% thin and weak. Of 6 mono alcs., the best were iso-Bu and acetyl; of 3 esters the best was di-Et ester of malonic acid, $CH_2(COOC_2H_5)_2$. Membranes were prepd. on filter paper and on cloth. A wide range of properties could be obtained by varying the proportions of the several additives. I. Benowitz

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

USSR

Effect of electrolytes on the formation and stability of foam produced by malt sprout. S. G. Mokrushin, V. I. Borisikhina, and K. G. Potaskuev. *Zhur. Prikład. Khim.* 28, 107-8(1955); *J. Appl. Chem. (U.S.S.R.)* 28, 99-100 (Engl. translation); cf. *C.A.* 48, 3030f.—The max. vol. of foam produced by powd. malt sprout (I) was by a suspension contg. 3 g. of I/100 ml. H_2O. This vol. was increased by the addn. of 10 ml. of the following sulfates: Zn 17, Mg 36, Cu 44, Ni 80, Co 30, Al 23, Cd 35, and Na 0% (3 ml. of Na_2SO_4 increased the vol. 14%); 35 ml. of $Al_2(SO_4)_3$ and $CdSO_4$ increased the foam vol. 32 and 85%, resp. Larger proportions of the other sulfates did not affect the vol. $FeCl_3$ (10 ml.) increased the vol. 31%; 24 and 3 ml. of 75% $ZnCl_2$ increased the vol. 75 and 27%, resp. (5 ml. of 47% $ZnCl_2$ is a preservative for I). Mixts. of I with chalk treated with H_2SO_4 produced stable foams which suggested these mixts. as substitutes for Na_2CO_3 + licorice root mixts. in *fire extinguishers*. I. Bencowitz.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISIKHINA, V.I.

AID P - 1587

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 17/21

Authors : Mokrushin, S. G., Borisikhina, V. I., and Potaskuyev, K. G.

Title : Effect of electrolytes on the formation and stability of foam from malt sprout

Periodical : Zhur. prikl. khim., 28, no.1, 107-108, 1955

Abstract : Solutions of various salts were added to a suspension of malt sprout. Cadmimum sulfate, aluminum sulfate, ferric chloride, and zinc chloride increased the volume of foam and its stability. Zinc chloride prevents malt sprout from rotting without affecting its ability to form foam. Malt sprout may be used as a foaming agent for fire extinguishers. Seven ref. (5 Russian: 1936-50)

Institution: Ural Polytechnic Institute

Submitted : Je 30, 1953

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

AID P - 1588

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 18/21

Authors : Mokrushin, S. G. and Borisikhina, V. I.

Title : Effect of laminary dispersed substances on the stability of foam

Periodical : Zhur. prikl. khim., 28, no.1, 109-111, 1955

Abstract : Finely ground malt sprout was used as the foam-forming substance in experiments with various metal hydroxides. The dispersed hydroxides of zinc, magnesium, nickel, and cobalt stabilized foam; the same effect was observed by addition of small amounts of mica and asbestos; large amounts of these substances decreased the stability of foam. Two tables, 9 references (7 Russian: 1946-51)

Institution: Ural Polytechnic Institute (im. S. M. Kirov)

Submitted : Je 30, 1953

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AUTHOR: Mokrushin, S.G., Borisikhina, V.I. SOV/69-20-6-10/15

TITLE: The Kinetics of the Phase Separation of Protected Emulsions (Kinetika rassloyeniya faz bronirovannykh emul'siy)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol 20., Nr 6, pp 736-738 (USSR)

ABSTRACT: The most efficient stabilizers of emulsions are those, which form gel-like protection films [Ref. 2,3] on the emulsion droplets. The dyes congo-red, methyl-green, and methyl-violet are such stabilizers. The stability of the emulsion increases with the quantity of the dye solution. Figure 3b is a microphotograph showing small droplets of 10-20 μ in diameter on the surface of larger droplets of 100 μ in diameter. There are 2 graphs, 1 table, 1 set of photos, and 7 references, 4 of which are Soviet, 2 English and 1 German.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova (Ural Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: June 3, 1957

1. Colloids--Stabilization 2. Gels--Properties 3. Dyes--Applications
4. Microphotography--Applications

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5(2) SOV/153-2-4-13/32

AUTHORS: Borisikhina, V. I., Mokrushin, S. G.

TITLE: The Emulsifying Capacity of Colloidal Hydroxides of Iron and Nickel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 541 - 544 (USSR)

ABSTRACT: The investigation of the problem mentioned in the title is of practical interest for the extraction of colloids from solutions by means of the emulsifying method. Substances which can form gel-like protective films on the emulsion drops are the most powerful stabilizers of emulsions (Ref 1). The quantitative characteristics of the stability of emulsions has not yet been sufficiently described in publications. In order to determine the rate constant of the phase separation of an emulsion, the equation (1) is given (Refs 5,6) the integration of which leads to equation (2)

$k = \frac{1}{t} \lg \frac{1+\sqrt{v}}{1-\sqrt{v}}$; k = the stability degree of the emulsion.

The paper under discussion aims at investigating the emulsifying capacity by the example of the system benzene - water, and at

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using Lederer's constant k (Ref 6) for the quantitative characteristic of the stability of the emulsion stabilized by the colloids mentioned. The students T. P. Vorozhtsova and T. M. Zakharova participated in this investigation. The colloids mentioned in the title were prepared according to the methods of references 7 and 8, respectively. Table 1 shows the colloidochemical characteristics of the brine. Figures 1 and 2 show the experimental results. The inclination of the curves that the benzene separation becomes slower, i.e. the emulsion becomes stable, the more colloid solution is added to the emulsion. Figure 3 shows a microphotograph of an emulsion which was formed by the addition of 5 ml of colloidal iron hydroxide. Figures 4 and 5 illustrate emulsions formed with an addition of 0.5 and 2 ml of nickel hydroxide, respectively. The addition of nickel-hydroxide quantities of more than 1.5 ml brings about a very stable emulsion remaining unchanged for several days. On account of experimental results the separation constants of the emulsion phases were computed according to equation (2) (Table 2). Hence it appears that the values of the constants, except for some values overestimated at the beginning of phase separation, are

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sufficiently stable for every system. Figure 6 shows a diagram of the dependence of the constant k on the addition of the emulsifier. Upon comparison of the curves, a rapid decrease of the constant k appears caused by an addition of colloidal nickel hydroxide. This hydroxide has a higher emulsifying capacity, as was mentioned above (Figs 3-5). There are 6 figures, 2 tables, and 9 references, 6 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut, Kafedra fizicheskoy i kolloidnoy khimii (Urals Polytechnic Institute, Chair of Physical and Colloidal Chemistry)

SUBMITTED: May 15, 1958

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5(1) SOV/80-32-5-43/52

AUTHORS: Mokrushin, S.G., Borisikhina, V.I.

TITLE: Membrane Semiultrafilters on Textile Base

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 5, pp 1163-1164 (USSR)

ABSTRACT: The production of semiultrafilters on textile base with a given pore size is studied here. For impregnation of the base a 6%-solution of nitrocellulose moving picture film in an alcohol-ether mixture with 1% malonic ester and 0.5% glycerol was used. The best results were obtained with batiste. Hairy fabrics form inequalities after impregnation. The pore size can be varied by adding to the initial collodion mixture adequate quantities of esters.
There are: 1 table, 1 graph and 5 references, 3 of which are Soviet and 2 German.

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Membrane Semiultrafilters on Textile Base SOV/80-32-5-43/52

ASSOCIATION: Ural'skiy politekhnicheskiy institut imeni S.M. Kirova (Ural Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: August 18, 1958

Card 2/2

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BORISIKHINA, V.I.; MOKHUSHIN, S.G.

Effect of electrolytes on the rate constant of phase separation in stabilized emulsions. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.5:711-713 '59. (MIRA 13:8)

1. Ural'skiy politekhnicheskiy institut, kafedra fizicheskoy i kolloidnoy khimii.
(Emulsions) (Electrolytes)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

MOKRUSHIN, S.G.; BORISIKHINA, V.I.

Some foam stabilizers and extinguishers. Trudy Ural. politekh. inst. no.94:4-9 '60. (MIRA 15:6)

(Foam)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISIKHINA, V.I.; MOKRUSHIN, S.G.

Effect of electrolytes on the value of the phase seperation constant of protective, film-forming emulsions. Trudy Ural.politekh. inst. no.96:93-100 '60. (MIRA 14:3)
(Emulsions)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206320017-0

BORISIKHINA, V.I.; TOROKIN, A.N.

Determination of the thickness of protective layers in emulsions. Trudy Ural.politekh.inst. no.96:101-108 '60. (MIRA 14:3)
(Emulsions)

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SKRYLEV, L.D.; BORISIKHINA, V.I.; MORKUSHIN, S.G.; Prinimala uchastiye: DAVYDOVA, T.A., studentka

Extraction of mixed heavy metal ferrocyanides in colloidal solutions from their hydrosols by emulsification. Part 1: Effect of gelatin additions and of the amount of organic liquid used for emulsification. Izv.vys.ucheb.zav.;khim.i khim.tekh. 4 no.4:611-613 '61. (MIRA 15:1)

1. Ural'skiy politekhnicheskiy institut imeni Kirova, kafedra fizicheskoy i kolloidnoy khimii.

(Ferrocyanides)

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SKRYLEV, L.D.; BORISIKHINA, V.I.; MOKRUSHIN, S.G.; Prinimala uchastiye: DAVYDOVA, T.A., studentka

Recovery of mixed ferrocyanides of heavy metals from their hydrosols in colloidal solution by the emulsification method. Part 2: Effect of electrolyte addition. Izv.vys.ucheb.zav.; khim.i khim.tekh 4 no.6:968-970 '61. (MIRA 15:3)

1. Ural'skiy politekhnicheskiy institut imeni Kirova, kafedra fizicheskoy i kolloidnoy khimii.
(Ferrocyanides) (Colloids) (Electrolytes)

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