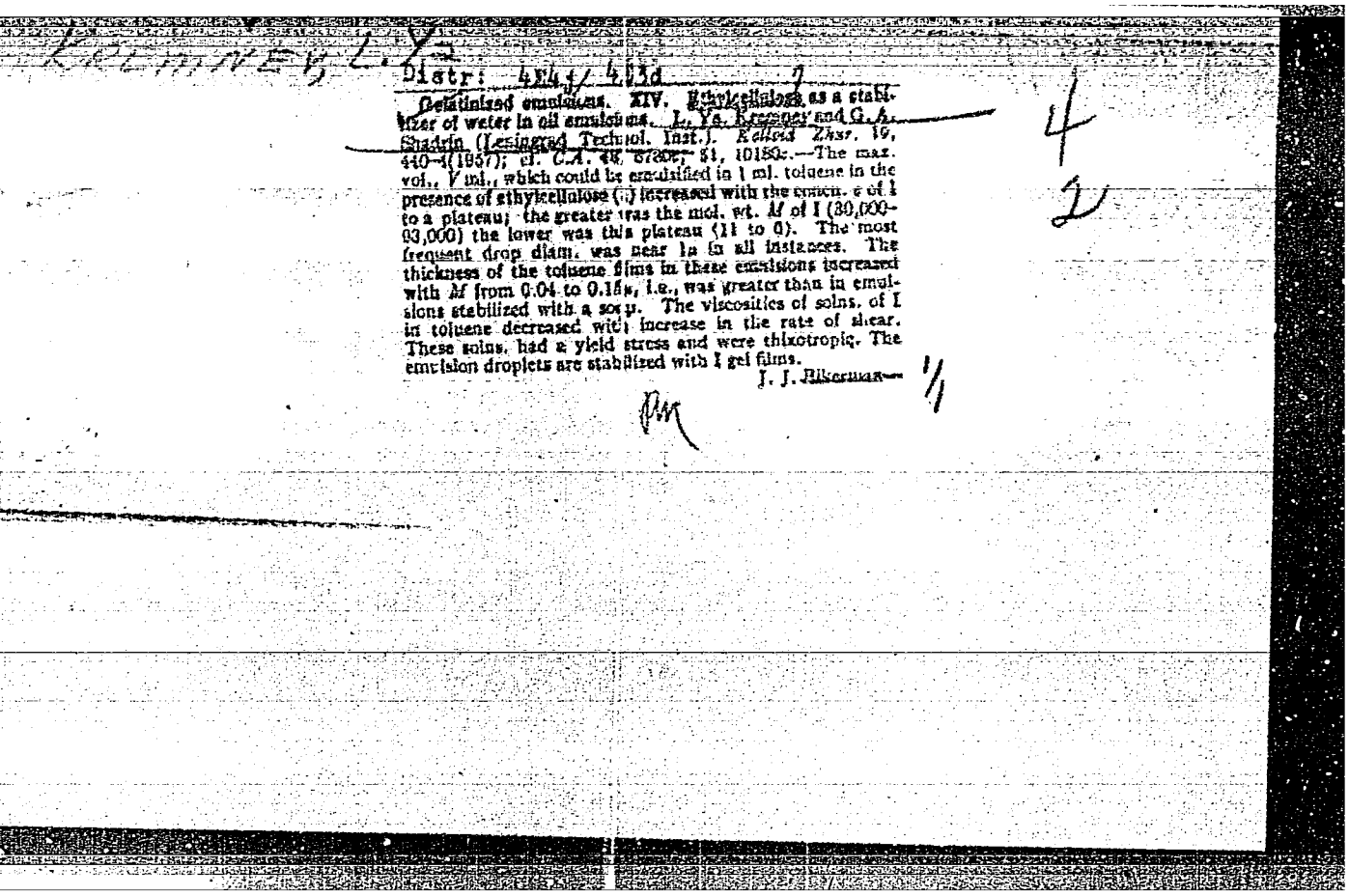
Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26418

surface grow due to the ID through the gaseous medium, as well as due to the ID and coalescence with neighboring little drops on the side of the emulsion. After the formation of a continuous layer of the dispersion phase, ID and coalesence of lower situated drops will take place on the whole surface of the layer, which will cause a more intensive destruction of E. The conceptions conderning the development and acceleration of aging correspond to the character of the experimental curves and the deducted quantitative dependences of the process.

KREMNEV, L.Ya.

Gelatinized emulsions. Part 13. Maximum concentrated O/W type emulsions with a thixotropic dispersion medium. Koll. zhur. 19 no.1:68-71 Ja-F '57. (MLRA 10:4)

1. Leningradskiy tekhnologicheskiy institut im Lensoveta.
(Emulsions) (Gelation)



Distr: 4E4f/4E3d

Gelatinized emulsions. XIV. Ethylcellulose as a stabilizer of water in oil emulsions. L. Ya. Kremnev and G. A. Shadrin (Leningrad Technol. Inst.). *Kolloid Zhur.* 19, 440–4(1957); cf. *C.A.* 48, 8780; 51, 10180c.—The max. vol., *V* ml., which could be emulsified in 1 ml. toluene in the presence of ethylcellulose (I) increased with the concn. *c* of I to a plateau; the greater was the mol. wt. *M* of I (30,000–93,000) the lower was this plateau (11 to 0). The most frequent drop diam. was near 1*a* in all instances. The thickness of the toluene films in these emulsions increased with *M* from 0.04 to 0.18*a*, i.e., was greater than in emulsions stabilized with a soap. The viscosities of solns. of I in toluene decreased with increase in the rate of shear. These solns. had a yield stress and were thixotropic. The emulsion droplets are stabilized with I gel films.

J. J. Bikerman

KREMNEV, L.Ya.

Conditions of the formation of both types of emulsions and the study of phase reversal. Izv.vys.ucheb.zav.pishch.tekh. no.4: 108-115 '58. (MIRA 11:11)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta, Kafedra kolloidnoy khimii.
(Emulsions) (Phase rule and equilibrium)

AUTHORS: Kremnev, L.Ya.; Perelygina, A.I. 69-58-2-6/27

TITLE: Gelated Emulsion 15. Limiting Concentration Emulsions of Paraffin in Water. The Structure of the Protective Layers (Zhelatinirovannyye emul'sii 15. Predel'nyye emul'sii parafina v vode. Stroyeniye zashchitnykh sloyev)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol XX, Nr 2, pp 174-178 (USSR)

ABSTRACT: The introduction into the paper mass of small quantities of hydrophobic materials, especially paraffin, increase the impermeability to water and also the quality of the paper. Paraffin emulsions for these purposes are prepared in the thermostat at a temperature of 75°C ± 2. The limiting concentration emulsions are diluted with 5 % gelatine solution. As emulsion stabilizers, sodium stearate and gelatine are used or a mixture of both. The degree of dispersion of the limiting concentration paraffin emulsions is very high (figure 1a). The distribution curves show a maximum for all concentrations when the droplet size is 1 . The degree of dispersion is changed only slightly with an increase in the emulsification temperature from 60-90°C. The value of the surface limit of the protective layers increases with the concentration and is nearly constant at

Card 1/3

Cent. Sci. Res. Inst. Cellulose and Paper Industry, Leningrad

Gelated Emulsions 15. Limiting Concentration Emulsions of Paraffin in Water. The Structure of the Protective Layers

high concentrations. The protective layers are polymolecular gelatinized films with structural and mechanical properties (viscosity and strength). The stabilizers studied have a strong structural viscosity and high thixotropic properties. The thickness of the protective layers in gelatine, with the low emulsifying power of 5 m^2, is 0.2 , i.e. much larger. The addition of diluted emulsions of paraffin stabilized by gelatine to paper mass ensures good sizing of the paper.
There is one set of graphs, 1 table and 9 references, 8 of which are Soviet and 1 English.

Card 2/3

AUTHOR: Kremnev, L.Ya.

SOV-69-20-5-4/23

TITLE: Gelatinized Emulsions (Zhelatinirovannyye emul'sii) 16. The Influence of Neutral Inorganic Salts on Emulsification. Emulsifying Antagonists. (16. Vliyaniye neytral'nykh neorganicheskikh soley na emul'girovaniye. Emul'gatory-antagonisty)

PERIODICAL: Kolloidnyy zhurnal, 1958, Vol XX, Nr 5, pp 546-549 (USSR)

ABSTRACT: The influence of a neutral salt (NaCl) on alkaline soaps is studied in the article. Figure 2 shows that the influence of NaCl is caused by the salting-out of soap from the aqueous medium. The influence increases with the salt concentration (Figure 3). The influence of a hydrophilic emulsifier is counterbalanced by an oleophilic emulsifier, if an equimolar ratio exists between them. A surplus of one emulsifier acts as a spontaneous stabilizer in emulsions type oil-in-water or water-in-oil. There are 3 graphs and 4 Soviet references.

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

SUBMITTED: April 8, 1957.

1. Soaps--Chemical reactions 2. Sodium chloride--Chemical reactions

Card 1/1

NIKISHINA, M.F.; KREMNEV, L.Ya.; BORODINA, L.A.; ARKHIPOVA, A.P.; BEGUNKOVA, N.I.

Bituminous and tar emulsions used in road construction. Avt.dor. 21 no.11:25-27 N '58. (MIRA 11:12)
(Road materials)

KREMNEV, L. YA.

15(6)

AUTHOR: Rebinder, P. A., Academician SOV/30-59-1-5/57

TITLE: New Trends of Colloid Chemistry (Novyye puti razvitiya kolloidnoy khimii)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 1, pp 44-51 (USSR)

ABSTRACT: At present, colloid chemistry plays an especially important part in political economy as it is a physical-chemical science concerning substances of modern engineering. It is of great practical importance that at present it is possible to carry on uninterrupted transitions from lyophobic to lyophilic systems. Thus, it is possible to obtain technically important substances with the required structural-mechanical properties. The theory of highly molecular substances and their solutions has developed into an independent branch of colloid chemistry. The vitality of modern colloid chemistry is proved by the fact that it produces many new independent branches of science. Further, the author describes the course of the 4th All-Union Conference of Colloid Chemistry which took place in Tbilisi on May 13-16, 1958. It was organized by the Otdeleniye khimiches-

K. M. Natanson (Kiyev) reported on the present state of research in the field of colloid metals.

A. D. Sheludko (Bulgaria) determined theoretically and experimentally the regularities of synaeresis in foams.

M. P. Vollarovich with collaborators spoke about the results of examination of water properties and structure of peat by means of radioactive isotopes.

M. Ye. Shishniashvili considered questions of adsorption and chemosorption of electrolytes in colloid dispersion systems.

B. V. Deryagin and his collaborators reported on the development of the electrostatic stability theory as well as the coagulation of dispersion systems, and on the theory of formation and the properties of aerosols.

L. Ya. Kremnev, A. B. Taubman reported on the role of the structural-mechanical barrier as a factor of practical guarantee for a full stabilization of dispersion systems, as P. A. Rebinder showed it in his investigations (Ref 1).

V. G. Levich theoretically showed that an increased viscosity of the protective coverings of the stabilizer is sufficient to prevent a coagulation of particles.

M. M. Dubinin and his pupils dedicated a series of reports to examinations in the field of structural characteristics.

A. N. Frumkin with collaborators examined new appearances of adsorption in the theory of electrode processes.

B. A. Dogadkin, A. Ya. Korolev discussed questions of adsorptive interaction of active fillers with polymers, as well as of the chemical modification of the surfaces of solid particles (soot).

Ye. Ye. Segalova, P. A. Rebinder and collaborators reported on the clarification of the process of formation of crystallization structure in the hardening of mineral binding agents.

S. M. Dorisman showed that the appearance of high elasticity is connected with the formation of dispersion structure.

L. S. Palatnik (Khar'kov) examined the colloidal state of aging alloys in thin films and massive samples.

Ye. D. Shchukin, V. V. Yudina clarified the theoretical criteria of spontaneous dispersion of solid bodies, especially metals, in surface-active surroundings.

V. I. Likhtman reported on the appearance of adsorptive plastification of lead and tin at normal temperatures.

L. A. Kasarevitskiy and collaborators examined the influence of rheological properties of printing colors on their behavior in the printing process.

I. F. Eledavein reported on the regulation of crystallization and coagulation structures in the production of best table-butter.

Card 3/6

Card 4/6

KRENOV, L.Ya.; BORODINA, L.A.

Production of highly concentrated bituminous emulsions. Avt. dor. 22 no.7:4-6 Jl '59. (MIRA 12:9)
(Bituminous materials)

KREMNEV, Leonid Yakovlevich; ARKHIPOVA, Aleksandra Pavlovna; YAKOVLEVA, A.I., red.; GALAKTIONOVA, Ye.N., tekhn.red.; NIKOLAYEVA, L.N., tekhn.red.

[Using reverse emulsions in constructing and repairing roads] Primenenie obratnykh emul'sii v stroitel'stve i remonte dorog. Moskva, Nauchno-tekhn.izd-vo M-va avtomobil'nogo transp. i shosseinykh dorog RSFSR, 1960. 26 p. (MIRA 14:1)
(Roads--Maintenance and repair) (Bituminous materials)

KREMNEV, L. Ya.; ARTSUTANOV, Yu.N.

Emulsifying properties of margarine-emulsifying agents. Izv.vys. ucheb.zav.; pishch.tekh. no.1:71-75 '60. (MIRA 13:6)

1. Kafedra kolloiknoy khimii Leningradskogo tekhnologicheskogo instituta imeni Lensoveta.
(Oleomargarine) (Emulsifying agents)

NIKISHINA, M.F.; KREMNEV, L.Ya.

Simplifying the technology of making bituminous emulsions in homogenizers. Avt. dor. 23 no.10:14-15 O '60. (MIRA 13:10)
(Bituminous materials)

KREMNEV, L.Ya.; ABRAMZON, A.A.; KIYANOVSKAYA, Yu.L.

Mechanism of mass transfer in a liquid - liquid heterogeneous system when stirred. Dokl. AN SSSR 150 no.4:836-838 Je '63. (MIRA 16:6)

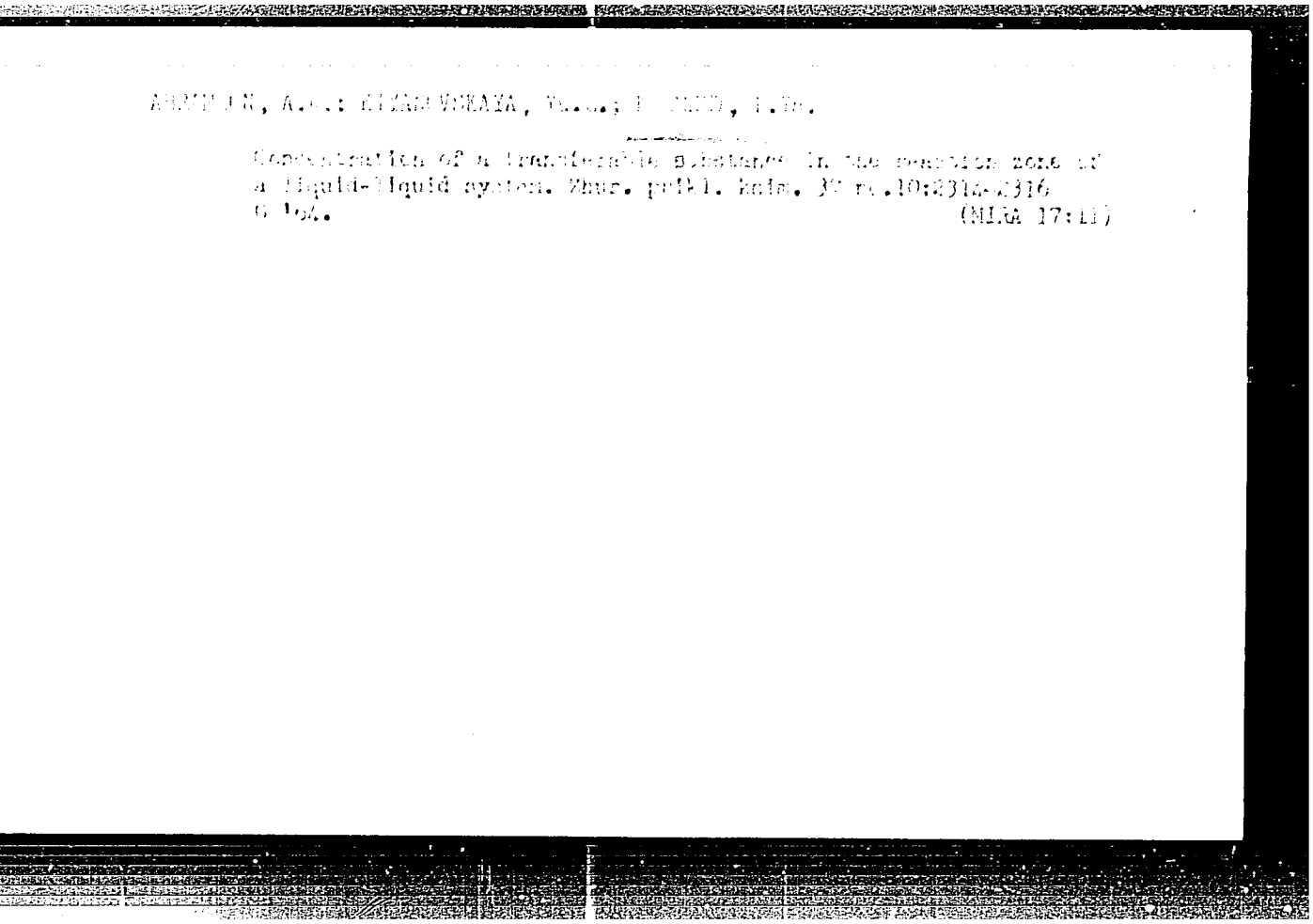
1. Predstavleno akademikom P.A. Rebinderom.

(Mass transfer) (Liquids)

KREMNEV, L.Ya.; NIKISHECHKINA, L.A.; RAVDEL', A.A.

Stability of emulsions. Dokl. AN SSSR 152 no.2:372-374 S '63.
(MIRA 16:11)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.
Predstavleno Akademikom P.A. Rebinderom.



[illegible], A.[illegible]: [illegible]VSKAYA, V.[illegible]; [illegible], I.Ye.

Concentration of a transferable substance in the reaction zone of a liquid-liquid system. Zhur. prikl. khim. 37 no.10:2314-2316 O '64. (MIRA 17:11)

L 11609-66 EWT(m)/T/EWP(j) RM

ACC NR: AP6001501 (A) SOURCE CODE: UR/0191/65/000/012/0040/0042

AUTHORS: Tabunchenko, V. N.; Kremnev, L. Ya. (deceased)

ORG: none

TITLE: Highly concentrated emulsions of polymethylsiloxane liquids 15,44,55

SOURCE: Plasticheskiye massy, no. 12, 1965, 40-42

TOPIC TAGS: siloxane, polymer, emulsion

ABSTRACT: Preparation and properties of highly concentrated aqueous emulsions in general and of polymethylsiloxane liquids (I) in particular are described. Such emulsions are highly useful economically because I (which is unusually stable chemically and thermally and possesses desirable dielectric properties) is soluble only in organic solvents but not in water. In contrast to concentrated and dilute emulsions, deformation of liquid spherical droplets does occur in highly concentrated emulsions under strong compression. The droplets are not subject to sedimentation and progressive Brownian motion, and thus the emulsions remain extremely stable for long periods of time. The highly concentrated emulsions retain their structure and properties during long storage and can be diluted with water to produce dilute emulsions. Slight decrease in the dispersion of liquid polydimethylsiloxane emulsions during prolonged aging is probably caused by the molecular distillation of the fine (about 1 micron) droplets. Orig. art. has: 2 figures.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

UDC: 678.84

Card 1/1

KREMNEV, L.Ya.; SKVIRSKIY, L.Ya.; OSTROVSKIY, M.V.; ABRAMZON, A.A.

Resistance to mass transfer in a liquid - liquid heterogeneous system. Zhur. prikl. khim. 38 no.11:2496-2505 N '65.
(MIRA 18:12)

1. Submitted March 24, 1964.

L 43908-66 EWT(m)/T/EWP(j) IJP(c) RM
ACC NR: AP6015666 (A) SOURCE CODE: UR/0413/66/000/009/0075/0075

INVENTOR: Menshutkin, S. Ya.; Kremnev, L. Ya.; Yanishevskiy, A. V.; Ozerova, N. V.

ORG: none

TITLE: Method of obtaining polysterene. Class 39, No. 181287 [announced by the State Scientific Research Institute of Polymerized plastics (Gosudarstvennyy nauchno-issledovatel' skiy institut polimerizatsionnykh plastmass)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 75

TOPIC TAGS: polysterene, polymerization, polymerization initiator, monomer, free radical initiator, emulsifier

ABSTRACT: An Author Certificate has been issued for a method of obtaining polysterene by water-emulsion polymerization of styrene in the presence of emulsifiers and free radical initiators. To decrease polymer moisture, the polymerization is carried out in a saturated highly concentrated emulsion with the monomer-water ratio up to 19:1. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 12May65/

Card 1/1 UDC: 678.746.22

L 15682-66 EWT(m)/EWP(j)/T DJ/RM

ACC NR: AP6024051 (A) SOURCE CODE: UR/0191/66/000/005/0048/0049

AUTHOR: Tabunchenko, V. N.; Kremnev, L. Ya. (Deceased)

ORG: none

TITLE: Highly concentrated emulsions of organosilicon liquids stabilized with op-10

SOURCE: Plasticheskiye massy, no. 5, 1966, 48-49

TOPIC TAGS: surface active agent, emulsion, polysiloxane

ABSTRACT: Products of condensation of ethylene oxide with alkyl phenols are effective surface-active agents. One such nonionogenic product, containing 10 moles of ethylene oxide (op-10), was used as a stabilizer of highly concentrated emulsions of organosilicon liquids (PMS-50 polymethylsiloxane and GKZh-94 polyethylhydrosiloxane). A measure of the emulsifying power (determined microscopically) of op-10 was the maximum surface area of protective layers s_∞ developed by 1 ml of aqueous solutions of the emulsifier in limiting emulsions and the smallest thickness δ_{cr} of the adsorbed solvate layers. The thickness of the protective interfacial layers decreased with increasing emulsifier concentration and reached a minimum value. A comparison of δ_{cr} and s_∞ values showed that the solutions of op-10 had a higher emulsifying power in the case of GKZh-94 than in the case of PMS-50. At substantial op-10 concentrations (50% and higher), completely transparent limiting emulsions were obtained with PMS-50

Card 1/2 UDC: 678.84.048.5

L 45682-66

ACC NR: AP6024051

and GKZh-94, owing to equal refractive indices of the dispersed phase and dispersion medium. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 002

Card 2/2 fv

1. [redacted], M. I.

2. USSR (600)

4. Tonsils

7. State of the tonsillar bed following total tonsillectomy. Vest. oto-rin. 14 no. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

KREMNEV, N.N., kandidat meditsinskikh nauk; MURAZIZOV, K.D.

Localized fibrous osteodystrophy (osteoblastoclastoma) of the accessory simuses of the nose, the facial bones, and of the cranium. Vest.oto-rin 17 no.4:46-49 Jl-Ag '55. (MLRA 8:10)

1. Iz kafedry bolezney ukha, gorla i nosa (zav.-prof.S.I. Shumskiy) Tashkentskogo meditsinskogo instituta.

(OSTEITIS FIBROSA,
cranium, paranasal simuses & facial bones)
(CRANIUM, diseases,
fibrous osteodystrophy of cranial & facial bones & paranasal simuses)

KRENNEV, O. A.

26356 Metod rascheta dvukhkamernykh topok s zhidkim shlakoudaleniyem. Trudy in-ta teplozne rgetiki (akad. nauk ukr. ssr), sb. 1 1949, s. 128-42.

SO: LETOPIS' NO. 35, 1949

P.A.

96. STUDY OF COEFFICIENTS OF HEAT EXCHANGE IN TUBES OF WATER WORKS. (ISSLEDOVANIYA KOEFITSIENTOV TEPLOOTDACHI V TRUBKAKH VODOKHOZYAYSTVOR). Sucherban, A.I. and Kremnev, O.A. (Kiev: Akad. Nauk Ukrain. SSR 1951, 77pp., 4 roles). Experiments are recorded with turbulent air flow in the piped.

1. KREMNEV, O. A.

2. USSR (600)

4. Mine Ventilation

7. Power indices for air conditioning in a mine thousand meters deep. Trudy Inst. tepl. AN URSR No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

CHERNOBYLSKIY, I. T. (Prof), [redacted] O. A.

"Ine Ventiletion - Donets Basin

Air conditioning installations in deep mines of the Donets basin. Ugol' no. 6, 315, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 ~~1952~~, Uncl.

KREMNEV, O.A., kand.tekhn.nauk

Methods for experimental determination of heat release from rocks in deep mines. Trudy Inst.tepl.AN URSR no.7:69-75 '52. (MIRA 13:5)

(Mine ventilation)
(Rocks--Thermal properties)

CHERNOBYL'SKIY, I.I., professor, doktor tekhnicheskikh nauk; KREMNEV, O.A., kandidat tekhnicheskikh nauk

Comparative analysis of air conditioning systems for deep coal mines. Trudy Inst. tepl. AN URSR no.8:101-119 '52. (MLRA 8:7)
(Mine ventilation)

KREMNEV, O.A., kandidat tekhnicheskikh nauk

Heat liberation in cooling ore masses in new mine workings. Trudy Inst. tepl. AN URSR no.8:120-131 '52. (MLRA 8:7)
(Mine ventilation) (Mining engineering)

KRUTKOV, G. A.

Thermodynamics

Variable thermal conductivity of hollow bodies bounded by a spherical cylindrical surface with a given law for its heat exchange with a cooling or heating medium. Dokl. AN SSSR 85 no. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 ~~1952~~, Uncl.

CHERNOBYL'SKIY, I.I., professor, doktor tekhnicheskikh nauk; KHEMNEV, O.A., kandidat tekhnicheskikh nauk.

Power indices of heat used in air conditioning. Trudy Inst.tepl. AN URSR no.9:18-34 '53. (MLRA 8:6)
(Air conditioning)

KREMNEV, O.A., kand.tekhn.nauk

Heat exchange between the ventilating flow and rocks in old mine workings. Trudy Inst.tepl.AN URSR no.10:32-40 '53. (MIRA 13:5)
(Mine ventilation)

CHERNOBYL'SKIY, I.I., professor; KREMNEV, O.A., kandidat tekhnicheskikh nauk; CHAVDAROV, A.S., inzhener.

Investigation of an experimental laboratory lithium-chloride unit for air conditioning by means of low-potential heat. Trudy Inst.tepl.URSR no.12:150-168 '55. (MIRA 9:7)

(Air conditioning) (Lithium chloride)

CHERNOBYL'SKIY, I.I., professor; KREMNEV, O.A., kandidat tekhnicheskikh nauk; CHAVDAROV, A.S., inzhener.

Investigating the operation of a heat-using unit for lowering the heat content of air by treating it with an aqueous solution of calcium chloride. Trudy Inst.topl.URSR no.12:169-181 '55. (MLRA 9:7)

(Air conditioning) (Calcium chloride)

CHERNOBYL'SKIY, I.I., doktor tekhnicheskikh nauk, professor; KREMNEV, O.A., kandidat tekhnicheskikh nauk; BOROVSKIY, A.L., inzhener; SATANOVSKIY, A.L., inzhener; TYUMENEV, Ya.K., inzhener.

Study of the raw silk drying process on cocoon reelers. Tekst.prom. 15 no.11:15-18 N '55. (MLRA 9:1)

(Silk manufacture)

KREMN'OV, O.O.

Rapid drying of raw silk thread in cocoon-winding units. Visnyk AN URSR 26 no.5:51-54 My '55. (MLRA 8:8)
(Silk manufacture)

SHCHERBAN',O.N., doktor tekhnicheskikh nauk; KREMN'OV,O.O.

Problems in estimating and regulating thermalconditions in the deep mines of the Donets Basin. Visnyk AN URSR 26 no.7:3-15 Jl'55.
(Donets Basin--Mine ventilation) (MLRA 8:10)

SHCHERBAN', A.N.; KREMNEV, O.A.; CHERNOBYL'SKIY, I.I.; UCHASTKIN, P.V.; TETERKNIKOV, V.N.; YAGEL'SKIY, A.N.; KUCHEROV, P.S., redaktor; TITKOV, B.S., redaktor izdatel'stva; ZHUKOVSKIY, A.D., tekhnicheskiy redaktor

[Cooling and drying of air in deep coal mines] Okhlazhdenie i osushenie vozdukha v glubokikh ugol'nykh shakhtakh. Pod obshchei red. A.N.Shcherbania i O.A.Kremneva. Kiev, Izd-vo Akademii nauk USSR, 1956. 271 p. (MLRA 9:12)

1. Chlen-korrespondent AN USSR (for Kucherov)
(Mine ventilation)

KREMNEV, O.A.

CHERNOBYL'SKIY, I.I.; KREMNEV, O.A.; DANILEVICH, N.N.

Investigation of a vacuum-water absorbtion lithium bromide installation for cooling water used in air conditioning. Trudy Inst.tepl.AN URSR no.13:123-134 '56. (MLRA 10:5)
(Air conditioning)

KRETSEV, O. A. (Cand. Tech. Sci.)

"Results of an Experimental Investigation of Heat and Mass Exchange in Models of Air and Water Coolers used in deep Mines."

report presented at sci. and tech. session on Heat Exchange during Change of Aggregate State of Matter (by Comm. on High Steam Conditions, Power Inst. AS USSR, and Inst. Thermal Engineering, AS UkrSSR), Kiev, 23-28 Sep 57.

Inst. of Thermal Engineering Acad. Sci. UkrSSR.

8(6) ? SOV/112-59-3-4544

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, pp 37-38 (USSR)

AUTHOR: Kremnev, O. A., and Balitskiy, S. A.

TITLE: Using the Power-House Extraction-Steam Heat for Household Refrigeration and Air Conditioning (Ispol'zovaniye otbornogo tepla TETs dlya bytovogo khladosnabzheniya i konditsionirovaniya vozdukha)

PERIODICAL: V sb.: Kompleksnoye energosnabzheniye gorodov. Minsk, 1957, pp 149-158

ABSTRACT: Development of city central heating presents problems of refrigeration and air conditioning based on the heat of water, which could result in fuel savings. Estimates performed for the medium zone of the USSR show that in the near future, the heat load for air conditioning can amount to 30-40% of the building-heating load. Data on heat consumption per unit of refrigeration for various outfits and heat sources is presented. Lithium-bromide absorption outfits, with direct absorption of air moisture by the solution, yield, with equal

Card 1/2

8(6) ?

SOV/112-59-3-4544

Using the Power-House Extraction-Steam Heat for Household Refrigeration . . . .

fuel consumption, 30% more refrigeration than ammonia absorption outfits, twice as much as compressor-type outfits, three times as much as freon steam-ejector outfits, and six times as much as water steam-ejector outfits. Their energy efficiency increases considerably if the industrial waste heat is used or when condenser-cooling water is used for hot-water supply. A basic diagram is presented of an absorption vacuum-water bromide- and lithium-chloride outfit for air conditioning. The coolant temperature involved is 60-95°C, the heat-utilization factor is 70-75%. Experimental models of such an outfit can be rationally constructed at power stations. Low-potential heat from power plants can also be used for refrigeration in household absorption-type refrigerators operating with lithium-bromide solution. A scheme of household refrigerator is presented which is more economical than compression types and much more economical than electrically-heated absorption outfits. Lithium-bromide and lithium-chloride outfits can be used also for utilizing waste heat by means of thermal pumps. Bibliography: 5 items.

Card 2/2

M.L.Z.

KREMNEV, O.A.; DYBAN, Ye.P.

Determination of flow temperature between heating and cooling surfaces [with summaries in Russian and English]. Dok. AN URSR no.3:269-272 '57. (MLRA 10:9)

1. Institut teployenergetiki Akademii nauk URSR. Predstavleno akademikom Akademii nauk USSR I.T.Shvetsom.
(Heat--Transmission)

KREMNEV, O. A.

AUTHOR: Kremnev, O.A. (Kremn'ov, O.O.) 21-6-11/22

TITLE: Analytical Formulas Describing Changes in the Parameters of the Air in Mine Drives Ventilated Less Than a Year (Analiticheskiye zavisimosti, opisyvayushchiye izmeneniya parametrov vozdukha v shtrekakh ventiliruyemykh do goda)

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi RSR, 1957, No 6, pp 580-583 (USSR)

ABSTRACT: The author has derived an equation describing the process of heat exchange and air parameters in mine drives ventilated less than one year. This equation describes heat exchange of the mine air with the rock massif, heating and cooling pipes, moisture and local sources of heat liberation. This equation may be used to determine the air parameters at the end of the mine drive or to determine the necessary (in order to ensure the prescribed air parameters) surface of the cooling pipes along the length of the mine workings.
The article contains 1 table and 2 Slavic references.

Card 1/2

21-6-11/22

Analytical Formulas Describing Changes in the Parameters of the Air in Mine Drives Ventilated Less Than a Year

ASSOCIATION: Institute of Thermal Power Engineering of the AN Ukrainian SSR (Instytut teploenerhetyky AN URSR)

PRESENTED: By A.N. (O.N.) Shcherban', Member of the AN Ukrainian SSR

SUBMITTED: 6 July 1957

AVAILABLE: Library of Congress

Card 2/2

KREMNEV, Oleg Aleksandrovich; SATANOVSKIY, Abram Lazarevich; CHERNOBYL'SKIY, I.I., doktor tekhn.nauk, otv.red.; ZIL'BAH, M.S., red.izd-va; TURCHISHIN, V.I., tekhn.red.

[Air conditioning of crane cabins in hot-working shops; combination air-water evaporative units] Konditsionirovanie vozdukha v kabinakh kranov goriachikh tsekhov; vozdushno-vodoisparitel'nye ustanovki. Kiev, Izd-vo Akad.nauk USSR, 1958. 58 p. (MIRA 12:3)
(Air conditioning--Equipment and supplies)
(Cranes, derricks, etc.--Equipment and supplies)

CHERNOBYL'SKIY, Iosif Il'ich; KREMNEV, Oleg Aleksandrovich; CHAVDAROV, Aleksandr Savvich; PYATYSHKIN, N.M., kand.tekhn.nauk, otv. red.; FEMENNIK, T.K., red.izd-va; SIVACHENKO, Ye.K., tekhn.red.

[Heat operated air conditioning equipment] Teploispol'zuiushchie ustanovki dlia konditsionirovaniia vozdukha. Kiev, Izd-vo Akad. nauk USSR, 1958. 267 p. (MIRA 11:12)
(Air conditioning--Equipment and supplies)

AUTHOR: Kremnev, O.A. (Kremn'ov, O. O.) 21-1-10/26

TITLE: Polytropic Compression of Air Humidified in Mine Shafts (Politropicheskoye szhatiye vozdukha pri yego uvlazhnenii v shakhtnykh stvolakh)

PERIODICAL: Dopovidi Akademii Nauk Ukrains'koi RSR, 1958, # 1, pp 45-48 (USSR)

ABSTRACT: As was established by the research of Shcherban' [Ref. 1] and Voropayev [Ref. 2], the air supplying mine shafts undergo compression upon being humidified; this and its expansion during the condensation of moisture in the air exhausting shafts are very important processes affecting the air parameters. Up to recently, the process of compression and humidification of the air was considered as an algebraic sum of the two processes: an adiabatic compression which causes the rise of air temperature and an adiabatic humidification which reduces its temperature due to heat losses on moisture evaporation. The author considers such a division of these processes as conditional, whereas a single process of polytropic compression of the air is what really occurs.

The author then derives a differential equation, which expresses an analytical dependence describing the process of

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polytropic air compression on its humidification in the mine shafts, and solves this equation in general terms.
The article contains 1 table and 3 Russian references.

ASSOCIATION: Institute of Thermal Power Engineering (Instytut teploenerhetyky AN URSR) of the Ukrainian Academy of Sciences

PRESENTED: By Academician of the Ukrainian Academy of Sciences A.N. Shcherban' (Ukrainian spelling: O.N.)

SUBMITTED: 6 July 1957

AVAILABLE: Library of Congress

Card 2/2 1. Air-Mathematical analysis

AUTHOR: Kremnev, O.A. SOV/21-58-2-18/28

TITLE: Heat Exchange in Stopes of Deep Mines (Teploobmen v lavakh glubokikh shakht)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 2, pp 193-196 (USSR)

ABSTRACT: The author's observations have shown that the temperature of stope backs considerably differed from the temperature of uncooled mine rocks. On the basis of experimental investigations and his own theoretical research [Ref. 5] the author established that the heat exchange coefficient in stopes was non-stationary and had a value considerably lower than the value of the heat emission coefficient. He considers in the present paper the peculiarities of changes in the air parameters in stopes which were caused by unstationary heat exchange between the air and the rocks and by the evaporation of water from the mined coal which intensifies its cooling. The author derives analytical expressions which can be used to compute the air temperature along the length of the stope, the surface area of the cooling tubes necessary for the cooling, the length of the stopes or the amount of air which can secure the given temperature limits in the stopes.

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Heat Exchange in the Stopes of Deep Mines SOV/21-58-2-18/20

There are 6 references, 5 of which are Soviet and 1 French.

ASSOCIATION: Institut teploenergetiki AN UkrSSR (Institute of Thermal Power Engineering of the AS UkrSSR)

PRESENTED: By Member of the AS UkrSSR, A.N. Shcherban'

SUBMITTED: July 6, 1957

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

Card 2/2

SOV/81-59-16-57334

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, pp 247-248

AUTHORS: Kremnev, O.A., Semilet, Z.V.

TITLE: The Investigation of the Heat- and Mass-Transfer in the Model of a Fan-Type Grid Water Cooler

PERIODICAL: Sb. tr. In-ta teploenerg. AN UkrSSR, 1958, Nr 14, pp 49-59

ABSTRACT: The heat- and mass-transfer has been investigated in a horizontal refrigerator with a chessboard-type arrangement of triangular grids through which air is blown lengthwise. The refrigerator was a chamber of rectangular cross section 500 x 600 mm and 1,700 mm long in which 4 rows of horizontal wooden bars are placed of triangular cross section with a side of 70 mm; the distance between the bars in the row is 140 mm and between the rows 100 mm. The water with a temperature of 30 - 50°C entered from above from a distributor, the openings in which were placed over the bars of the upper row and the air with a temperature of 17 - 30°C and a relative humidity of 50 - 100% was blown along the bars by a fan, interacting with the water flowing down. The degree of irrigation in the experiments changes in the range 0.5 - 2.5 kg water per 1 kg air. The resistance of the refrigerator at an air speed W = 2.6 m/sec was ~0.7 mm water

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The Investigation of the Heat- and Mass-Transfer in the Model of a Fan-Type Grid Water Cooler

column (in the conducted experiments W = 1.2 - 2.6 m/sec). The general conditional volume coefficient of heat transfer referring to the difference of the partial pressures of water steam over the surface of water and in air $K_{\Delta p}$ (kcal/m^{3}hr mm mercury column) is expressed by the empiric equation: $K_{\Delta p} = 600\ W^{0.85}\ \rho^{0.45}$; its values amounted to $K_{\Delta p}$ = 434 - 1,902. The coefficient of mass-transfer from the water to the air, which is expressed by the latent heat of vapor formation in heat units, β (kcal/m^3 hour mm mercury column) is determined by the empiric equation: $\beta = 540\ W^{0.85}\ \rho^{0.45}$. The deviations of the experimental data from the cited equations is in the range of 20%.

Yu. Petrovskiy.

KREMNEV, O.A.; GUK, T.N.

Investigating a model of a mine air conditioner using jet-spraying for the cooling agent. Trudy Inst. tepl. AN URSR no.14: 60-72 '58. (MIRA 12:4)
(Mine ventilation) (Air conditioning)

SHCHERBAN', A.N., akademik; BARATOV, E.I., kand.tekhn.nauk; KREMNEV, O.A., kand.tekhn.nauk

Problems of temperature control in deep Donets Basin mines. Ugol' Ukr. 2 no.10:33-38 O '58. (MIRA 12:1)

1. Institut teploenergetiki AN USSR. 2. AN USSR (for Shcherban').
(Donets Basin--Coal mines and mining--Air conditioning)

KREMNEV, O.O. [Kremn'ov, O.O.], kand.tekhn.nauk; BOROVSKIY, V.P. [Borovs'kyi, V.P.], kand.tekhn.nauk; YEDZHUBOV, O.A. [IEdzhubov, O.A.], kand.tekhn. nauk.

Rapid drying of textiles. Visnyk AN URSR 2 no.7:47-50 Je '58. (MIRA 11:9)

(Textile fabrics--Drying)

KREMNEV, O.A., BOBROVSKIY, B.R., DOLINSKIY, A.A., ZHELOBENKO, V.A.

Spray method for drying streptomycin. Med.prom. 12 no.10:27-33 O '58 (MIRA 11:11)

1. Institut teploenergetiki AN USSR i Kiyevskiy zavod meditsinskikh preparatov.
(STREPTOMYCIN--DRYING)

KREMIEV, O.A.; BOROVSKIY, V.R.; YEDZHUBOV, A.A.

Rapid contact drying of fabric. Tekst. prom. 18 no. 7:42-44 Jl '58.
(MIRA 11:7)

(Silk--Drying)

SHCHERBAN', Aleksandr Nazar'yevich, akademik; KREMNEV, Oleg Aleksandrovich, kand.tekhn.nauk; TITOVA, N.M., red.izd-va; KADASHEVICH, O.A., tekhn.red.

[Scientific bases for the calculation and regulation of thermal conditions in deep mines] Nauchnye osnovy rascheta i reguliro-vaniia teplovogo rezhima glubokikh shakht; v dvukh tomakh. Kiev, Izd-vo Akad.nauk USSR. Vol.1. [Scientific bases for the calcu-lation of thermal conditions in deep mines] Nauchnye osnovy teplo-vogo rascheta glubokikh shakht. 1959. 427 p. (MIRA 13:3)

1. AN USSR; zaveduyushchiy laboratoriyey gornoy teplotekhniki Instituta teploynergetiki AN USSR (for Shcherban'). 2. Zaveduyu-shchiy laboratoriyey teploobmena Instituta teploenergetiki AN USSR (for Kremnev).
(Mine ventilation) (Heat--Transmission)

137-59-3-30/32

AUTHORS: Kremnev, O.A. and Satanovskiy, A.L.

TITLE: Cooling of Cabins of Cranes Operating in Hot Workshops (Okhlazhdeniye kabin kranov goryachikh tsekhov)

PERIODICAL: Stal', 1959, Nr 3, pp 282 - 285 (USSR)

ABSTRACT: Findings of the Kiyev Institute of Labor Hygiene and Occupational Diseases on the operating conditions of cranes servicing soakers and melting shops is briefly outlined. To improve the working conditions of crane drivers the Institute of Heat and Power of the Ac.Sc. Ukrainian SSR, in co-operation with the above mentioned institute, designed a system for cooling and air-conditioning crane cabins based on the air-water evaporating principle. The operation of the system was investigated by the authors under works conditions. In the air-water evaporation cooling system, the heat is removed from heated surfaces with air containing finely sprayed water. This system is more efficient than air cooling due to a decrease in the temperature of air supplied for cooling during its humidification in the spraying chamber, an increase in the heat-transfer coefficient due to an additional removal of heat by mass transfer and radiation as well as due to the prevention of a noticeable heating up

Cooling of Cabins of Cranes Operating in Hot Workshops

of the cooling air, as the main part of the heat removed is consumed for the evaporation of the moisture suspended in it. The installation for the cooling of crane cabins was designed in two modifications with a supplementary refrigerating machine (Figure 1) and without the latter machine (Figure 2). The results of testing temperature conditions during operation over soaking pits of the crane cabins fitted with the above two types of air conditioning and cooling equipment are given in the text in the form of tables. The results obtained were satisfactory.
There are 2 figures.

ASSOCIATION: Institut teploenergetiki AN USSR (Institute of Power Engineering of the Ac.Sc.Ukrainian SSR)

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66690
SOV/21-59-12-5/20

AUTHORS: Kremn'oy, O.O. and Dukhnenko, M.T.

TITLE: Heat Losses in Small Cylindrical Bodies in a Transverse Air Flow

PERIODICAL: Dopovidi Akademiyi nauk Ukrayins'koyi RSR, 1959, Nr 12, pp 1316-1321 (USSR)

ABSTRACT: This is an account of a study of heat transfer in single copper wires and in packets of wires in a transverse air current. The high coefficients of heat transfer in single thin wires and in packets of such wires, obtained by the authors confirm the possibility of a considerable intensification of heat transfer in revolving regenerators and other industrial heat transfer equipment, by means of superimposing a layer of thin wires upon their ribbed surfaces. At a tenfold reduction of wire diameter (from 1.0 to 0.1 mm) the heat transfer coefficient increased more than 10 times, which is assumed to the result of an additional effect of a drop in the thermal resistance of the boundary layer of a cylindrical form. The magnitude of this effect declined with an increase of wire

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diameter. The heat transfer coefficient of a packet of wires was found to be 25% lesser than that of single wires of equal diameter. Dependence of the heat transfer coefficient upon wire diameter and air flow velocity is shown in Figure 2. The boundary layer was determined by the formula

$$\delta = \frac{d}{cRe^{n}} .$$

Experiments were conducted in a special experimental stand shown in Figure 1, which included a non-return flow wind tunnel 200x50 mm. Copper wires used in experiments included insulated 0.02, 0.05, 0.1, 0.115 mm wires and bare 0.2, 0.5 and 1.0 mm wires. Wire packets were made of 0.115 mm wires: one package consisted of 90 corridor rows of wire in depth and 19 rows in width, with spacing between rows in depth being 1.0 mm and in width 1.75 mm; the other package

Heat Losses in Small Cylindrical Bodies in a Transverse Air Flow

consisted of 42 wire rows in depth and 100 rows in width, with a spacing being 0.5 mm. Wires were heated with the direct current. Air flow velocity was measured by a Prandtl tube and an "Askaniya" micromanometer. Results were processed by a method of smallest squares described by A. Worsing and Dzh. Heffner [Ref 4]. A maximum specific error in experiments with single wires made up 6.6%, with packets 8.2%. Temperature of air current used in experiments with single wires was changed from 14.6 to 26.1° C, velocity of air current was changed from 4.8 to 26.4 m/sec. Temperature of single wires was changed from 22.8 to 112.4° C. Temperature of air current applied to wire packets was changed from 20.3 to 23.4° C; velocity of air current was changed from 3.47 to 20.5 m/sec; temperature of packets was changed from 32.2 to 83.5° C. There are 1 diagram, 3 graphs, 2 tables and 6 references, 4 of which are Soviet, 1 German and 4

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SOV/21-59-12-5/20

Heat Losses in Small Cylindrical Bodies in a Transverse Air Flow

1 English.

ASSOCIATION: Instytut teploenerhetyky AN URSR (Institute of Thermal Power Engineering of the AS UkrSSR)

PRESENTED: By I.T. Shvets', Member, AS UkrSSR

SUBMITTED: April 29, 1959

Card 4/4

KREMNEV, O.A.; BOROVSKIY, V.R.; KOROSTASH, M.D.

Ways to accelerate the cocoon drying process. Tekst.prom. 19 no.10:25-29 O '59. (MIRA 13:1)
(Silk manufacture)

KREMNEV, O.O. [Kremn'ov, O.O.]; BOROVSKIY, V.R. [Borovs'kyi, V.R.]; DOLINSKIY, A.A. [Dolyns'kyi, A.A.]

Evaporation and drying of a streptomycin solution by the spray method. Visnyk AN URSR 30 no.1:51-54 Ja '59. (MIRA 12:4)
(Streptomycin--Drying)

KREMNEV, O. A., Doc Tech Sci (diss) -- "Theoretical and experimental principles of the thermal computation of deep shafts and of equipment for cooling ore-mine air". Leningrad, 1960. 38 pp (Leningrad Mining Inst), 200 copies (KL, No 11, 1960, 131)

KREMNEV, O. A.

PHASE I BOOK EXPLOITATION SOV/5482

Shcherban', Aleksandr Nazar'yevich, Oleg Aleksandrovich Kremnev, and Nina Mikhaylovna Titova

Svoystva vlazhnogo vozdukha pri davleniyakh 500-1000 mm rt. st.; tablitsy i diagrammy (Properties of Moist Air With Pressure of 500-1000 mm Hg; Tables and Diagrams) Moscow, Gosgortekhizdat, 1960. 131 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: I. V. Khodneva; Tech. Ed.: Z. A. Boldyreva.

PURPOSE : This manual is intended for the designers of all types of ventilation and air-conditioning equipment used in various branches of the national economy, and may be helpful to technical personnel concerned with fire prevention in mines.

COVERAGE: The manual contains detailed tables and diagrams of moist air within wide limits of variation of pressure (500 to 1000 millimeters Hg), temperature (-30° to +60°C), and relative humidity (0 to 100%). On the basis of these tables it is

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possible to determine moist air parameters and the processes of their variation. These data are necessary for the rational designing of ventilation and air-conditioning equipment. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

SHCHERBAN', Aleksandr Nazar'yevich; KREMNEV, Oleg Aleksandrovich; ZHURAVLENKO, Viktor Yakovlevich; CHERNOBYL'SKIY, I.I., otv.red.; RATNIKOVA, A.P., red.izd-va; BERESLAVSKAYA, L., tekhn.red.; SHKLYAR, S.Ya., tekhn.red.

[Handbook for calculating mine heat and designing air-conditioning equipment] Spravochnoe rukovodstvo po teplovym raschetam shakht i proektirovaniiu ustanovok dlia okhlazhdeniia rudnichnogo vozdukha. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 407 p. (MIRA 14:4)

(Mine ventilation)

SHCHERBAN', Aleksandr Nazar'yevich; KREMNEV, Oleg Aleksandrovich; TITOVA, N.M., red.izd-va; ROZENTSVEYG, Ye.N., tekhn.red.

[Scientific basis for the calculation and control of thermal conditions in deep mines] Nauchnye osnovy rascheta i reguliro-vaniia teplovogo reshima glubokikh shakht. Kiev, Izd-vo Akad. nauk USSR. Vol.2. 1960. 346 p. (MIRA 13:8)
(Mine ventilation)
(Mines and mineral resources--Air conditioning)

26449
S/021/60/000/004/006/010
D232/D305

24.5200

AUTHORS: Kremn'ov, O.O., and Borovskyy, V.R.

TITLE: Heat loss of cylindrical bodies of small dimensions placed longitudinally in a stream of air

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 4, 1960, 482 - 486

TEXT: The authors investigated the heat loss of copper wires with diameters: 0.02 mm, 0.05 mm, 0.1 mm, 0.2 mm. The wires were placed in a wind-tunnel made of glass, (diameter - 25 mm, length - 2.8 m) along its axis. The wires were used as resistance thermometers at the same time. They were heated by direct current. Voltage drop in the experimental range was measured with the aid of branches connected with a potentiometer. Temperatures at the beginning and the end of experimental range were measured by thermo-couples, the velocity of air by a Prandtl tube connected with a micromanometer. Temperature of airstream varied between 14.5 and 18.5°C, that of

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Heat loss of cylindrical bodies ...

wires between 32 and 158°C and the velocity of stream between 5.5 and 23 m/sec. the dependence of the heat loss coefficient α on the velocity of stream W and the wire diameter d is given in tabulated form. Investigations by other authors also show that heat loss increases considerably when the diameter of a cylindrical body diminishes. Heat exchange near the surface of the wire is due to heat conduction through the boundary layer. The heat flow through a cylindrical layer of thickness δ will be

$$q = \frac{2\lambda \Delta t}{d_{dr} \ln(1 + \frac{2\delta}{d_{dr}})}. \qquad (1)$$

λ being the coefficient of heat conduction, kcal/m.h.°C, t the difference of temperatures between the external and the internal diameter of the layer, °C, d_{dr} the internal diameter of the cylindrical body; in the present case it is equal to the internal diameter of the layer or to the diameter of the wire, m. It is easy to

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prove (by determining the limit of (1)) that the coefficient of heat loss tends to infinity if the diameter of the cylinder tends to 0. The heat loss of a cylinder in a ring-shaped canal with circular cross-section is described by the well known equation

$$Nu_e = [illegible]e_e^n. \qquad (3)$$

[Abstractor's note: c not defined]. The author obtain from (3)

$$Nu_e = \frac{\alpha \cdot d_{tr}}{\lambda} = \frac{d_{tr}}{d_{dr}} \cdot \frac{2}{\ln(1 + \frac{d_{tr}}{d_{dr}} \cdot \frac{2}{cRe^n})} = f(Re, \frac{d_{tr}}{d_{dr}}). \qquad (6)$$

(d_{tr} is the diameter of the wind tunnel, d_{dr} that of the wire). Since the intensity of heat exchange depends both on the Reynolds number and the ratio d_{tr}/d_{dr}, the interpretation of the results was made according to (6). The results are shown graphically. The

Heat loss of cylindrical bodies ...

experimental points are situated on parallel straight lines; they are described by

$$Nu = 0.2Re^{0.35} \left(\frac{d_{tr}}{d_{dr}}\right)^{0.75}. \qquad (7)$$

The determining dimension in (7) is $d_e - d_{tr}$. To analyze the influence of the ratio d_{tr}/d_{dr} on the heat loss in case of such choice, one has to substitute the values of Nu and Re in (7) and multiply both sides by d_{dr}

$$\frac{\alpha \cdot d_{dr}}{\lambda} = \frac{d_{tr}^{0.35} \cdot d_{dr}^{1-0.35} \cdot d_{tr}^{0.75}}{d_{tr} \cdot d_{dr}^{0.75}} \left(\frac{W \cdot d_{dr}}{\nu}\right)^{0.35} \qquad (8)$$

from which

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Heat loss of cylindrical bodies ...

$$Nu_{dr} = cRe_{dr}^{0.35} \cdot \frac{d_{tr}^{0.35+0.75-1}}{d_{dr}^{0.35+0.75-1}} = cRe^{0.35} \left(\frac{d_{tr}}{d_{dr}}\right)^{0.1}. \quad (9)$$

The exponent of the ratio is very small and therefore, if the latter has small variation, one can ignore its influence and treat the results according to the form Nu = f(Re). For d_{tr}/d_{dr} = 125--1250

$$Nu = 0.4Re^{0.3}, \quad (10)$$

with possible error up to 15 %. There are 1 table, 3 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: W.H. McAdams, Heat Transmission, New York-London, 1954.

ASSOCIATION: Instytut teploenerhetyky AN URSR (Institute of Heat-Power Engineering AS UkrSSR)

PRESENTED: Academician AS UkrSSR, I.T. Shvets
SUBMITTED: September 22, 1959

Card 5/5

ID 3500
18.8100

27057
S/021/60/000/005/013/015
D210/D304

AUTHORS: Kremn'ov, O.O., Dukhnenko, M.T.

TITLE: Heat loss of thin strips of small dimensions in a transverse air stream

PERIODICAL: Akademiya nauk ukrayins'koyi RSR. Dopovidi, no. 5, 1960, 642-645

TEXT: Since the boundary layer becomes larger when the length of the strip in the direction of air stream increases, the process of heat exchange can be intensified by diminishing the width of the strip. To study the heat loss of such strips, the authors investigated strips of beryllium bronze 0.1 mm thick: 0.52, 2.0, 5.0 and 10 mm wide, without slits and strips 0.1 mm thick and 10 mm wide with slits of 1, 2, 3 mm. Maximum relative error was 6.5%. The temperature of streaming air was varied between 18.1 and 25.9° C, that of strip between 23.2 and 116.0° C, the velocity of air stream between 4.8 and 27.0 m/sec. The dependence of the coefficient of heat loss on the velocity of air

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stream is shown in Table 1. The graph of the function Nu = f(Re) in logarithmic coordinates according to the experimental data agrees with the equation $Nu = 0.42\ Re^{0.55}$ when the Reynolds number varies between 150 and 10,000. To determine optimum distance between strips in heat exchange, experiments on strips with slits were carried out, with temperature of air stream between 17.5 and 19.9° C, that of strip between 27.7 and 114.2° C and the velocity of air stream between 5.14 and 27.8 m/sec. The dependence of the coefficient of heat loss on velocity of air stream is shown in Table 2, according to which the coefficient of heat loss of strips with slit exceeds that of strips without slit by more than 50% but change of dimensions of slits between 1 and 3 mm does not affect the coefficient practically. There are 3 figures, 2 tables and 1 Soviet-bloc reference.

ASSOCIATION: Instytut teploenerhetyky AN URSR (Institute of Heat Power Engineering AS UkrSSR)

SHCHERBAN', A.N. [Shcherban', O.N.], akademik; KREMNEV, O.A. [Kremn'ov, O.O.]; KOZLOV, Ye.M. [Kozlov, IE.M.]; SHELIMANOV, V.A. [Shelimanov, V.O.]

Principles for calculating the temperature and relative humidity of air in mines. Dop.AN URSR no.11:1527-1529 '60. (MIRA 13:11)

1. Institut teploenergetiki AN USSR. 2. AN USSR (for Shcherban').
(Mine ventilation)

KREMNEV, O.A.; kand.tekhn.nauk; BOROVSKIY, V.R., inzh.; PIYKVSKIY, I.M. inzh.

Intensification of drying processes of sheet-type gypsum building materials. Stroi. mat. 6 no.7:13-16 Jl '60. (MIRA13:7)

(Plaster board--Drying)

KREMNEV, O.K.; BOROVSKIY, V.R.; DOLINSKIY, A.A.

Two-stage air evaporating-drying method of streptomycin dehydration. Med.prom. 14 no.1:35-40 Ja '60. (MIRA 13:5)

1. Institut energotekhniki AN USSR i Kiyevskiy zavod meditsinskikh preparatov.

(STREPTOMYCIN--DRYING)

KREMENEV, O A. [Kremn'ov, O.O.]

Similitude and the fundamentals of the simulation of heat-exchange processes in mines. Zbir.prats' Inst. tepl.AN URSR no.18:68-75 '60. (MIRA 14:12)

(Engineering models)
(Mining engineering)
(Heat transmission)

KREMNEV, O.A. [Kremn'ov, O.O.]

Nonstationary heat conductivity in rocks in blind workings.
Zbir.prats' Inst. tepl.AN URSR no.18:76-84 '60.
(MIRA 14:12)

(Heat--Conduction)
(Mine ventilation)

KREMNEV, O. A., and BOROVSKIY, V. P.

"Investigation and Knowledge of the Intensification of Drying Processes and Heat Stabilization of Fine Natural and Synthetic Fibres."

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

KREMNEV, O.A.

"Some Urgent Problems and the Results of Investigations carried out by the Heat Transfer Department of the Heat Power Institute of the Academy of Science of the Ukrainian S. S. R. in the Field of Intensification of Heat and Mass Transfer."

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

KREMNEV, O. A., BOROVSKIY, V. P., and PIYVSKIY, I. M.

"Investigation and Knowledge of Intensification of Drying Process of Gypsum Blocks and Planks."

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

KREMNEV, O. A., and SHCHERBAN', A. N.

"Non-stationary Heat Conductivity of Rocky Massivey and Analytical Methods of Heat Calculations of Shafts."

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

KREMNEV, O. A., BOROVSKIY, V. P., and DOLINSKIY, A. A.

"Spray Transpiration Drying Method of Dehydration of Materials with High Mositure Content and the Results.

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

PHASE I BOOK EXPLOITATION SOV/5805

Kremnev, Oleg Aleksandrovich, and Abram Lazarevich Satanovskiy

Vozdushno-vodoisparitel'noye okhlazhdeniye oborudovaniya (Air and Water-Evaporative Equipment Cooling) Moscow, Mashgiz, 1961. 179 p. Errata slip inserted. 6000 copies printed.

Reviewer: P. I. Lavrov, Candidate of Technical Sciences; Ed.: L. G. Chistyakova, Engineer; Tech. Ed.: M. S. Gornostaypol'skaya; Chief Ed.: Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

PURPOSE: This book is intended for engineering and technical workers in various branches of industry.

COVERAGE: The advantages of air and water-evaporative cooling of various kinds of power and industrial equipment are discussed. Attention is given to modern types of air and water-evaporative cooling systems, their special features, and possibilities for their application in various branches of

Card [redacted]

industry. Descriptions of cooling processes and experimental data necessary for computing and designing these cooling systems are included. No personalities are mentioned. There are 42 references: 38 Soviet and 4 English.

TABLE OF CONTENTS:

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TITLE: Tubular Surfaces with Longitudinal Ribbing for Regenerators and Water Heaters of Gas-turbine Sets

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TEXT: For gas-turbine regenerators, smooth-tubed heat exchangers have two important disadvantages: the entire heat-exchange surface is mechanically loaded, and there is no way of compensating for the different rates of heat transfer from the inner and outer surfaces. Accordingly, except under the most favourable conditions, smooth-tubed heat exchangers are heavy and cumbersome. The tubes need ribbing, particularly on the gas side, to increase the rate of heat transfer where it is least.
The Institut teploenergetiki AN UKrSSR (Institute of Thermal Power of the AS Ukrainian SSR) selected tubes with longitudinal ribbing for heat exchangers in power gas-turbine sets. The heat-transfer media, air on the inside and gas on the outside

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are arranged to flow counter to one another so as to make the best use of the temperature difference between them. The longitudinal ribbing increases the rigidity of the tubes and makes them stronger, so that with relatively small increase in resistance a heat-exchanger can be constructed for higher gas speeds. The ribbing is not particularly subject to contamination and is convenient for cleaning.
Accordingly, the Khar'kov Turbine Works was recommended to use such tubes for their regenerator for gas turbine type 50-800. By agreement with the works, the Institute of Thermal Power of the AS Ukrainian SSR made investigations of the heat transfer and resistance of longitudinally-ribbed tubes of 16 mm diameter, with ribs 12 mm high, convenient for use in the regenerator. The object of the investigation was to obtain more accurate design formulae on heat transfer and hydraulic resistance of ribbed tubes with various numbers of ribs round the tube perimeter.

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Simultaneously, the Institut elektrosvarki imeni Ye.O.Patona AN UkrSSR (Electric Welding Institute imeni Ye.O. Paton of the AS Ukrainian SSR) developed automatic equipment for manufacturing longitudinally-ribbed tubes by welding the ribs to the plain tubes. Aluminium tubes may be made by pressing or drawing from molten metal.
Heat-transfer investigations for a single ribbed tube were made in an open-circuit wind tunnel of cylindrical shape, a sketch of which is given in Fig. 2.
In the test rig the tube consisted of measuring, stabilising, experimental and tail-end sections. Compressed air was obtained from a compressor and could be passed at rates from 5 to 30 m/sec. The seamless tubes and ribs were made of steel, grade 20. The tubes were electrically heated and the power input measured. The instrumentation and experimental procedures are described. The accuracy of the experiments depends very much on the correct measurement of the mean

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temperature of the tube surface and so particular attention must be paid to this point. An assessment of the accuracy of determination of the heat-transfer coefficient including heat lost by radiation showed that the maximum relative error is 8-10%.
Heat-transfer coefficients were determined and for comparison and generalisation the results were expressed as relationships between the Nusselt and Reynolds criteria, the resistance being also plotted as a function of the Reynolds number. The tube dimensions are tabulated. The tests were made with air-flow rates of 7 - 26 m/sec, which corresponds to Reynolds number range of 3 000 to 20 000 with a temperature difference of 30 - 75 °C and with the specific thermal loading in the range 11 000 to 36 000 kcal/m² hour.
Experimental heat transfer results are plotted in Figs. 3 and 4 and it will be seen that the points tend to lie higher

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as the ratio of length to equivalent diameter is decreased. For all tubes investigated the heat-transfer results are satisfactorily described by expression (1).
Resistance tests were made under isothermal conditions. The test results plotted in Fig. 5 show that within the limits of experimental error the resistance follows the usual relationship for smooth tubes given by expression (3). Comparison between ribbed and smooth tubes shows that the ribbed tubes have considerable advantages in weight, volume and heat-transfer characteristics. This is particularly noticeable when the thermal resistance of the heat-transfer medium flowing within the tube is small compared with the resistance to gas flowing over the outside of the ribbed surface. Comparative data were obtained by building up bundles of tubes, some smooth with longitudinal gas flow, others smooth with cross-flow of gas, and longitudinally-ribbed tubes with gas flowing along the ribbing. In each case the bundles were made

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equal in volume and in active section for passage of gas. The comparison is made in Fig. 6 and considering as unity the heat-transfer coefficient of smooth tubes with longitudinal flow, smooth tubes with a cross-flow have a coefficient of 1.2 and the longitudinally-ribbed tubes have a coefficient of 2.2. In gas-turbine regenerators the longitudinally-ribbed tubes will not give all of this improvement but the reduction is less when the heat-transfer coefficient from the air side is high. Thus, even with the present simple form of ribbing on the gas side it is necessary to intensify the heat-transfer process on the air side. A simple way is to raise the air speed by reducing the active section of the tube with light inserts. Internal ribbing could be used but would be rather difficult to make. Thus the use of tubes with longitudinal ribbing has improved the process of heat exchange. The use of these tubes for gas-turbine regenerators with high compression ratios and for gas water heaters makes it possible to preserve the

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advantages of the tubular construction. At the same time, the amount of metal used in manufacturing heat-exchangers, their size and the consumption of seamless tubes are all reduced. Acknowledgment is made to senior technician V.I. Kosov for his assistance in the experimental work.
There are 6 figures, 2 tables and 2 Soviet references.

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