

30528

Rational fineness ratios for the ...

S/535/61/000/138/003/008
E031/E17?

of the empennage, are constant for all take-off weights. An equation for determining a rational fineness ratio is obtained by differentiating the product of the cargo weight and cruising speed of the aircraft, depending on fuselage, undercarriage, nacelle and wing drag. Equations for the parameters occurring in the equation as functions of the fineness ratio are also quoted. In conclusion, it is stated that the aerodynamics of the fuselage have, in general, little effect on a rational fineness ratio, which is mainly governed by the weight of the fuselage and tail unit; these details may be used to approximately determine the rational fineness ratio. Calculations show that the weight and dimensions of the tailplane, and total aerodynamic drag, lead to an increase in the rational fineness ratio of the fuselage. It is deduced that the rational fineness ratio of an airliner of more than 25-30 tons weight has to be not less than ten. There are 6 figures, 1 table and 1 Soviet-bloc reference.

Card 2/2

Badyagin, A. A.

AID Nr. 967-11 15 May

MAXIMUM LIFT-DRAG RATIO OF AN AIRCRAFT (USSR)

Badyagin, A. A. Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya
tekhnika, no. 1, 1963, 3-9, S/147/63/000/001/001/020

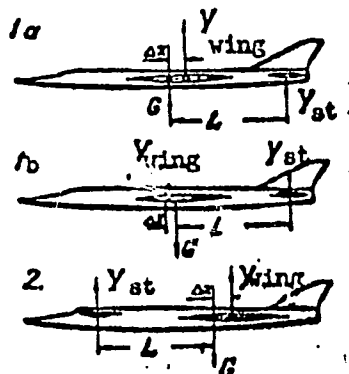
Effect of balancing (static stability) on the lift-drag ratio of a conventional and
a "canard" type supersonic aircraft (see illustration) is investigated. The air-
craft is considered to be in steady horizontal

Card 1/2

AID Nr 967-11 15 May

MAXIMUM LIFT-DRAG RATIO [Cont'd]

S/147/63/000/001/001/020



Schematic drawing of aircraft balance. 1a, 1b - conventional; 2 - "canard" type

flight. The effect of the fuselage and engines on static stability is neglected. The lift coefficients of the wings and of the tailplane are assumed to be equal. Expressions for $K_{\max}$ (ratio of maximum value of lift:drag ratio K at any value of m_2^{cy} to $K_{\max}$ at $m_2^{cy} = 0$) at $M > 1$ are established, where m_2^{cy} is a degree of longitudinal static stability with respect to load factor. Curves of $K_{\max}$ calculated using these expressions are plotted for conventional, flying-wing, and canard types. Comparisons of m_2^{cy} variation with M for different aircraft types are presented in graphs and discussed. Some means are indicated for reducing the undesirable high degree of stability of the conventional type at g load. Variation of $K_{\max}$ with L_{go} (where L_{go} is the distance between center of gravity and center of pressure of a tailplane or elevons) is

presented graphically for all three types. A simplified empirical formula for $K_{\max}$ is derived by approximating the expressions obtained previously. [ANB]

Card 2/2

BADYAGIN, Aleksandr Alekseyevich; OVRUTSKIY, Yefim Abramovich;
TOLSTYKH, I.P., kand. tekhn. nauk, retsenzent; PLAKSON,
V.A., kand. tekhn. nauk, red.; BOGOMOLOVA, M.F., red.

[Design of passenger airplanes taking into consideration
the economic aspects of their operation] Proektirovaniye pas-
sazhirsikh samoletov s uchetom ekonomiki ekspluatatsii.
Moskva, Mashinostroenie, 1964. 294 p. (MIRA 17:7)

L 31804-65 EWT(d)/EWT(m)/EWP(w)/FA/EWP(v)/T-2/EWP(k)/EWP(h)/EWA(h) Pf-1/Feb EM
ACCESSION NR AM4047291 BOOK EXPLOITATION S/

Badyagin, Aleksandr Alekseyevich; Ovrutskiy, Yefim Abramovich 29
841

Designing passenger planes with consideration of economic exploitation
(Proyektirovaniye passazhirskikh samoletov s uchetom ekonomiki eksploatatsii),
Moscow, Izd-vo "Mashinostroyeniye", 1964, 294 p. illus., bibliog. Errata
slip inserted. 2,400 copies printed.

TOPIC TAGS: passenger aircraft design, aircraft performance, aircraft engine

PURPOSE AND COVERAGE: This book is devoted to the methods of technical-economic evaluation of passenger aircraft and aircraft design considering transportation costs (estimates of aircraft design, selection of basic wing, fuselage, and landing gear parameters, and selection of the type and number of engines). The economic effectiveness of improvements in aircraft and engine design is taken into account. Certain chapters of the book are devoted to the method of selecting the best combination of altitude and speed in relation to range and to determining the effect of takeoff-landing characteristics on aircraft economy. The book is intended for engineers and technicians of the aviation industry and the Civil Air Fleet. It can also be used by students and teachers of aviation higher educational institutions.

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ACCESSION NR AM4047291

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Ch. II. Problems in the design of passenger aircraft -- 97

Ch. III. Altitude and speed as a function of range -- 179

Ch. IIII. Takeoff-landing characteristics and cost of operation of passenger aircraft -- 207

Ch. V. Economic effectiveness of improvements in the technical indicators of aircraft and engines -- 233

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SUBMITTED: 05Mar64

SUB CODE: AC, PR

NO REF SOV: 019

OTHER: 004

Card 2/2

BADYAGIN, A.A., kand. tekhn. nauk, dotsent; NATALEVICH, A.S.,
dotsent, kand. tekhn. nauk

Reviews of books. Izv. vys. ucheb. zav.; av. tekhn. 7
no.3:128-131 '64. (MIRA 17:9)

1. Kuybyshevskiy av atsionnyy institut (for Natalevich).

L 31901-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/T-2/EWP(k) IJP(c) EM
ACC NR: AP6011798 SOURCE CODE: UR/0147/66/000/001/0161/0164

AUTHOR: Polikovskiy, V. I.; Badyagin, A. A.

ORG: none

TITLE: Magnification factor in the takeoff weight of aircraft

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 1, 1966, 161-164

TOPIC TAGS: dimension analysis, fighter aircraft, supersonic aircraft, turbojet aircraft

ABSTRACT: The authors propose a method for determining the magnification factor in takeoff weight similar to that used for analyzing the weight of engines and power plants. The load G_1 of the aircraft which is made up of equipment, cargo, crew, passengers, etc. is assumed to be constant and independent of the takeoff weight G_0 . The problem studied in this paper consists of finding the coefficient χ of increase in the takeoff weight when the load is increased by an amount ΔG_1 . This coefficient is equal to $\Delta G_0 / \Delta G_1$. The methods of dimensional analysis are used for solving the problem assuming geometrical similarity of the aircraft and $\Delta G_1 \rightarrow 0$. Curves are given

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UDC: 629.13.01

L 31901-56

ACC NR: AP6011798

showing the magnification factor in takeoff weight for fighter planes, bombers, long range winged missiles, local passenger aircraft, commercial turbojets and supersonic passenger planes. Orig. art. has: 1 figure, 8 formulas.

SUB CODE: 01/ SUBM DATE: 28Oct64/ ORIG REF: 004/ OTH REF: 001

Card 2/2 *mc*

BADYUGIN, I.S.

Antishock effect of large doses of cyanocobalamine. Biul. eksp.
biol. i med. 60 no.11:62-64 N '65. (MIRA 19:1)

1. Voenno-meditsinskaya ordena Lenina akademiya imeni S.M. Kirova,
Leningrad. Nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR prof.
I.R. Petrov. Submitted June 2, 1964.

ABRAMOV, M.K.; Prinimala uchastiye BADYAGINA A.

Amperometric titration of iodides in drugs. Apt. de^o. 11 no.5:
62-64 S-0 '62. (MIRA 17:5)

1. Tashkentskiy farmatsevticheskiy institut.

GROMAKOV, S.D.; ZOROATSKAYA, I.V.; LATYPOV, Z.M.; CHVALA, M.A.; EYDEL'MAN,
Ye.A.; BADIYGINA, L.I.; ZARIPOVA, L.G.

Method of studying the phase diagrams of semiconductor systems.
Zhur. neorg. khim. 9 no.10:2485-2487 0 '64.

(MIRA 17:12)

BADYUGIN, I.S. (Leningrad)

Utilization of anesthetic properties of steroids in medicine.

Usp. sovr. biol. 57 no.3:422-445 My-Je '64. (MIRA 17:6)

BADYAGINA, M. I.

Botanical assignments for students in a Pioneer camp. Biol.v
shkole no.2:55-59 Mr-Apr '57. (MLRA 10:5)
(Botany--Study and teaching)
(Pioneers (Communist Youth))

BADYAGINA, M.I.

Excursion into the forest to study the subject "Reproduction of
trees and shrubs." Biol. v shkole no.3:64-68 My-Je '57.
(Plants--Reproduction--Study and teaching)
(Trees) (Shrubs)

BADYAGINA, M.I.

Gathering fruits and seeds in a Pioneer camp. Biol. v shkole
no. 3:58-59 My-Je '58. (MIRA 11:8)
(Plants--Collection and preservation)
(Fruits)
(Seeds)

BADYAGINA, M. I.

Method of excursions for the study of plants in a Pioneer camp.
Biol. v shkole no.3:47-50 My-Je '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy zaachnyy pedagogicheskiy institut.
(School excursions) (Botany--Study and teaching)

BADYAGINA, M.I.

Botany quiz in a Pioneers camp. Biol. v shkole no.3:60-61
My-Je '61. (MIRA 14:7)

1. Moskovskiy zaochnyy pedagogicheskiy institut.
(Botany--Study and teaching)

BADYAGINA, M.I.

Organization and work of the "Green patrols" in a Pioneer camp. Biol.
v shkole no.3:45-58 My-Je '62. (MIRA 15:7)

1. Moskovskiy gosudarstvennyy zaochnyy pedagogicheskiy institut.
(Conservation of natural resources)
(Pioneers (Communist youth))

BADYAGINA, M.I.

Collecting mushrooms is a socially useful occupation for students.
Biol.v shkole no.4:60-64 J1-Ag '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy zaachnyy pedagogicheskiy institut.
(Mushrooms, Edible)

BAD'YAN, Sh.N., inzhener.

Idling limitation for machines with reversing clutches. Prom.energ. 11
no.3:15-17 Mr '56. (MLRA 9:7)

(Machine tools)

BAD'YAN, Sh.N.

The OS-57 semiautomatic combined fine-boring machine. Biul.tekh.-
ekon.inform. no.10:23-24 ' 58. (MIRA 11:12)
(Drilling and boring machinery)

BAD'YAN, Sh.N.

Cycle system of programmed control for specialized machines.

Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekhn.inform

17 no.11:52-54 N '64.

(MIRA 18:3)

KHOKHRYAKOV, Yu.; KRUSHCH'NITSKAYA, A.; SHLYAPOSHNIKOV, V.; BADYAN, V.;
KUZNETSOV, A., red.

[Travels in the Crimea; a short guide] Puteshestviia po Krymu;
kratkii spravochnik. Simferopol', Krymizdat, 1958. 111 p.
(MIRA 12:8)

(Crimea--Description and travel)

LYUBAVSKIY, K.V., prof., doktor tekhn. nauk; BAD'YANOV, B.N., inzh.;
CHEPELYUGIN, G.F., inzh.

Effect of flux on the properties of seams in high-strength steel
welding. Svar. proizv. no.2:23-25 P '59. (MIRA 12:1)

1.Kafedra "Svarochnoye proizvodstvo" Moskovskogo vechernego metallurgi-
cheskogo instituta.

(Flux (Metallurgy)) (Steel--Welding) (Welding--Testing)

ACC NR: AP7002612 (A, N) SOURCE CODE: UR/0413/66/000/023/041/0123

INVENTOR: Lyubavskiy, K. V.; Bad'yanov, B. N.; Babanov, B. P.; Nud'ga, V. D.;
Yarovinskiy, Yu. L.; Miroshin, D. D.

ORG: None

TITLE: A flux for electric arc welding. Class 49, No. 189296

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 123

TOPIC TAGS: arc welding, aluminum oxide, silicon dioxide, low alloy steel

ABSTRACT: This Author's Certificate introduces a flux for electric arc welding containing SiO_2 , CaO , Al_2O_3 , CaF_2 , NaF , TiO_2 , MgO and $\text{Na}_2\text{O}+\text{K}_2\text{O}$. The material contains the following percent composition for increased strength and ductility of welded joints made from low-alloy steels: SiO_2 10-20; CaO 10-20; Al_2O_3 15-23.5; CaF_2 30-55; NaF 1-10; TiO_2 0-10; MgO 0-5; $\text{Na}_2\text{O}+\text{K}_2\text{O}$ 01-5.

SUB CODE: 11, 13/ SUBM DATE: 15 Jun65

Card 1/1

UDC: 621.791.75.048

0930 3738

ACC NR: AP7005237

(N)

SOURCE CODE: UR/0145/66/000/009/0168/0172

AUTHOR: Lyubavskiy, K. V. (Doctor of technical sciences, Professor); Bad'yanov, B. N. (Candidate of technical sciences)

ORG: Moscow Institute of Electronic Machine Building (Moskovskiy institut elektron-nogo mashinostroyeniya)

TITLE: Flux for welding high-strength steels

SOURCE: IVUZ. Mashinostroyeniye, no. 9, 1966, 168-172

TOPIC TAGS: welding technology, high strength steel, impact strength

ABSTRACT: AV-4 non-oxidative flux is recommended for improving the impact ductility of automatically welded joints in high-strength grade of steel. This flux has the following composition (in %): SiO_2 --5; Al_2O_3 --7; KCl --10; NaF --5; $(\text{K}_2\text{O}+\text{Na}_2\text{O})$ --3; CaF_2 --70. The properties of welded joints in 25KhSNVFA steel using 20KhSNVFA electrode wire and AV-4 flux were compared with those of joints made under identical conditions using AN-348A (42% SiO_2 and 36% MnO) and AN-15 (26% SiO_2 and 2.5% MnO). Chemical analysis of the resultant joints shows that the oxidative capacity of the flux increases with the concentration of silicon and manganese oxides. The concentration of all alloying elements in joints made with AV-4 flux is close to the initial composition and the reduced oxygen concentration increases the impact ductility of the joints.

Card 1/2

UDC: 621.791.04

ACC NR: AP7005237

These joints are less sensitive to impact loads at normal and low temperatures and are less liable to develop cracks which increases their operational reliability. An entirely new flux, AV-5, has also been developed on the basis of AV-4 flux and has better technological properties from the standpoint of seam formation. This new flux is designed for welding parts from VP-25 and SP-28 steels. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 13, 11/ SUBM DATE: 27May65/ ORIG REF: 22/ OTH REF: 01

Card 2/2

L 11016-65 EWT(m)/EWA(d)/EWP(v)/T/EMP(t)/EWP(k)/EWP(b) Pf-4 AFETR/ASD(m)-3
MJW/JD/EM

ACCESSION NR: AP4047011 S/0135/64/000/010/0006/0009

AUTHOR: Lyubavskiy, K. V. (Doctor of technical sciences);
Bad'yanskiy, R. N. (Engineer); Klestova, Z. D. (Engineer)

TITLE: Selection of flux for [submerged-arc] welding of a super-
strength steel

SOURCE: Svarochnoye proizvodstvo, no. 10, 1964, 6-9

TOPIC TAGS: superstrength steel, superstrength steel welding, sub-
merged arc welding, submerged arc welding flux, superstrength steel
weld, weld property

ABSTRACT: Several fluxes have been tested in submerged-arc welding of
the 25KhSNVFA (superstrength steel.) The most satisfactory results were
obtained with the experimental oxygen-free AV-4 flux. This flux was
found to be the least active, and the loss of alloying elements was
insignificant, lower than in argon shielded-arc welding. The oxygen
content of the weld was lower than that of the base metal. The con-
tent of nonmetallic inclusions was comparable to that in argon-shielded
arc welding. The weld metal deposited with the 20KhSNVFA electrode

Card 1/2

L 14016-65

ACCESSION NR: AP4047011

wire, and AV-4 flux had a tensile strength of 101.0—105.0 kg/mm², about the same as that of the weld metal deposited with other fluxes or with an argon-shielded arc, but the ductility characteristics of the former were considerably higher: elongation, 18—20%; reduction of area, 48.0—57.5%; and notch toughness, 7.4—10.2 mkg/cm². Heat treatment which brought the strength of the base metal to a level of 120—140 kg/mm² raised the strength of the weld metal to 117.5—157.2 kg/mm² and the yield strength to 111.4—146.4, at an elongation of 6.0—7.5%, a reduction of area of 43.2—58.1%, and a notch toughness of 8.4—11.3 or 5.4—8.0 mkg/cm² at room temperature and -78C, respectively. Orig. art. has: 7 tables and 5 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 010

OTHER: 001

ATD PRESS: 3133

Card 2/2

BAD'YANOV, B.N., inzh.; ANTONOV, Ye.G.

Production of welding fluxes on MGF-102 machines. Svar. proizv.
no.8:33 Ag '64. (MIRA 17:9)

1. Moskovskiy institut elektronnoy mashinostroyeniya (for
Bad'yanov).

L 07461-67	EWT(m)/EWP(w)/EWP(k)/EWP(v)/EWP(t)/ETI	IJP(c)	JD/HM
ACC NR: AP6035505	SOURCE CODE: UR/0135/66/000/011/0039/0039		
AUTHOR: Lyubavskiy, K. V. (Doctor of technical sciences); <u>Bad'yanov, B. N.</u> (Candidate of technical sciences)			35 32 B
ORG: [Lyubavskiy] TsNIITMASH; [Bad'yanov] MIEM.			10
TITLE: The AV-5 flux for welding high-strength steels			
SOURCE: Svarochnoye proizvodstvo, no. 11, 1966, 39-40			
TOPIC TAGS: steel ^{metal} welding, high strength steel welding , shielded arc welding, welding flux, weld property/VP-25 steel, SP-28 steel			
ABSTRACT: A new AV-5 flux (Author Certificate No. 189296) containing 15.0—20.0%SiO ₂ , 18.0—23.5 Al ₂ O ₃ , 12.0—18.0% CaO, 35.0—45.0% CaF ₂ , 4.0—5.0% NaF, and 3.0% K ₂ O ± Na ₂ O, intended for submerged arc welding of superstrength steels, has been developed. The new flux ensures a stable welding process, very satisfactory weld formation, easy slag separation and high strength and impact toughness of welds. It can be prepared in arc or induction furnaces by applying the method of B. N. Bad'yanov and Ye. G. Antonov. Heat-treated (hardened and tempered) welds in VP-25 steel made with the new flux and 20KhSNVFA electrode wire had a tensile strength of 144 kg/mm ² , a yield strength of 137 kg/mm ² , an elongation of 9.1%, and a reduction of area of 48.5%. Corresponding figures for argon-shielded arc welds were 135 kg/mm ² , 129 kg/mm ² , 3.7% and 29.6%, and for the base metal, 161 kg/mm ² , 149 kg/mm ² , 12% and			
Card 1/2	UDC: 621.791.04:669.14.018.295		

L 07461-67

ACC NR: AP6035505

57%. Welds in SP-28 steel made with AV-5 flux and SP-28 electrode wire had a tensile strength of 160 kg/mm², a yield strength of 149 kg/mm², an elongation of 9.7%, and a reduction of area of 45.2% compared to 156 kg/mm², 155 kg/mm², 9.27%, and 47.9% for argon-shielded arc welds, and 163 kg/mm², 160 kg/mm², 8.35% and 44.7% for base-metal welds. The notch toughness of welds in both steels (9.8--10.3 mkg/cm²) was higher than that of the base materials (7.0--7.7 mkg/cm²). AV-5 flux is presently used by several machine-building plants in production-scale welding of VP-25, SP-28 and EP961 steel structures.

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 5104

Cord 2/2 *fin*

S/137/52/000/004/065/201
A052/A101

AUTHOR: Badyanov, M. F.

TITLE: Semiautomatic production line for the length cutting and butt welding of hot-rolled trundled-in material

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 23, abstract 4D128 ("Tr. Proyechn. tekhnol. i n.-i. in-ta. Gor'kovsk. sovnarkhoz", no. 2 (8), 1961, 14-18)

TEXT: The production line performs the butt welding of short-band reels into long ones and the length cutting of the strip. The line is intended for processing the trundled-in 2 - 5 x 500 - 1,000 mm reeled strip, the outside and inside diameter of the reel is 750 - 1,400 mm and 400 - 600 mm respectively, the weight $\leq$ 500 kg. The layout of equipment is presented and a description of technological operations is given. The line will be put into operation at the "Krasnaya Etna" plant in 1962. The introduction of this line will increase the yearly output of cold strip mills by 53,718 tons and will cut the production costs by 65 kopecks per ton of rolled material.

[Abstracter's note: Complete translation]

N. Yudina

Card 1/1

DEMENT'YEV, L.F.; BAD'YANOV, V.A.; AZAMATOV, V.I.

Study of the relation of natural potentials to porosity and
permeability. Razved.i prom.geofiz. no.43:114-117 '62.
(MIRA 15:8)

(Romashkino region--Oil sands--Permeability)

GOFMAN, V.A.; BADIYANOV, V.A.

Studying the effect of the nonuniformity of a bed area on
conductance. Nauch.-tekhn. sbor. po dnb. nefti no.25:96-98
'64. (MIRA 17:12)

1. ULRNIEGIPRONeft'.

BAD'YANOV, V.A.; GUR'YANOV, G.N.; MUKHARSKIY, E.D.; POLUYAN, I.G.;
LUGOVAIA, V.M.

Preparing for commercial experiment by the simultaneous development of the oil pools of the Upper Touranian substage and the coal-bearing series of the Lower Carboniferous in the Bavli oil field. Nefteprom. delo no.8:11-13 '64. (MIRA 17:12)

1. Tatarskiy neftyanyy nauchno-issledovatel'skiy institut, Bugul'ma, i Neftepromyslovoye upravleniye "Bavlyneft".

CHODERA, Alfons; PRZYBYL, Leszek; BADIYA, Cyryl.

Effect of serotonin and of anti-serotonin preparations on
the electrolyte diuresis. Postepy hig.med.dosw. 17 no.6:
815-818 N-D'63

1. Z Zakladu Farmakologii AM w Poznaniu (kierownik: prof.
dr. J.Dadlez) oraz z III Kliniki Chorob Wewnętrznych AM
w Poznaniu (kierownik: prof.dr. K.Wysocki).

*

PRZYBUL, Leszek; CHODERA, Alfons; MAJEMSKI, Czeslaw; BŁDYDA, Cyryl

Morphological changes in the kidneys of rats following prolonged administration of phenacetin. Arch. immun. ther. exp. 12 no. 5: 628-634 '64

1. III, Clinic of Internal Diseases, School of Medicine, Poznan; Department of Pharmacology, School of Medicine, Poznan; and Department of Pathological Anatomy, The J. Strus City Hospital, Poznan.

LABENDZINSKI, F., prof. dr.; NEYMAN, Witold; Badyda, Cyryl.

3d case of Pelger's anomaly in Wielkopolska. Comparison with pseudo-Pelger granulocytia picture in a patient with malignant lymphoma. Pol. tyg. lek. 20 no.1:28-29 4 Ja '65.

1. Z Oddziału Wewnętrznego Szpitala Miejskiego im. Strusia (Kierownik: prof. dr. F. Labendzinski) i z III Kliniki Chorob Wewnętrznych Akademii Medycznej w Poznaniu (Kierownik: prof. dr. K. Wysocki).

L 16066-65 EWT(1)/EMP(e)/EPA(s)-2/ENG(k)/ENT(m)/EPF(c)/EPF(i)-2/ENG(v)/
EWV/EPA(w)-2/EMP(j)/T/EMP(h)/ENG(n) Pa-3/4/5/6-10/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1

AUTHOR: Gromakov, S. D.; Zoroatskaya, I. V.; Latypov, Z. M.; Chvala, M. A.; Eydel'man, Ye. A.; Badygina, L. I.

TITLE: Method for investigating phase diagrams of semiconducting systems

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 10, 1964, 2485-2487

TOPIC TAGS: semiconductor, phase diagram, semiconductor system, test apparatus design, solidus temperature, liquidus temperature.

ABSTRACT: A method was developed for obtaining thermal data for semiconductor materials which avoids the inherent difficulties of air oxidation, thermal decomposition, and reaction with thermocouple and container materials. The material for thermographic investigation is placed in a quartz ampoule (3-4 mm i. d. 25-30 mm long), sealed under 1-2 mmHg. The thermocouple (fig. 1) made of 3-5 x 12-14 mm platinum foil (a) with soldered platinum rhodium leads (b, c) is arranged so the platinum foil surrounds the ampoule (fig. 1-C). The ampoule is

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placed in a quartz tube filled with alumina for thermal insulation; and heated in a vertical electric furnace. Using this arrangement, the solidus and liquidus temperatures were obtained for the binary systems PbS-PbSe, PbS-PbTe, CdTe-ZnTe, CdTe-HgTe, and phase diagrams (fig. 2) were constructed. Orig. art has: 4 tables and 3 figures.

ASSOCIATION: Kazanskly gosudarstvennyy universitet (Kazansk State University) Penzenskly pedagogicheskly institut (Penzensk Pedagogical Institute)

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Cord 2/4

BADYLKES, I.

A new regeneration process for absorption cooling plants. I. Badylkes. *Khokhlov's Prom.* 16, No. 1, 13-16 (1938). *Chem. Zvest.* 1938, 11, 3414. --An arrangement is described in which regeneration takes place in the generator. The lower part of the app. is in the form of a bundle of tubes. The NH₃-rich soln. flows in a thin layer over these tubes; the vapor arising passes to a heat exchanger. The economic advantages of the arrangement are discussed. M. G. Moore

ASB S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

PA 38/49T66

BADYL'IKES, I.

USSR/Engineering
Refrigerants
Tension, Vapor

Jan/Mar 49

"Vapor Tensions of Refrigerants," I. Badyl'kes,
Dr Tech Sci, All-Union Sci Res Inst of Refriger-
ation Ind imeni A. I. Mikoyan, 5 pp

"Kholodil Tekh" No 1

Uses similarity conditions from dimensional
analysis to determine the curve of vapor tension
Results of analysis were checked on previously
studied refrigerants, and the error was found
to be less than 1.5%.

38/49T66

30815. BADYL'KES, I.

Teplota ispareniya khladoagentov. Kholodil. tekhnika, 1949, No. 3,
s. 62-66.

BADYL'KES, I. S.

Rabochie veshchestva kholodil'nikh mashin [Acting substances in refrigerators].
Moskva, Pishchepromizdat, 1952.

SO: Monthly List of Russian Accessions, Vol. 6, No. 5, August 1953

1. BADYL'KES, I.
2. USSR (600)
4. Cold Storage - Insulation (Continued)
7. Selecting efficient thickness of insulation in refrigerated structures. Khol. tekhn. 29, no. 4, 1952.
9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

BADYL'KES

KOMAROV, Nikolay Stepanovich, professor; BADYL'KES, I.S., doktor
tekhnicheskikh nauk, professor, redaktor; VEINBERG, B.S.,
kandidat tekhnicheskikh nauk, dotsent, redaktor; NIKOLAYEVA,
N.G., redaktor; MEDVEDEVA, L.A., redaktor.

[Cold; reference manual on refrigeration engineering] Kholod;
spravochnoe rukovodstvo po kholodil'noi tekhnike. Izd.5., perer.
i dop. Moskva, Gos. izd-vo Ministerstva legkoi i pishchevoi
promyshl., 1953. 703 p. (MLRA 7:3)
(Refrigeration and refrigerating machinery)

BADIL'NEC, I.

000

Perspectives of application of difluoro monochloromethane
as agent for heat pumps. I. Badil'ni. Kholodil'naya
Trub. 30, No. 2, 62-3 (1953). This is the first
that will provide refrigeration on one side and condense at
sufficiently high temp. on the other side to yield hot water it
is shown that Freon 142 meets the requirements and in addn.
is nontoxic, very weakly flammable, works at above atm.
pressures, and because of low mol. wt. (100.5) throttling
losses in valves are negligible. Thermodynamic properties
are given. V. N. Bednarski

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BADYLKES, I.S. [author]; ROMENKO, D. L., professor, doktor tekhnicheskikh nauk;
TRACHEV, A., kandidat tekhnicheskikh nauk, dotsent; KURILEV, E., kandidat
tekhnicheskikh nauk, dotsent; SERDIAKOV, G., inzhener. [reviewers].

"Active substances in refrigerating machines." Khol.tekh. 30 no.2:78-
79 Ap-Je '53. (MLRA 6:7)
(Refrigeration and refrigerating machinery) (Badylkes, I.S.)

IL'IN, Ye.V.; MAL'GINA, Ye.V.; BADYL'KES, I.S., professor, doktor
tekhnicheskikh nauk, redaktor; UST'INOV, M.T., redaktor;
MEDRISH, D.M., tekhnicheskij redaktor.

[Refrigerating machines and apparatus] Kholodil'nye mashiny
i apparaty. Pod red. I.S. Badyl'kessa. Moskva, Gos. izd-vo
torgovoi lit-ry, 1954. 368 p. (MLRA 7:12)
(Refrigeration and refrigerating machinery)

BADYL'KES, I.S., professor; VLADOV, V.A.

Experience in constructing a large capacity cold storage plant
in Moscow. Gor.khoz.Mosk. 28 no.11.15-19 V '54. (MIRA 8:1)

1. Direktor stroitel'stva kholodil'nika (for Vladov).
(Moscow--Cold storage warehouses)

BADYL'KES, I., professor, doktor tekhnicheskikh nauk.

Theory and practice of the operation of a heat pump. Khol.tekh.31
no.1:56-60 Ja-Mr '54.

(MIRA 7:4)

(Pumping machinery)

BADYLKES, I., doktor tekhnicheskikh nauk.

Effect of refrigerator insulation thickness on the shrinkage of
frozen foods. Khol.tekh. 31 no.3:45-50 J1-S '54. (MLRA 7:9)
(Refrigeration and refrigerating machinery) (Food, Frozen)

BADYL'KES, I., professor, doktor tekhnicheskikh nauk; SAFONOV, V., inzhener; TKACHEV, N., inzhener.

Automatic cold storage plant with heat-insulating air jackets.
Khol.tekh. 31 no.4:4-13 O-D '54. (MLRA 8:1)
(Refrigeration and refrigerating machinery)

Body/Kes, I,

7 7
 Difluoromonochloroethane as a new agent for the complex generation of heat and cold. I. Radtsev, Kholodil'niki Tekh. (Moscow: Gosizdat, Izdatel. Voprosim. Torgovl) Sbornik 1955, 35-41; Referat. Zhur., Khim. 1956, Abstr. No. 6821. Comparative analysis of the properties of different Freons applicable to their use in refrigerating machines at elevated condensation temps. with simultaneous water heating indicates the most effective for piston machines is $\text{CF}_2\text{Cl}-\text{CF}_2\text{Cl}$ (Freon-142) with a b.p. -0.21° at 1 atm. Based upon relations formerly proposed by the author (Rabota Obshchestva Kholodil'nykh Mashin, 1952), equations for the pressure of satd. vapors, sp. heat and content of the satl. vapors and liquids, and the evapn. heat are given. Addn. data on the properties of Freon-142 for the temp. range $3(-50^\circ)$ are given.
 N. Vasilev

4
 4E3d
 4E4j

Rm

Bardyl'kes, I.

7
Principles of the theory of thermodynamic similarity.
I. Bardyl'kes. *Zhurnal' Tekh.* (Moscow: Gosudarst. izda-
tel. po Voprosam Torgovli) *Sbornik* 1955, 5-22; *Reizn.*
Zhur., Khim. 1956, Abstr. No. 14970.---The principles of
the theory of thermodynamic similarity developed by B.
are described. Simple regularities are established, permit-
ting detn. of the meanings of most important values (pres-
sure of satd. steam, sp. vols. of vapor and liquid, heat of
steam-formation, heat capacity, entropy) from their crit.
parameters (P_c , T_c) and their normal b. temp. I. 36

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4E4g

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BADYL'KES, I. S.

ROZENFEL'D, Lev Markovich, doktor tekhnicheskikh nauk, professor; TKACHEV, Anatoliy Georgiyevich, kandidat tekhnicheskikh nauk, dotsent; MARTYNOVSKIY, B.S., professor, doktor tekhnicheskikh nauk, retsenzent; **BADYL'KES, I.S.**, professor, doktor tekhnicheskikh nauk, retsenzent; KOBULASHVILI, Sh.N., inzhener, retsenzent; NIKOLAYEVA, N.G., redaktor; SUDAK, D.M., tekhnicheskiiy redaktor.

[Refrigerating machinery and apparatuses] Kholodil'nye mashiny i apparaty. Moskva, Gos.izd-vo torgovoi lit-ry, 1955. 584 p. Supplement - [Thermodynamic diagrams of refrigerator operating mechanisms] Termodinamicheskie diagrammy rabochikh tel kholodil'nykh mashin. 1955. 17 diags. (MLRA 8:4)

(Refrigeration and refrigerating machinery)

BADYL'KES, I., professor, doktor tekhnicheskikh nauk; DANILOV, R., kandidat tekhnicheskikh nauk.

Automatic pumpless absorption unit with a capacity of 10,000 kg-cal/hr.
Khol.tekh. 32 no.1:15-20 Ja-Mr '55. (MLRA 8:7)
(Refrigeration and refrigerating machinery)

BADYL'KES, I., professor

~~CONFIDENTIAL~~

"Cold storage insulation". M.IA. Shtaerman. Reviewed by I. Badyl'kes.
Khol.tekh. 32 no.1:75-76 Ja-Mr '55. (MLRA 8:7)
(Cold storage--Insulation) (Shtaerman, Mikhail Iakovlevich)

BADYL'KES, I., doktor tekhnicheskikh nauk, professor

The problem of increasing the productivity of refrigerating
machinery work cycles. Khol.tekh.32 no.2:7-13 Ap-Je '55.
(MLRA 8:10)

(Refrigeration and refrigerating machinery)

KOBULASHVILI, Sh.; BADIY'KES, I., professor, doktor tekhnicheskikh nauk.

For continued progress in refrigeration engineering. Khel.tekh.32:
no.3:1-6 J1-S '55. (MLRA 9:1)

1. Director Vsesoyuznogo Nauchno-issledovatel'skogo kholodil'nogo
instituta (for Kobulashvili).
(Refrigeration and refrigerating machinery)

BADYL'KES, I.S., professor.

Efficient heat insulation of the external walls of cold storage houses.
Trudy LTIKHP 10:77-81 '56. (MIRA 10:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.

(Cold storage--Insulation)

BADYL'KES, I., doktor tekhnicheskikh nauk, professor.

On using steam-jet ejectors as boosters for refrigerating
compressors. Khol.tekh. 33 no.1:3-10 Ja-Mr '56. (MIRA 9:7)
(Refrigeration and refrigerating machinery)(Compressors)

BADYL'KES, I., prof., doktor tekhn. nauk

Selecting a refrigerant for cold storage plants. Khok. tekhn.
33 no. 4:4-11 O-D '56. (MIRA 12:1)
(Refrigerants)

DANILOV, R.L., kand.tekhn.nauk; BAYL'KES, I.S., doktor tekhn.nauk, prof.,
nauchnyy red.; STRONGIN, V.L., red.; SABLTOV, A., tekhn. red.

[Absorption refrigerating machinery for use in procurement centers
and agriculture] Absorbtsionnye kholodil'nye mashiny dlia nizovoi
seti i sel'skogo khoziaistva. Moskva, Gos. izd-vo torgovoi lit-ry.
1957. 24 p. (MIRA 11:5)

(Refrigeration and refrigerating machinery)

PHASE I BOOK EXPLOITATION

706

Moscow. Energeticheskii institut

- Istoriya energeticheskoy tekhniki SSSR v trekh tomakh. t. 1: Teplo tekhnika
(History of Power Engineering in the USSR in Three Volumes.
v. 1: Heat Engineering) Moscow, Gosenergoizdat, 1957. 479 p. 5,000 copies
printed.

Ed.-Compiler: Konfederatov, I.Ya., Doctor of Technical Sciences; Authors:
Badyl'kes, I.S., Doctor of Technical Sciences; Balitskiy, S.Ya., Candidate
of Technical Sciences; Gimmel'farb, M.L., Candidate of Technical Sciences;
Kalafati, D.D., Candidate of Technical Sciences; Kertselli, L.I., Professor,
Kovalev, A.P., Doctor of Technical Sciences; Konfederatov, I.Ya., Doctor of
Technical Sciences; Lavrov, V.N., Doctor of Technical Sciences; Lebedev, P.D.,
Doctor of Technical Sciences; Lukinskiy, V.V., Doctor of Technical Sciences
(deceased); Petukhov, B.S., Doctor of Technical Sciences; Satancvskiy, A.Ye.,
Doctor of Technical Sciences; Semenenko, N.A., Doctor of Technical Sciences;
Smel'nitskiy, S.G., Candidate of Technical Sciences; Sokolov, Ye.Ya., Doctor
of Technical Sciences; Chistyakov, S.F., Candidate of Technical Sciences, and
Shcheglyayev, A.V., Corresponding Member, USSR Academy of Sciences; Editorial
Board of set: Bel'kind, L.D., Doctor of Technical Sciences; Glazunov, Doctor

Card 1/16

History of Power Engineering in the USSR (Cont.)

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status before 1917 is described. In the main part of the volume, Ch. 6 to 16, the development of various branches of the Soviet heat engineering is presented. The theoretical fundamentals of heat engineering, of manufacturing boilers, turbine installations of heat power plants, district heating, heat control, automation of thermal processes, and cooling techniques are covered exhaustively. Each chapter is supplemented with a bibliography. The book is illustrated with photographs, charts and diagrams, worked out by the authors of the respective chapters. At the end of the book there is a chronological list of significant events in the development of heat engineering.

TABLE OF CONTENTS:

Introduction

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PART I. THE INITIAL PERIOD OF DEVELOPMENT
OF HEAT ENGINEERING

Ch. I. Origin and Initial Development of Heat Engineering to the
Middle of the 19th Century

Card 3/16

AUTHOR: Badyl'kes, I.

66-2-11/22

TITLE: On the selection of the temperature drop between the ammonia and the air in refrigerated chambers'. (O vybore temperatur-nogo perepada mezhdu ammiakom i vozdukhom v kamerakh kholodil'nikov).

PERIODICAL: "Kholodil'naya Tekhnika" (Refrigeration Engineering) 1957, No.2, pp. 50 - 54 (USSR).

Vol. 34
ABSTRACT: According to existing instructions, the temperature drop of ammonia to air of 10 C is at present arbitrarily adopted by Soviet designers of refrigerated chambers (3). The problem of the correct choice of this temperature drop has been dealt with by several authors and also in recent work of Vikholev G. (7) and Tkachev A. (8). However, these authors did not take into consideration a number of factors and assumptions which have been taken into account in the work described in this paper. First the author considers the influence of the temperature drop on the first costs determined from the design and operation indices of the refrigerating machinery, the heat exchange conditions in the refrigerated chambers and also the cost of the equipment. The costs are considered of the following equipment: compressors (including the motor), chamber cooling equip-

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On the selection of the temperature drop between the ammonia and the air in refrigerated chambers. (Cont.)
66-2-11/22
ment, electric equipment including the transformer station, condensers, the machinery building, the initial ammonia charge. Main attention is devoted to calculation of the compressor performance, the calculations being carried out for single stage regulation and undercooling of the liquid ammonia in an intermediate vessel, which is also intended for cooling vapours flowing from the low pressure stage. On the basis of his calculations, he recommends a temperature drop between the cooling medium and the air of 7 to 9 C as the optimum; 8 C satisfies fully the requirements of refrigeration technology and enables the use of simple equipment but the optimum conditions can only be ensured by providing automatic control of the air temperature of the cooling chamber. According to the obtained results, it is advisable to use for chambers intended for storing frozen goods, single stage compressors in combination with booster compressors for the freezing chambers and for individual chambers, particularly those intended for conserving high fat content fish and fowl. The use of Freon-22 or Freon-115 has many potentialities since it permits the use of single stage machines without requiring booster compressors.

Card 2/3

BADYL'KES, I.S., doktor tekhnicheskikh nauk; BELINSKIY, S.Ya., kandidat tekhnicheskikh nauk; GIMMEL'FARB, M.L., kandidat tekhnicheskikh nauk; KALAFATI, D.D., kandidat tekhnicheskikh nauk; KERTSELLI, L.I., professor; KOVALEV, A.P., doktor tekhnicheskikh nauk; KONFEDERATOV, I.YA., doktor tekhnicheskikh nauk; LAVROV, V.N., doktor tekhnicheskikh nauk; LEBEDEV, P.D., doktor tekhnicheskikh nauk; LUKNITSKIY, V.V., doktor tekhnicheskikh nauk [deceased]; PETUKHOV, B.S., doktor tekhnicheskikh nauk; SATANOVSKIY, A.Ye., kandidat tekhnicheskikh nauk; SEMENENKO, N.A., doktor tekhnicheskikh nauk; SMEL'NITSKIY, S.G., kandidat tekhnicheskikh nauk; SOKOLOV, Ye.Ya., doktor tekhnicheskikh nauk; CHISTYAKOV, S.F., kandidat tekhnicheskikh nauk; SHCHEGLYAYEV, A.V.; BEL'KIND, L.D., doktor tekhnicheskikh nauk, redaktor; GLAZUNOV, A.A., doktor tekhnicheskikh nauk, redaktor; GOLUBTSOVA, V.A., doktor tekhnicheskikh nauk, redaktor; ZOLOTAREV, T.L., doktor tekhnicheskikh nauk, redaktor; IZBASH, S.V., doktor tekhnicheskikh nauk, redaktor; KIRILLIN, V.A., redaktor; MARGULOVA, T.Kh., doktor tekhnicheskikh nauk, redaktor; MESHKOV, V.V., doktor tekhnicheskikh nauk, redaktor; PETROV, G.N., doktor tekhnicheskikh nauk, redaktor; SIROTINSKIY, L.I., doktor tekhnicheskikh nauk, redaktor; STYRIKOVICH, M.A., redaktor; SHNEYBERG, Ya.A., kandidat tekhnicheskikh nauk, redaktor; MATVEYEV, G.A., doktor tekhnicheskikh nauk, redaktor; MEDVEDEV, I.Ya., tekhnicheskii redaktor

[History of power engineering in the U.S.S.R.; in three volumes]
Istoriia energeticheskoy tekhniki SSSR; v trekh tomakh. Moskva,
Gos.energ.izd-vo.

(Continued on next card)

. BADYL'KES, I.S.---(continued) Card 2.

Vol. 1. [Heat engineering] Teploekhnika. Avtorskii kollektiv tozha
Badyl'kes i dr. Red. -sost. tozha I.IA.Konfederatov. 1957. 479 p.
(MIRA 10:8)

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(Scientific Research Institute of the Refrigerating Industry of the USSR, Moscow):
"Two Stage Ammonia Refrigerating Systems Utilizing Vapor Jet Ejectors" /English -
7 pages/

report presented at the International Inst. of Refrigeration (IIR), Annual
Meetings of Commissions 3,4, and 5, Moscow, 3-6 Sep 1958.

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summary in English]. Khol. tekhn. 35 no.4:27-32 J1-Ag '58.
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Report submitted for the 10th Intl. Refrigeration Congress, Copenhagen, 19 August - 2 September 1959.

Badyl'kes I.

TABLE I BOOK EXPOSITION 307/317

International Congress of Refrigeration. Moscow, 1953
Second collector of SSC (collected Soviet Reports) Moscow, Oostorgidat,
1959. 24 p. Extra slip inserted. 2,000 copies printed.

M. (title page); M. F. Kobulashvili; Ed. (inside book); E. V. Gichikov;
Zakh. M. V. V. Mikhaylov.

NOTE: This collection of articles is intended for those interested in the
problems of food refrigeration.

CONTENTS: The collection contains 26 reports which were submitted at the meet-
ing of the 3rd, 4th and 5th Committees of the International Institute of
Refrigeration. The meeting was held in Moscow, September 3-6, 1953, and was
attended by 265 Soviet specialists and 115 representatives from other
countries. The 73 reports discussed at this meeting cover such broad areas
as the automation of the cooling of refrigerating installations, the use of
closed-tube type refrigerating devices, fast-freezing food products, the
theory and technique of rapid cooling and freezing of meat and fish, the
use of artificiality in the cold storage of food, and the operation of
refrigerators and cooling systems. A complete account of the proceedings
of this meeting was published by the International Institute of Refrig-
eration in 1959. In parentheses are mentioned. References follow
several of the articles.

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... [All-Union Scientific Research Institute of the Re- frigeration Industry] ... [A. I. Mikhaylov]. Ammonium System With Two- Stage Compression With Steam Ejectors	169
... [State Institute for the Design and Planning of Re- frigerators, Pump and Water-Flow Plants, and Ice Cream Plants]. Pump- less Ammonium System With Ammonium Supply From Bottom	176
... [Ministry of Building, USSR]. Rotary (Refrigeration) Mechanismatic Presser for Food Products in Block and Plate Form	179
... [All-Union Scientific Research Institute of the Refrigeration Industry] ... [A. I. Mikhaylov]. Fast- Freezing Conveyor-Type Apparatus With Intensive Air Flow for Fish Freezing	185
... [All-Union Scientific Research Institute of the Refrigeration Industry] ... [A. I. Mikhaylov]. Gravita- tion Conveyor-Type Fast-Freezing Apparatus for Freezing Food Products	199
... [Conduktivnyy Institut po progressivnoy pred- priyatnyy vysochny programirovaniy (State Institute for the Design and Planning of the Meat Industry Establishments)]. Pump-Equipped Small-Capacity System With Overhead Ammonium Supply	204
... [All-Union Scientific Research Institute of the Meat Industry]. Machines Apparatus for Freezing and Defrosting Food Products in Blocks	209

SOV/66-59-4-3/28

14(6)

AUTHOR: Badyl'kes, I., Professor, Doctor of Technical Sciences

TITLE: Similarity Criteria of the Thermodynamic Properties of Refrigerants

PERIODICAL: Kholodil'naya tekhnika, 1959, Nr 4, pp 10-14 (USSR)

ABSTRACT: The author explains the law of corresponding states by formulating it as follows: the properties of substances, expressed in fractions of critical parameters, should be identical in corresponding states (i.e., at the equal values of $\pi = \frac{p}{p_{cr}}$; $\tau = \frac{T}{T_{cr}}$; $\nu = \frac{v}{v_{cr}}$) independent of their chemical nature. He introduces a number of criteria (dimensionless groups) which characterize the similarity of the thermal and caloric properties of refrigerants. Thermodynamically similar substances should possess the close numbers of Gul'dberg, K_1 , which is the ratio $\frac{T_s}{T_{cr}}$ and $K_2 = \frac{1}{p_{cr}} = \pi_s$, where T is temperature, p is pressure and v is volume, and subscript s denotes the values at 1 atm. It is proved that the use of these two criteria is sufficient to determine the properties of all others. This choice of criteria is particularly con-

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Similarity Criteria of the Thermodynamic Properties of Refrigerants

venient, since the most important properties of unknown substances can be determined with the aid of only two basic experimental values on the vapor pressure curve: for one physical atmosphere and for a critical point. The curve of vapor pressure is best determined by means of criterion K_{10} , in which properties of some substance chosen as a standard for comparison are correlated with those of the substance being investigated. Using this criterion the author calculates data for Freon-13 by correlating them with data for Freon-12 (used as a standard), and finds a completely satisfactory agreement between the calculated and experimental values [Ref 5].

There are: 2 tables and 6 references, 4 of which are Soviet, 1 English and 1 American.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti
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