

ZAKHAROV, Ye.D.

Parameters of the consecutive crystallization of castings.
Alium. splavy no.1:122-128 '63. (MIRA 16:11)

S/806/62/000/003/005/018

AUTHORS: Fridlyander, I. N., Zakharov, Ye. D., Tigina, L. P.

TITLE: The kinetics of the aging of aluminum alloys of the Al-Cu-Mg system.

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniye splavov tsvetnykh metallov. no.3. 1962, 58-61.

TEXT: The paper reports an experimental investigation of the effect of both aging temperature and aging time on the decomposition of a supersaturated, quench-hardened, solid solution in alloys of the Al-Cu-Mg system. The objective of the investigation was to determine the usability of the aging time as an indicator of the time rate of the diffusion flux in an alloy. Four Al-Cu-Mg alloys were tested (compositions tabulated); three of them contained appx. 6.6% Cu + Mg, but in different proportions: 2.1, 1.37, 0.95. The fourth alloy contained also 0.82% Fe, 0.83% Ni, and 0.11% Ti. The alloy was prepared in an electric muffle furnace and cast into a watercooled 280x160x26-mm mold at 680-700°C. The ingots were homogenized for 24 hrs at 480°, milled to 200x150x21 mm, and rolled on a two-roll mill at 420-430°C. First rolling (6-10 passes) reduced the billet thickness to 12-14 mm, second rolling (3-6 passes) to 5-6 mm. Hardness-test specimens were cut, heated in a saltpeter bath to 495°, soaked for 60 min, and water-quenched. This was followed by aging at 160, 180, 200, and 210°C and 30-sec Brinell testing with a load of 1,000 kg on a 10-mm diam ball. The hardness-vs.-aging-time curves show that the solid-solution transformations are accelerated by an increase in aging T; however, the time for

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The kinetics of the aging of aluminum alloys ...

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attainment of the maximum H_B at any one aging T increases with a decrease in the Cu/Mg ratio, while the hardening effectiveness decreases. Inasmuch as all three alloys lie in the $\alpha + S$ phase region, any changes in the aging kinematics are attributable to the S content in the alloy and the Mg content in the α solid solution. As the Cu content decreases, the amount of S phase decreases, which is reflected in a diminishing maximal H_B value and in a shift to the right of the time required to attain the maximum H_B . The Mg saturation of the α solid solution contributes to a slowing-down of the hardening process also, especially at low aging T . A comparison of the first and fourth alloys, similar in all respects except for the presence of Fe, Ni, and Ti in the fourth alloy, illustrates the latter postulate vividly (cf. also Hunsicker, H. J., Symposium on the Age-hardening of Metals. Chicago. 1939, 56). A brief survey of existing literature on the slowdown mechanism attributable to the presence of the Fe and Ni additions is given; unsolved problem areas are outlined, and the need for additional investigations is pointed out. There is one (unnumbered) figure, 2 tables, and 9 references (6 Russian-language Soviet, 1 German, and 2 English-language).

ASSOCIATION: None given.

S/137/62/000/008/036/065
A006/A101

AUTHORS: Fridlyander, I. N., Zakharov, Ye. D.

TITLE: The effect of manganese upon aging of some aluminum alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 34, abstract 8I209
(In collection: "Deformiruyemye alyumin. splavy", Moscow, Oborongiz, 1961, 113 - 115)

TEXT: The authors investigated the effect of Mn upon kinetics of aging Al-alloys manufactured from grade 00, Cu and Mg-Al. The heat treating conditions were: 1) Holding at 495°C for 1 hour and quenching from this temperature in cold water; 2) aging at 700°C for 2, 4, 8 and 12 hours. The presence of Mn promotes a substantial increase of the strength of the alloys in freshly quenched state. During the aging process the alloys with Mn are strengthened more rapidly and acquire higher σ_b and σ_s values. The addition of Mn to these alloys entails substantial distortions in the crystal lattice of the solid solution, accelerating separation of Cu, Mg and Si out of the oversaturated solid solution.

[Abstracter's note: Complete translation]

T. Rumyantseva

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The effect of manganese on...

S/123/62/000/014/012/020
A004/A101

mation on the freshly hardened solid solution. There is 1 figure.

V. Stasevich

[Abstracter's note: Complete translation]

Card 2/2

S/123/62/000/013/007/021
A004/A101

AUTHORS: Fridlyander, I. N., Zakharov, Ye. D., Kulakov, V. I.

TITLE: Using cold working to increase the strength of the AKЧ -1 (AKCh-1) alloy

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 13, 1962, 28, abstract 13B171 (In collection: "Deformiruyemyye alyumin. splavy". Oborongiz, 1961, 116 - 123)

TEXT: The authors investigated the effect of cold deformation on the aging kinetics of the AKCh-1 aluminum alloy, having a composition of (in %): 2.11 Cu, 1.83 Mg, 1.21 Ni, 1.36 Fe, 0.082 Ti, the rest being Al, using specimens which, after the casting, were subjected to diffusion annealing at 520°C for 24 hours. Then the ingots were pressed, rolled at 350 - 400°C into strips of 6 mm thickness and were then subjected to hardening with subsequent natural ageing in the course of 30 days or rolling immediately after hardening with a degree of deformation of 10 and 20%. After cold working, the specimens were subjected to artificial ageing at 20, 170, 180, 190, 200 and 210°C. It was found that cold working con-

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Using cold working to...

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A004/A101

siderably cuts the holding time of the AKCh-1 alloy, which is necessary to obtain the maximum hardness. The maximum mechanical properties are obtained for the non-coldhardened alloy after ageing at 185°C in the course of 48 hours, while this is attained with cold worked specimens after 6 - 10 hours ageing at the same temperature. By cold working in the freshly hardened state it is possible to increase the strength of die-forgings from the AKCh-1 alloy by 5 - 7 kg/mm² at room temperature and by 4 - 5 kg/mm² at 175°C. In this case σ_b may attain 42 - 43 kg/mm² during short-time tests. Holding for 100 hours at 175°C causes the strength of cold-worked specimens to decrease to magnitudes which were attained with this alloy without cold deformation after hardening (down to 34 - 40 kg/mm²). It is recommended to use cold working for parts of not too intricate shape with smooth transitions. For parts operating at temperatures near 175°C it is not recommended to use cold working for protracted periods. There are 5 figures. ✓

E. Spivak

[Abstracter's note: Complete translation]

Card 2/2

8/137/62/000/005/046/150
A006/A101

AUTHOR: Zakharov, Ye. D.

TITLE: Regularities in solidification of ingots

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 30, abstract 5G195
("Deformiruyemye alyumin. splavy", Moscow, Oborongiz, 1961, 214 -
228)

TEXT: Formulae and equations are derived which make it possible, with the
aid of calculations, to control the process of ingot solidification and to produce
improved casting conditions.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

35023

S/689/61/000/000/014/030

D205/D303

18.1210 (240P)

AUTHORS: Fridlyander, I.N., and Zakharov, Ye.D.

TITLE: Influence of manganese on the ageing of certain aluminum alloys

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds. Deformiruyemye alyuminiyevyye splavy; sbornik statey. Moscow, 1961, 115 - 115

TEXT: This paper is concerned with the influence of Mn on the kinetics of ageing of alloys in the Al-Cu-Mg system. Composition ranging from 5.7 to 5.65 % Cu, 1.57 - 3.96 % Mg and 0.8 - 1.21 % Mn were smelted and homogenized at 480°C for 24 hours. The thermal treatment consisted of quenching from 495°C after 1 hour's heating at this temperature and ageing at 200°C over 2, 4, 8 and 12 hours. Non-aged and aged specimens were tested. Analysis of the data shows that Mn increased the strength in the quenched state, which is probably connected with the press-effect. Ageing-strengthening is more rapid in alloys with Mn and higher strength limits and yield points are achieved. X

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Influence of manganese on the ageing ...

S/689/61/000/ 01/014/060
D205/D303

ved in this case. The influence of Mn on the ageing kinetics is very similar to the action of cold-working in the freshly hardened state. It is assumed that the introduction of Mn into Al-Cu-Mg alloys leads to a considerable distortion in the crystal lattice of the solid solution, accelerating the separation of Cu, Mg and Si from the super-saturated solid solution. There are 1 figure and 1 table.

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35024

S/689/61/000/000/015/000
D205/D303

18.1210(2408)

AUTHORS: Fridlyander, I.N., Zakharov, Ye.D., and Kulakov, V.I.

TITLE: Application of cold-working to increase the strength of AK4-1 (AK4-1) alloy drop-forged articles

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds. Deformiruyemye alyuminiyevyye splavy; sbornik statey. Moscow, 1961, 116 - 123

TEXT: This is an investigation of the influence of cold working, which is the only means of improving the strength characteristics of Al alloys besides heat treatment, on the kinetics of ageing of the AK4-1 alloy. The prepared ingots had the following composition: 2.11 % Cu, 1.83 % Mg, 1.21 % Ni, 1.36 % Fe, 0.082 % Ti, the rest Al of the A3000 (AV000) grade. The ingots were homogenized at 520°C over 24 hours and pressed to strips of 10 x 40 mm cross-section. They were rolled at 350 - 400°C to 6 mm thickness. One part of the strips was hardened and naturally aged during 30 days, whilst the remainder were hardened and cold-worked by rolling with 10 and 20 % deformation.

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S/689/61/000/000/015/030
D205/D305

Application of cold-working to ...

tion, at room temperature, and aged artificially at 20, 170, 180, 190, 200 and 210°C. Brinell hardness was measured during the ageing process. Rivetting of the Ak4-1 alloy was investigated by the forging of cylindrical specimens of 65 mm diameter and 100 mm high, of the following composition: 2.19 % Cu; 1.61 % Mg; 1.2 % Fe; 1.2 % Ni; 0.06 % Ti; 0.07 % Mn; 0.24 % Si; 0.1 % Zn, the rest Al. The forging was performed at 20, 100 and 200°C. It was shown that cold-working in the freshly hardened state can increase the strength of the drop-forged details by 5 - 7 kg/mm² at room temperature and by 4 - 5 kg/mm² at 175°C, raising the tensile strength at this temperature up to 42 - 43 kg/mm². For details of simple form and without sharp edges which are intended to withstand short periods at 175°C, cold-working is recommended. For details intended to work for long periods at 175°C the use of cold working treatment is not recommended. There are 5 figures.

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S/689/61/000/000/029/000
D205/D303

AUTHOR: Zakharov, Ye. D.

TITLE: Laws governing the solidification of ingots

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds.
Deformiruyemye alyuminiyevyye splavy; sbornik statey.
Moscow, 1961, 214 - 226

TEXT: On the basis of Stefan's problem of freezing of wet ground (the so-called rule of the square root) a series of equations is derived for the solidification process: $X = K\sqrt{\tau}$, where K - solidification coefficient, τ - time of solidification in seconds and X - thickness of frozen layer in cm. By examination of the physical meaning of the coefficient K, the author obtained

$$K = \sqrt{\frac{\lambda(T_{fr} - T_{surf})}{\gamma[q + \frac{C}{2}(T_{fr} - T_{surf})]}} \quad (1)$$

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S/639/61/000/090/029/030
D205/D303

Laws governing the solidification of ...

where T_{fr} - temperature of freezing; T_{surf} - temperature of the crust's surface, λ - thermal conductivity of the crust, q - latent ht. of freezing and C - heat capacity [Abstractor's note: Meaning of γ not given]. The rate of the freezing in a cylindrical mould was found to be

$$V_{fr} = \frac{k^2 R^2}{2xR^2 - 3x^2 R + x^3} \quad (7)$$

where x - the thickness of the layer frozen after τ seconds and R - the mould diameter. A correction factor for the case when a clearance is formed between the mould and the freezing ingot is also derived. The equation for the downward movement of a point on the crystallization surface during continuous casting is

$$y = \frac{V_{cast} \gamma [q + C(\frac{T_{fr} - T_{surf}}{2})]}{\lambda(T_{fr} - T_{surf})} (x^2 - \frac{x^3}{R} + \frac{x^4}{4R^2}), \quad (13'')$$

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Laws governing the solidification of ...

S/689/61/000/000/029/030
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where V_{cast} - the rate of rise of the melt level. Eq. (13") is the equation of the cavity contour of a cylindrical ingot without taking into consideration the formation of a clearance between the ingot and the mould. A correction is also derived for the case with a clearance. There are 10 figures.

Card 3/3

FRIDL'YANDER, I.N., doktor tekhn. nauk, red.; DOBATKIN, V.I., doktor tekhn. nauk, red.; ZAKHAROV, Ye.D., kand. tekhn. nauk, red.; BAZHENOV, M.F., inzh., retsenzent; MAKOVSKIY, G.M., inzh., red.; VINOGRADSKAYA, S.I., red. izd-va; GARNUKHINA, L.A., tekhn. red.

[Malleable aluminum alloys] Deformiruemye aliuminievye splayy; sbornik statei. Moskva, Gos. nauchno-tekhn. izd-vo Oborongiz, 1961. 234 p. (MIRA 15:1)

(Aluminum alloys)

AUTHOR: Gulyaev, B.B.
TITLE: Conference on Crystallization of Metals (Soveshchaniye po Kristallizatsii metallov)
PERIODICAL: Izvestiya Akademii Nauk SSSR Otdel'niye Tekhnicheskikh Nauch, 1958, Nr 4, Pp 155 - 155 (USSR)

ABSTRACT: This conference was held at the Institut Mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 28-31, 1958. About 400 people participated and the participants included specialists in the fields of foundry, metallurgy, crystallography, physics, welding, heat, physical chemistry, acoustical physics and other related subjects. In addition to papers presented, there were also lectures and reports by V.I. Zhuravov (Moscow) and I.K. Chuvpinyov (Chereblovka). B. G. G. (Moscow) crystalization of metals was the fourth conference relating to the general problem of the theory of foundry processes.

CRYSTALLIZATION OF NON-FERROUS METALS: H.M. Bolonov and A.A. Yezhovskiy presented a paper on the crystallization of various non-ferrous alloys and the physico-chemical phenomena accompanying this process in the Welding Bath. The following papers were read: N.A. Kovchan - Investigation of the Features of the Microscopic Chemical Non-uniformity in Alloys; G.L. Petrov - Crystallization and Chemical Non-uniformity in Weld Joints; M.Kh. Shorshorov and V.S. Medvedev - Influence of Non-uniformities of Crystallization in the Weld Bath on the Formation of Hot Cracks.

CRYSTALLIZATION OF METALS IN AN ULTRASONICS FIELD: The following papers were read: V.I. Zhuravov, Member of the Ac.Sc. USSR, and S.M. Sirota, Ye.I. Likhachev and V.M. Krasovskiy - Crystallization of Metals and Alloys in an Ultrasonic Field; V.I. Zhuravov, Member of the Ac.Sc. USSR, and S.M. Sirota - Elastic Oscillations on the Production of Crystals of Metals and Alloys; A.A. Yezhovskiy, Member of the Ac.Sc. USSR, and A.A. Yezhovskiy - Effect of Ultrasonics on Crystallizing Metal in the Weld Bath.

Card6/10

Card9/10

ZAKHAROV, Ye.F., aspirant

Improvement of the design of passenger cars. Vest. TSNII MPS 22
no.8:30-33 '63. (MIRA 17:2)

VERSHINSKIY, S.V., doktor tekhn.nauk, prof.; MEYSNER, B.A., kand.tekhn.nauk;
ZAKHAROV, Ye.F., inzh.

Strength of the body of electric train cars. Vest.TSNII MPS 22
no.6:19-21 '63. (MIRA 16:10)

ZAKHAROV, Ye.F., aspirant

Strength of the end walls of passenger cars. Vest. TSNII MIB
23 no.8:31-33 '64 (MIRA 18:2)

ZAKHAROV, Ye.F., inzh.

Impact conditions between passenger cars. Vest. TSNII MPS 24 no.5:
17-18 '65. (MIRA 18:9)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo in-
stituta vagonostroyeniya.

ZAKHAROV, Ye.I.; SOLOV'YEV, V.I.

Cancer of the cardia and of the abdominal esophagus following
gastrectomy for peptic ulcer. Khirurgiia. no.8:74 Ag '54.

(MLRA 7:11)

1. Iz kafedry obshchoy khirurgii Krymskogo meditsinskogo instituta
imeni I.V.Stalina.

(PEPTIC ULCER, surgery,

gastrectomy, postop. cardial & esophageal cancer)

(STOMACH, neoplasms,

cardial & esophageal cancer after gastrectomy for peptic
ulcer)

(ESOPHAGUS, neoplasms,

cardial & esophageal cancer after gastrectomy for peptic
ulcer)

ZAKHAROV, Ye.I., professor (Simferopol', bul'var Lenina, 5/7, d.2. kv.1.)

Closing intestinal fistulas by evagination. Vest.khir. 75 no.1:
36-39 Ja-F '55. (MLRA 8:4)

1. Iz kliniki obshchey khirurgii (zav. prof. Ye.I.Zakharov)
Krymskogo meditsinskogo instituta im. I.V.Stalina.
(INTESTINES, fistula,
surg., evagination technic)
(FISTULA,
intestines, evagination technic)

ZAKHAROV, Ye.I., professor (Simferopol' bul'var Lenina, d.5, kv.7)

Displacement of the cardiac orifice in its benign stenosis. Nov.
khir.arkh. no.4:27-31 J1-Ag '57. (MIRA 10:11)

1. Kafedra gospiatal'noy khirurgii (sav. - prof. Ye.I.Zakharov)
Krymskogo meditsinskogo instituta.
(STOMACH--DISEASES)

ZAKHAROV, Ye.I., professor

Intestinal plastic surgery in stomach resection; 75 years of
Billroth's operation (1881-1956) [with summary in English]
Khirurgia 33 no.3:16-20 Mr '57. (MLRA 10:6)

1. Is gospital'noy khirurgicheskoy kliniki (sav. - prof. Ye.I.
Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta
(dir. - dotsent S.I.Geogriyevskiy)

(GASTRECTOMY

Billroth's method (Rus))

ZAKHAROV, Ye.I., professor (Smolensk, bul'var Lenina, d.5/7)

Inverse position of the viscera and one-stage resection of cancer of the middle third of the esophagus. Vest.khir. 78 no.2:110-112 P '57.

(MLRA 10:3)

1. Iz gosital'noy khirurgicheskoy kliniki (sveduyushchiy - professor Ye.I.Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(SITUS INVERSUS, compl.

cancer of esophagus, surg., with one-stage resection of esophageal middle third (Rus))

(ESOPHAGUS, neoplasms

of middle third, surg., one-stage resection in patient with situs inversus (Rus))

ZAKHAROV, Ye.I.

Pancreaticoduodenectomy in cancer of the pancreatic head.

Nov.khir.arkh. no.1:68 Ja-F '58

(MIRA 11:11)

1. Kafedra gospiatal'noy khirurgii Krynskogo meditsinskogo instituta.
(PANCREAS--SURGERY)
(DUODENUM--SURGERY)

L 1577-66 EWT(m)

AMS009846

BOOK EXPLOITATION

UR/
66.062.054061.5

^{44,55} Karpacheva, S. M.; ^{44,55} Zakharov, Ye. I.; ^{44,55} Raginskiy, L. S.; ^{44,55} Muratov, V. M. ²¹ ^{BT}

Pulsating extractors (Pul'siruyushchiye ekstraktory) Moscow, Atomizdat, 1964. 0298 p. illus., biblio. 2,500 copies printed.

TOPIC TAGS: chemical separation, mechanical separation, solvent extraction, chemical laboratory apparatus

PURPOSE AND COVERAGE: The liquid extraction method finds a widespread application in chemical engineering. By-products are extracted from waste liquids, pure medicaments and metals are obtained by extraction methods. The development of efficient extractors is of great importance. The most simple and economic extractors used today, the packed or plate towers are of low efficiency. In these type of apparatus the only energy securing the movement and contact of reagents is that resulting from the density difference. With the introduction of an additional energy (mechanical mixers, air or vapor ejectors) the extraction is possible both in vertical and horizontal extractors. Rotary-discs, pulsed-columns and mixer-settler extractors operate with the introduction of mechanical and pulsating mixing. The book deals with problems encountered in the construction and operation of extractors.

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L 1577-66

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SUB CODE: GC

NR REF SOV: 171

SUBMITTED: 03Sep64

OTHER: 300

Card 2/2 *dg*

KARPACHEVA, S.M.; ZAKHAROV, Ye.I.; KISELEVA, L.F.

Laws governing the movement of the disperse phase in a pulsed
packed column. Zhur. prikl. khim. 37 no.12:2668-2677 D '64.
(MIRA 18:3)

KARPACHEVA, S.M., doktor khimich. nauk; GHEMARIN, N.G., kand.tekhn.nauk;
BYCHKOV, A.Ye., inzh.; ZAKHAROV, Ye.I., inzh.; DEVYATKIN, V.I., inzh.;
ZHDANOV, B.V., inzh.

Study of the operation of a pulsating extraction sieve plate
column. Khim. i neft. mashinostr. no.1:24-27 Ja '65.

(MIRA 18:3)

ZAKHAROV, Ye.I. (Volgograd, Krasnopiterskaya ul. d. 31, kv. 36)

Treatment of open injuries to the tendon of Achilles. Ortop., travm. i protez. 25 no.2:69-70 F '64. (MIRA 18:1)

1. Iz travmatologicheskogo otdeleniya (zav. - Ye.I.Zakharov) mediko-sanitarnoy chasti (glavnyy vrach - N.I.Zakharov) Volgogradskogo traktornogo zavoda.

ZAKHAROV, Ye.I. (Simferopol', Bul'var Lenina, d. 5/7, kv.2) ; NAZAREVSKIY,
N.G.

Surgery in cardiac echinococcosis. Grudn. khir. 4 no.5:106-107
S-0*62 (MIRA 17:3)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I.
Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

ZAKHAROV, Ye.I., (Simferopol', bul'var Lenina, d.5/7)

Alloplasty for an esophageal diverticulum. Grud.khir. 2 no.2
92-94 Mr-Apr'60. (MIRA 16:7)

1. Iz gosital'noy khirurgicheskoy kliniki (zav.-prof. Ye.I.
Zakharov) Krymskogo meditsinskogo instituta.
(PROSTHESIS) (ESOPHAGUS--SURGERY)

KARPACHEVA, S.M., doktor khimicheskikh nauk; MEDVEDEV, S.F., inzh.; ZAKHAROV, Ye.I.,
inzh.; BELOV, Yu.A., inzh.

Effect of pulsation on the operation of packed columns. Khim.mashinostr.
no.2:14-17 Mr-Apr '63. (MIRA 16:4)

(Packed towers)

ZAKHAROV, Ye. I., prof; LAVROV, O. O., aspirant

Plastic surgery using the small intestine in repeated interventions for diseases of the stomach surgically treated previously. Nov. khir. arkh. no.2:43-47 '62. (MIRA 15:2)

1. Gospi'tal'naya khirurgicheskaya klinika (zav. - prof. Ye. I. Zakharov) Lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(STOMACH—SURGERY) (INTESTINES—TRANSPLANTATION)

ZAKHAROV, Ye. I.; SOLOV'YEV, V. I.

Transposition of the cardia in the surgical treatment of cardio-
spasm. Grud. khir. no.2:51-55 '62. (MIRA 15:4)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye. I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(CARDIOSPASM) (STOMACH—SURGERY)

ZAKHAROV, Ye.I., prof.

Jejunogastroplasty in cancer and polyposis of the stomach. Khirurgiia no.8:56-62 Ag '62. (MIRA 15:8)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) Krymskogo meditsinskogo instituta.
(STOMACH--CANCER) (STOMACH--SURGERY) (JEJUNUM--SURGERY)

ZAKHAROV, Ye.I., prof.; LAVROV, O.O., aspirant

Enteroplasty with the small intestine in the treatment of the dumping syndrome following gastrectomy and Bilioth II subtotal gastric resection. Khirurgiia no.8:45-49 Ag '61.

(MIRA 15:5)

1. Iz gosspital'noy khirurgicheskoy kliniki (zav. -- prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(STOMACH SURGERY) (INTESTINES--TRANSPLANTATION)

ZAKHAROV, Ya.I., prof.; NAZAREVSKIY, N.G., dotsent

Comments on A.B.Kheifits' letter on "Radical operations in echinococcosis".
Nov. khir. arkh. no.4:119-121 J1-Ag '60. (MIRA 15:2)
(HYDATIDS) (SURGERY) (KHEIFITS, A.B.)

ZAKHAROV, Yevgeniy Illarionovich, prof.; ZAKHAROV, Aleksandr
~~Yevgen'yevich~~; BEREZOV, Yu.Ye., red.; BEL'CHIKOVA, Yu.S.,
tekhn. red.

[Use of the small intestine in plastic surgery in gastrectomy
and resection of the stomach] Tonkokishechnaia plastika pri
gastrektomii i rezektsii zheludka. Moskva, Medgiz, 1962. 166 p.
(MIRA 15:8)

(INTESTINES--TRANSPLANTATION)
(STOMACH--SURGERY)

ZAKHAROV, Ye.I., prof.

Formation of an artificial esophagus in the posterior mediastinum.
Khirurgia no.10:72-75 '61. (MIRA 14:10)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(ESOPHAGUS—SURGERY) (MEDIASTINUM—SURGERY)

ZAKHAROV, Ye.I., prof. (Simferopol' bul'var Lenina d.5/7); SIDORENKO, V.D.

Rectal administration of hydrolysin following an operation
on the stomach or esophagus. Nov. khir: arkh. no.2:35-38 Mr-
Ap '60. (MIRA 14:11)

1. Kafedra gospital'noy khirurgii (nav. - prof. Ye.I.Zakharov)
lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(PROTEINS) (RECTUM, MEDICATION BY)

BASKIN, A.A.; ZAKHAROV, Ye.I.; PETROV, K.I.; RZHEKHINA, Ye.I.

Spectral determination of impurities in niobium. Zhur.anal.khim.
16 no.5:627-630 S-O '61. (MIRA 14:9)
(Niobium--Spectra)

5.5310

28285
S/075/61/016/005/006/010
B117/B101

AUTHORS: Baskin, A. A., Zakharov, Ye. I., Petrov, K. I., and Rzhekhina, Ye. I.

TITLE: Spectroscopic determination of impurities in niobium

PERIODICAL: Zhurnal analiticheskoy khimii, v. 16, no. 5, 1961, 627 - 630

TEXT: The authors developed (a) a method of simultaneously determining iron, silicon, titanium, tantalum, and lead in niobium by spectrum analysis, and (b) a method of obtaining high-purity niobium pentoxide for producing standard specimens. The spectra concerned were excited in a d-c arc. Niobium pentoxide intermixed with coal dust in a ratio of 2:1 was used. The arc amperage, which was 6.5 a in the first 15 seconds of combustion, was increased to 12 a. A further increase to 15 a was found to be unsuitable because of a resulting intense background. Conditions for spectral excitation were chosen on the basis of burning-out curves determined experimentally. In the case of the impurities considered here, and when coal dust has been added, these curves display two maxima which are presumably due to carbides forming while the arc is burning. The impurities evaporate more or less completely within two minutes. The spectra were taken with a large
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Spectroscopic determination of...

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B117/B101

Hilger-type spectrograph on diapositives with a sensitivity of 0.25 GOST (GOST) units, and on "spectrometric type-1" plates with a sensitivity of 0.7 GOST units, after an exposure of 2 minutes. The slit was illuminated by a single-lens condenser. The reproducibility of determinations was improved by using internal standards. In determining silicon and iron, cobalt in a concentration of $8 \cdot 10^{-2}\%$ served as an internal standard. Titanium and tantalum were determined by a comparison with niobium lines. Analytic pairs of lines and the concentration ranges considered are presented in Table 1. Iron, silicon, titanium, and lead may be determined with a sensitivity of $1 \cdot 10^{-3}\%$, and tantalum with $3 \cdot 10^{-2}\%$. The reproducibility of individual determinations characterized by the mean square error is 10% for tantalum and titanium, 11% for silicon, 13% for lead, and 16% for iron. The reliability of the method suggested was substantiated by an analysis of specimens containing certain admixtures. Neither the sensitivity nor the accuracy of determinations are impaired by the presence of iron, silicon, lead, and calcium in amounts up to 1%. As regards the method suggested for obtaining high-purity niobium pentoxide, the separation of niobium and tantalum is based on the different degree to which their fluoride complexes can be extracted with cyclohexanone. Niobium is separated from titanium

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S/075/61/016/005/006/C10
B117/B101

Spectroscopic determination of...

and other admixtures by converting niobic acid into ammonium peroxy niobate $(\text{NH}_4)_3\text{NbO}_8$ with hydrogen peroxide and ammonia in the presence of Komplexon III.

Impurities remain in the solution under these conditions. It takes a four-fold extraction to remove tantalum from a solution containing 200 g of niobium. Ammonium peroxy niobate decomposes at $70 - 72^\circ\text{C}$ to form niobium pentoxide. The latter contains less than $1 \cdot 10^{-4}\%$ of tantalum and not more than $1 \cdot 10^{-3}\%$ of titanium, iron, silicon, and lead. Standard samples on the basis of niobium pentoxide are prepared by adding calculated amounts of tantalum, iron, silicon, and lead oxides, as well as cobalt oxide as an internal standard. There are 2 figures, 3 tables, and 7 references: 5 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: Ref. 4: J. R. Varning, K. B. Higbie, J. T. Grace, D. F. Speece, H. L. Gilbert, Industr. and Engng. Chem. 46, 644 (1954).

SUBMITTED: March 11, 1960

Card 3/4

ZAKHAROV, Ye.I.

Replacement on the resected stomach with the small intestine;
on the 75th anniversary of Billroth II operation (1885-1960).
Khirurgia 36 no.4:3-8 Ap '60. (MIRA 13:12)
(STOMACH—SURGERY) (INTESTINES—SURGERY)

ZAKHAROV, Ye.I., prof.

Formation of a new cardial opening in the surgical treatment of
cardiospasm. Vest.khir. 85 no.9:135-137 S '60.

(MKRA 13;11)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I.
Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(CARDIOSPASM)

USSR/General Problems of Pathology - Tumors. Human Tumors.

U.

Abs Jour : Ref Zhur - Biol., No 2, 1959, 3357

Author : Zakharov, Ye.I., Sidorenko, V.D.

Inst : Crimean Medical Institute

Title : Hemangiomas of the Face

Orig Pub : Tr. Krynsk. med. in-ta, 1957, 18, 497-502

Abstract : No abstract.

Card 1/1

4-08-11-10-11-12-1
KARPACHEVA, S.M., doktor khim. nauk; MEDVEDEV, S.F., inzh.; SENIN, P.T., inzh.;
ZAKHAROV, Ye.I., inzh.

Efficiency of packed extraction towers and sectional columns.
Khim. mash. no.4:10-13 JI-Ag '59. (MIRA 12:12)
(Packed towers)

ZAKHAROV, Ye.I., prof. (Simferopol', bul'var Lenina, d.5/7); MAZAREVSKIY, N.G.

Radical surgery for a hydatid cyst of the lungs. Nov.khir.
arkh. no.1:45-49 Ja-F '59. (MIRA 12:6)

1. Kafedra obshchey khirurgii (zav. - prof. Ye.I.Zakharov)
Krymskogo meditsinskogo instituta.
(LUNGS--HYDATIDS)

ZAKHAROV, Ye.I.; LIPIS, L.V.; PETROV, K.I.

Spectrum determinations of bismuth, cadmium, tin, lead and
antimony impurities in tantalum. Zhur.anal.khim. 14 no.1:
135-136 Ja-F '59. (MIRA 12:4)
(Tantalum--Spectra)

5(2), 5(4)

AUTHORS: .

Zakharov, Ye. I., Lipis, L. V.,
Petrov, K. I.

SOV/75-14-1-28/32

TITLE:

The Spectrographic Determination of Impurities of Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum (Spektral'noye opredeleniye primesey vismuta, kadmija, olova, svintsa i sur'my v tantale)

PERIODICAL:

Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 1, pp 135-136 (USSR)

ABSTRACT:

Tantalum of a high degree of purity must not contain more than $1 \cdot 10^{-4}\%$ of each of the following impurities: Bismuth, cadmium, tin, lead, antimony. For the quantitative determination of these impurities a method having a sensitivity of $3 \cdot 10^{-5}\%$ is therefore necessary. In order to avoid the difficulties arising in the spectral analysis of metallic tantalum, the latter is best converted into the oxide, whereby also the impurities go over into the corresponding oxides. Tantalum pentoxide, contrary to the oxides of the 5 impurities to be determined, is relatively difficultly volatile. By employing the vaporization method (Refs 1,2) the necessary sensitivity of impurity determination in tantalum can thus be attained.

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The Spectrographic Determination of Impurities of
Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum

SOV/75-14-1-28/32

which sensitivity is higher than that attained when using a direct current arc (Ref 3). Oxidation of tantalum was carried out by heating for 1.5 to 2 hours in a muffle furnace at 600 - 700°. Investigations showed that the optimum temperature for the vaporization of the admixed oxides is 1400°. At this temperature the impurities evaporate completely, whereas the main quantity (Ta_2O_5) practically does not evaporate at all.

Investigations concerning optimum temperature were carried out in the range of between 900 and 1600°. Copper is suited as material for the electrodes on which the evaporated impurities are again condensed. Also spectrochemically pure carbon may be used, but in this case determination is not so accurate. Vaporization of impurities from Ta_2O_5 was brought about in carbon crucibles. In order to obtain reproducible results the method of internal standards was employed. Thallium may be recommended as internal standard. The pairs of lines used for the spectrometric determination of impurities in tantalum pentoxide are given by a table. For the excitation of the spectra of impurities precipitated on the electrodes a con-

Card 2/3

The Spectrographic Determination of Impurities of
Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum

SOV/75-14-1-28/32

concentrated spark discharge of a generator IG-2 was used. Plotting of the lines was carried out by means of a spectrograph ISP-22. The sensitivity of this method in the case of bismuth and cadmium is $1 \cdot 10^{-5}\%$, in that of lead and tin $3 \cdot 10^{-5}\%$, and in that of antimony it amounts to $1 \cdot 10^{-4}\%$. The reproducibility of the method, characterized by the mean square deviation, is 8% for Bi, 10% for Pb and Sb, and 11% for Cd and Sn. There are 3 tables and 3 Soviet references.

SUBMITTED: September 18, 1957

Card 3/3

L 39688-65 EWT(d)/EWT(m)/EWP(w)/EPF(c)/EWA(d)/EWP(t)/EWP(v)/EWP(k)/T/
EWP(z)/EWP(b)/EWA(h) Pf-4/Peb MJW/JD/ZB/EM
ACCESSION NR: AP5008390 S/0148/65/000/003/0157/0160

AUTHOR: Androyev, Yu. G.; Zakharov, Ye. K.; Kidin, I. N.;
Lizunov, V. I.; Maksimova, O. V.; Shtremel', M. A.

47
42
23

TITLE: Heat treatment by electrical heating of high-strength steel

SOURCE: IVUZ. Chernaya metallurgiya, no. 3, 1965, 157-160

TOPIC TAGS: high strength steel, electrical heating, superstrength steel, steel heating, low alloy steel, complex alloy steel, steel heat treatment, conventional heating, steel strength, steel ductility, steel hardness

ABSTRACT: Conventional heat treatment of large welded superstrength shells presents difficulties since the shells require protection against oxidation and decarburization. Therefore, an attempt has been made to use rapid-rate electric heating without a protective atmosphere or vacuum. Specimens of cold-rolled, annealed VKS-1 (42KH2GSNM) superstrength steel, 3.3 x 9.2 x 320 mm, were resistance heated with an alternating current of 50 cps to temperatures of up to 2500 at a rate of 75C/sec and air cooled at a rate varying from

Card 1/3

L 39588-65

ACCESSION NR: AP5008190

3

50 to 80C/sec. The resulting steel structure and properties were compared with those obtained with conventional heat treatment (austenitizing at 940C for 40 min in a vacuum of 10^{-2} mm Hg followed by air cooling). It was found that the surface microhardness was 70 H_{200} lower than the core microhardness in specimens electrically heated to 1100C, as compared to 120 H_{200} in those conventionally heat treated; but in both cases the decarburization extended only to a depth of 0.04 mm. The hardened specimens were tempered in air at 200-600C for 1 hr (at 300C, for up to 4 hr). No significant difference in the microstructure of electrically and conventionally heat treated specimens was observed. Electrically heated (to 1100C) specimens, however, had a mean grain diameter of 8 μ , as compared with 11 μ in conventionally heat treated specimens. The hardness obtained by conventional hardening from 940C can be achieved by electrical heating to 1100C. Specimens electrically heated at a rate of 75C/sec to 1100C, air cooled, and tempered at 300C for 4 hr had a tensile strength of 192 kg/mm², an elongation of 3.4%, a reduction of area of 34%, and a bend angle of 33°, compared to 195 kg/mm², 3.4%, 33%, and 26° in conventionally heat treated steel. There are two groups of martensitic steels with a tensile strength of up to

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L 39588-65

ACCESSION NR: AP5008390

200 kg/mm²: The VKS-1 is a comparatively low-alloy steel which contains only 0.07% V and 0.50% Mo and acquires a high strength with tempering below the temper brittleness range. For steels of this group, the use of electrical heating has definite advantages. Steels of the second group contain 1-2% Mo and less than 0.5% V and require tempering at about 500C. Electrical heat treatment of a typical steel of this group, 40Kh5SM1F (Vascojet 1000) steel containing 0.43% V and 1.27% Mo, sharply increased the embrittlement in the temper brittleness range and produced a strength 10-10 kg/mm² lower than conventional heat treatment. Orig. art. has 2 figures and 1 table. [MS]

ASSOCIATION: Moskovskiy institut stal i splavov (Moscow Institute for Steel and Alloys)

SUBMITTED: 02Jul64

ENCL: 00

SUB CODE: MK, IE

NO REF SOV: 002

OTHER: 003

ATD PRESS: 3229

Ejs
Card 3/3

L 13052-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) MJW/JD/HI/T/MLK

ACCESSION NR: AT4046849

S/0000/64/000,000/0243/0246

AUTHOR: Doronin, I. V., Zakharov, Ye. K., Kidin, I. N.

TITLE: Dependence of the strength on rate of heating for Armco iron and IKh18N9T and EI-925 steels at high temperatures

SOURCE: AN SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov. Issledovaniya staloy i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 243-246

TOPIC TAGS: steel strength, steel annealing, steel cold working/Armco iron, IKh18N9T steel, EI-925 steel

ABSTRACT: A vertical tensile-stress testing machine, developed at the Laboratoriya metallofizicheskikh problem termicheskoy obrabotki Moskovskogo instituta stali i splavov (Laboratory of metallophysical problems of thermal treatment, Moscow Institute of Steel and Alloys), was employed in high-temperature tests of annealed Armco iron and both annealed and cold-worked IKh18N9T(a) and EI-925(b) steels in an attempt to bring the test conditions closer to those actually experienced by performing materials that can be attained with the use of standard methods. Wire samples 1.5 mm in diameter and 120 mm long were heated at rates of 50, 500 and 2000C/sec. by passing a 50 cps AC current to the

Card 1/2

L 13052-65

ACCESSION NR: AT4046849

point of rupture at 2.5, 5.0, 10.0, 15.0, 20.0, and 22.5 kg/mm² loads for Armco iron and (a), and at 3.75, 15, 22.5, and 30 kg/mm² loads for (b). The temperature and elongation were tape-recorded by an MPO-2 oscillograph, with a 60 μ-thick chromel-alumel thermocouple, and a differential extensometer-recorder, sensitive to 0.01% elongations, was used to measure small deformations. The tests yielded a rather complex and ununiform data pattern, from which it may be concluded: 1) that the greater the rate of heating, the greater the temperature of rupture and the temperature at which an elongation of 0.5% is reached in Armco iron; 2) that at high rates of heating (~200C/sec.) the temperature of 0.5% elongation is higher for annealed (a) samples than for cold-worked (a) samples; and 3) that aging and the effect of "autostrengthening" are more pronounced in (b). The data are extensively discussed. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 16Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card 2/2

S/180/62/000/005/008/011
E040/E435

AUTHORS: Zakharov, Ye.K., Livshits, B.G. (Moscow)
TITLE: Phase composition diagram of cobalt-chromium-titanium alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.5, 1962, 143-150

TEXT: Due to numerous discrepancies in the data reported so far, a re-examination was made of the binary Co-Ti system (30% Ti) at temperatures up to 1500°C and a modified phase equilibrium diagram plotted. The Co-Cr binary phase equilibrium diagram used in studies of the ternary system was that reported by A.R.Elsea, A.B.Westermann and G.K.Manning (Metals Technology, v.14, no.4, 1948, 13-24). An analysis of the equilibrium conditions in the Co-Cr-Ti system was followed by plotting the liquidus and solidus curves of the Co corner of the Co-Cr-Ti alloys and of the low and high temperature parts of the same ternary system. Special attention was paid to polymorphic and magnetic transformations (Curie point) and their dependence on temperature. The intersection of the surface of allotropic
Card 1/2

Phase composition diagram ...

S/180/62/000/005/008/011
E040/E435

transformation and of the Curie point with the surface of limited solubility was investigated by thermomagnetic and dilatometric techniques and the results are plotted graphically for Cr and Ti contents up to 20% by wt. There are 5 figures.

SUBMITTED: December 23, 1961



Card 2/2

20254

189200 1454 1045 1018

S/148/60/000/001/001/015
A:61/A030

AUTHORS: Zakharov, Ye. K., Livshits, B. G.

TITLE: Investigation of transformations in the cobalt-chromium-titanium system

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya no. 11, 1960, 105 - 112

TEXT: The work is the continuation of a study of the Co-Cr-Ti equilibrium diagram; solid state equilibrium data determined at 1050, 950 and 750°C (Ref. 1: B. G. Livshits, Ye. D. Khorin. Zhurnal neorganicheskoy khimii, v. 3, no. 3, 1958; Ref. 2: P. I. Kripyakevich, Ye. D. Khorin. Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, No. 1) had to be complemented. The platinum-platinorhodium thermocouple in an aluminum oxide hood used in this experiment series had a high degree of accuracy. The allotropic transformation was investigated by dilatometric and magnetic methods; the Curie points were determined at the same time. The cobalt alloys under study contained up to 60% Cr and up to 35 % Ti. The experiment results are shown in the diagram (Figure 1) that includes a new phase,

X

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2025h

S/148/60/000/011/011/015
A161/A030

X

Investigation of transformation in ...

ϵ , revealed beyond the Ti solubility limit in alpha and beta Co. This intermetallic compound seemed to have a structure resembling the Ni₃Ti compound described in (Ref. 10: F. Laves, H. J. Wallbaum, Zschr.f. Kristallographie v. 101, 1939, p. 78, and Ref. 11: A. Taylor, R. W. Floyd, Acta crystallographica, 1950, 3, No. 4, p. 285) and Co₃Mo and Co₃W found by M. M. Babich, Ye. N. Kislyakova and Ya. S. Umanskiy in 1938 (Ref. 12: ZhTF, 1938 No. 2, v. 8). A ternary intermetallic compound was revealed also in the ternary system, Co₄Cr₂Ti (or α -phase) (Ref. 1), and it had to be determined if it was a stable chemical compound or not. The information includes the diagrams prepared in experiments and a detailed discussion of observations. The α -phase proved unstable and was formed by peritectic reaction in 1150 - 1200°. The two-phase state revealed at the end of crystallization separated into two three-phase $\beta + \alpha + \epsilon$, $\epsilon + \alpha + (Co, Cr)_2Ti$ and two two-phase states $[\beta + \epsilon, \epsilon + (Co, Cr)_2Ti]$. The stated effect of Cr and Ti on the temperature of magnetic (θ) and allotropic (A_c and A_r) transformations is shown in four graphs (Figure 4). Alloys adjoining the Co-Ti side of the composition triangle in Co - ϵ interval and containing 15 - 20 % Cr include a component analogous with the binary quasi-eutectoid $\alpha - Co + \epsilon$. With a higher Cr content in ternary alloys, no decomposition was observed; Cr

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Investigation of transformation in ...

S/148/60/000/011/011/015
A161/A030

additions raised the α -Co₂Cr-Co transformation temperature. The allotropic $\delta \rightarrow \sigma$ transformation observed in Co-Cr alloys in 1310 - 1260° (45 - 50 % Cr) was observed in ternary alloys as well. The thermic stop in 1280 - 1270° stated in alloys 60 % Cr - Co₂Ti and 55 % Cr - Co₂Ti at addition of 6 % Ti corresponds with the allotropic $\delta \rightarrow \sigma$ transition. Magnetic transformation occurred both above and below the A_c point, i.e., in the alpha and in the beta phase. This indicates that solid state equilibrium is difficult to reach in temperatures below 600°. There are 4 figures and 13 references: 6 Soviet and 7 non-Soviet bloc. Two English language publications read as follows: (Ref. 8) A. Elscu, A. Westermann, G. Manning, Metals Technology, 15, No. 4, 1948, 13 - 24; (Ref. 11) A. Taylor, R. W. Floyd, Acta crystallographica, 1950, 3, No. 4, p. 285. C7

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: March 29, 1960.

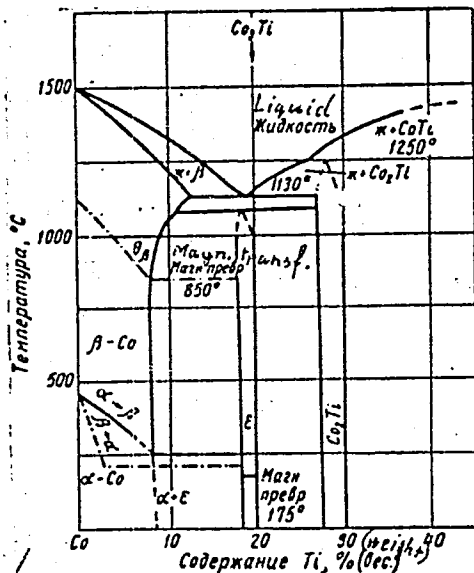
Card 3/5

20254

Investigation of transformation in

S/148/60/000/011/011/015
A161/A030

Figure 1:



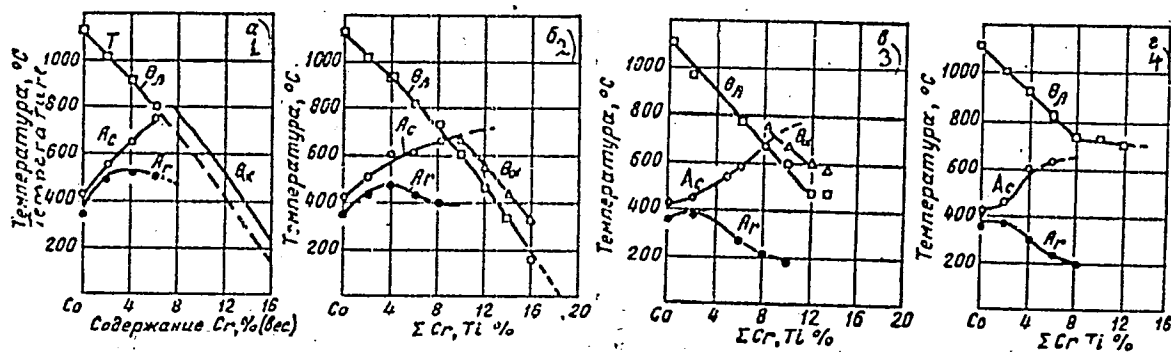
Card 4/5

20254

S/148/60/000/011/011/015
A161/A030

Investigation of transformation in

Figure 4:



Card 5/5

ZAKHAROV, Ye.K. (Moskva); LIVSHITS, B.G. (Moskva)

Equilibrium diagram of the system cobalt - chromium - titanium.
Izv. AN SSSR. Otd. tekhn. nauk. Met. i topl. no. 5:143-150, 8-0'62.

(MIRA 15:10)

(Cobalt-chromium-titanium alloys—Metallography)
(Phase rule and equilibrium)

85810

18 8100 1138, 1413, 1454

S/148/60/000/003/014/018
A161/A029

AUTHORS: Zakharov, Ye.K.; Livshits, B.G.

16 1 1 1

TITLE: Allotropic and Magnetic Transformations in Cobalt-Chrome-Titanium
Alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. - Chernaya metallurgiya,
1960, No. 3, pp. 125 - 130

TEXT: Allotropy in the Co-Cr-Ti alloys investigated was determined by measuring the magnetization of the alloys during heating and cooling in weak magnetic fields, using an improved Akulov AAT-50 (AAG-50) anisometer with a more sensitive suspension on longer springs. This anisometer shows a 350 - 400mm shift on the scale in 1.5 m distance during measurements on a 35 mm long specimen of 3 mm in diameter and a 150 - 200 oersted outer magnetic field. The position of the light spot (shift) could be reproduced with ±1 mm accuracy. The growth of magnetization with allotropic transformation is clearly seen on levelled curve portions. The improved anisometer is insensitive to building vibration and traffic in close vicinity to the premises. Curie points were found with sufficient accuracy in the 20-1,150°C range. The interdependence of Curie points and the alloy compositions was found. The Curie points dropped in alloys with Cr and
Card 1/2

X

85810

S/148/60/000/003/014/018
A161/A029

Allotropic and Magnetic Transformations in Cobalt-Chrome-Titanium Alloys X

Ti; binary Co-Cr alloys with over 18-19% Cr became fully non-ferromagnetic at room temperature. Some alloys had two Curie points, which indicates a high tendency to overheating and overcooling. The solubility of Ti in Co was stated to be about 8% at 850°C and to drop with decreasing temperature. This nearly fits the value of 7.2% found by Koester (Ref. 5), but is far from the value of 20% found by Livshits and Khorin (Ref. 7). Microphotographs confirmed the magnetic measurement results: beginning heterogeneity was found in a structure with 9% Ti, clear eutectic in the case of 12% Ti; Co-Ti with less than 4% Ti had martensite structure with Co in α - and β -phases. Eutectoid decomposition was observed at more than 8% Ti content. No sign of martensite or eutectic was revealed in structures with 4-8% Ti, and it appears that these processes are inhibited in this Ti-content range. In ternary alloys with Cr:Ti=1 the structures sequence was analogous, and the total solubility of Cr and Ti at 720°C was 8% (4% Cr and 4% Ti). The high difference of data obtained compared with Reference 7 will be discussed later. There are 5 figures and 7 references: 2 Soviet, 3 German, 2 English.

ASSOCIATION: Moskovskiy Institut stali (Moscow Steel Institute)

SUBMITTED: February 27, 1959
Card 2/2

ZAKHAROV, YE. K.

4620

Investigation of heterogeneous carbon concentration of steel after high-frequency hardening. L. N. Kislin, S. N. Kravkov, and V. N. Ezdinatski. *Primenenie Radiatsionnoi Energii v Metallurgii* (Moscow Metallurgizdat) 1955, No. 54, 53-55. Referat. *Zh. Fiz. Khim.* 1956, No. 18(4). C¹⁴ was introduced in the solid state into steel 20 (0.24% C) by heating 4 hrs. at 900° with a current of ⁶⁰Co. Samples were then heated by high-frequency current at 30°/sec. to 723-1300° and quenched in water. Microradiographs, taken from samples, were used to construct photometric curves of C distribution. It was found that sufficiently complete leveling of C content was achieved only at 1100°, when C content in the middle of ferrite grain reaches 35% of steel C content.

V. N. Ezdinatski

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ZAKHAROV, Ye.K.; LIVSHITS, B.D.

Investigating transformations in the system cobalt - chromium - titanium. Izv. vys. ucheb. zav.; chern. met. no. 11:105-112 '60. (MIRA 13:12)

1. Moskovskiy institut stali.
(Cobalt-chromium-titanium alloys--Metallography)
(Phase rule and equilibrium)

ZAKHAROV, Ye.K.

Determining points of melting and solidification of Co-Cr-Ti alloys by optical methods. Nauch.dokl.vys.shkoly; met. no.1: 239-243 '59. (MIRA 12:5)

1. Moskovskiy institut stali.
(Cobalt-chromium-titanium alloys--Testing)
(Photoelectric measurements)

ZAKHAROV, Ya.K.; LIVSHITS, B.G.

Allotropic and magnetic transformations in cobalt-chromium-titanium alloys. Izv.vys.ucheb.zav.; chern.met. no.3:125-130 '60. (MIRA 13:4)

1. Moskovskiy institut stali.
(Cobalt-chromium-titanium alloys--Metallography)

18(6)

AUTHOR:

Zakharov, Ye. K.

SOV/163-59-1-46/50

TITLE:

Determination of the Points of Fusion and of Freezing of Co - Cr - Ti - Alloys by Means of the Optical Method (Opredeleniye tochek plavleniya i zatverdevaniya splavov Co - Cr - Ti - opticheskim metodom)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 1, pp 239-243 (USSR)

ABSTRACT:

This paper gives an account of the development of a method of determining the points of fusion and of freezing of alloys on a cobalt basis. It operates with induction heating in a vacuum or in a protective atmosphere and with photoelectric pyrometers. The experimental procedure is described. A special apparatus, the schematical array of which is presented, was built for these experiments. Corrections taking into account the difference between the radiation and the absorption capability of the alloys and the absorption in interposed media were made in the recording of the heating and cooling curves. Previous to the determination of the actual temperature curves a calibration curve was recorded of 5 alloys and of pure cobalt. Heating and cooling curves were taken of 40 alloys of the system Co - Cr - Ti. Four vertical

Card 1/2

SOV/163-59-1-46/50

Determination of the Points of Fusion and of Freezing of Co - Cr - Ti - Alloys
by Means of the Optical Method

sections were constructed at the melting temperature and at a ratio of Cr : Ti = 0.125, 1.0, 2.0, and 6.5. In all pseudobinary sections there appear single-phase domains of different size and domains of alloys with eutectic crystallization. - There are 4 figures and 5 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy institut stali
(Moscow Steel Institute)

SUBMITTED: June 26, 1958

Card 2/2

L 24412-65 EPA(s)-2/EWT(m)/EPE(n)-2/EWA(d)/EWP(t)/EWP(c)/EPA(bb)-2/EWP(b)
PF-4/Pt-10/Pu-4 IJF(c)/ASD(f)-2/ASD(m)-3 MJW/JD/HW/JG/MLX

ACCESSION NR: AT4046828

S/0000/64/000/000/0118/0120

AUTHOR: Yezhov, I. A.; Zakharov, Ya. K.; Kidin, I. N. B-1

TITLE: Investigation of the rupture life of cold-strained tungsten
and its alloy with molybdenum, at temperatures above 1400C 27

SOURCE: AN SSSR. Nauchnyy sovet po problema khromoprochnykh
splavov. Issledovaniya staley i splavov (Studies on steels and
alloys). Moscow, Izd-vo Nauka, 1964, 118-120

TOPIC TAGS: tungsten, VRN tungsten molybdenum alloy, VM50 alloy
rupture life, high temperature rupture life, refractory VM50 alloy,
VM50 alloy ductility

ABSTRACT: VRN⁴ tungsten and a VM50¹⁶ alloy (a substitutional-solid
solution containing 50 wt% W and 50 wt% Mo and with a solidus tem-
perature of 2800C) were prepared by the powder metallurgy method,
warm drawn with a 99% reduction to wires 1.0 and 0.8 mm in diameter,
respectively, and subjected to a stress-rupture test at temperatures
ranging from 1400 to 2800C for VRN and from 1100 to 2400C for the

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ACCESSION NR: AT4046828

0
VM50 alloy. Specimens were tested in a vacuum of 10^{-4} mm Hg and heated at a rate of 100C/sec; by varying the applied stress, the rupture life was varied from 1 to 100 min. Test results showed that the 10-min rupture strength of the VM50 alloy is $4-1$ kg/mm² lower than that of VRN tungsten. The former, however, is more ductile. This desirable combination of strength and ductility makes possible the use of the VM50 alloy as a high-temperature construction material.

Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 16Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 000

OTHER: 003

ATD PRESS: 3133

Card 2/2

L 22507-65 EWT(m)/EWA(a)/T/EWP(t)/EWP(b) ASD(a)-5/ASD(f)-3/ASD(m)-3/
AS(mp)-2 JD/JW/MLK

ACCESSION NR: AT4046817

S/0000/64/000/000/0057/0062

AUTHOR: Zakharov, Ye. K.; Kidin, I.N.; Khayutin, S.G.

TITLE: Stress relaxation during the rapid heating of a metal 16

SOURCE: AN SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 57-62

TOPIC TAGS: stress relaxation, elastic deformation, plastic deformation, alloy elasticity, Maxwell equation, nichrome alloy, activation energy, alloy recrystallization 16

ABSTRACT: Stress relaxation was studied in hardened, cold-worked and annealed nichrome. The relaxation curves of annealed nichrome reveal a continuous increase in relaxation speed with increased temperature, particularly between 400 and 500C. There are two stages of relaxation in annealed nichrome; low-temperature relaxation with an activation energy of 850 cal/mole, and high-temperature relation with an activation energy of 7500 cal/mole. These energy values are low because, during rapid heating, only those processes requiring a minimum activation temperature can play a role. The relaxation curves of hardened samples show that from room temperature to 100C the relaxation speed is increased, from 200-300C, the relaxation speed falls off to zero, and above 300C, the relaxation speed quickly increases. During the heating of cold-worked nichrome, relaxation is

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BT1

L 22507-65

ACCESSION NR: AT4046817

Initially more rapid than in hardened and annealed samples. Afterwards, the speed is sharply decreased, but above 500C, the values are increased by 100-200%. The heating speed of cold worked nichrome has little effect on relaxation. The processes of recrystallization and order-disorder transformation occur with enormous speed in both hardened and cold-worked alloys, and are realized to an essentially equal degree at all the investigated heating speeds. Orig. art. has: 3 figures and 13 formulas.

ASSOCIATION: None

SUBMITTED: 16Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 000

Card 2/2

7

ca

Photocolorimetric determination of silicic acid in aluminum solutions. K. A. Vasil'ev and R. L. Zakharov. *Zhurnal Khim. Fiz.* 30, 143-5(1941); cf. C. I. M. 1589P. Accuracy 10 ml. of the aluminate soln. with 20% H₂SO₄ and add 10 ml. acid in excess. Cool the clear soln. to 18-20°, dil. with water to 250 ml. and withdraw two 50-ml. or two 100-ml. portions for analysis. Add 3 ml. of 20% H₂SO₄ to the 100-ml. portions or 5 ml. to the 50-ml. portions. Add 20 ml. of 50% ammonium molybdate to one of the solns. at 18-20°, dil. with water to 250 ml. and mix. Test the sample in a photocalorimeter by comparison and det. the result from a calibration curve. Analysis requires 30-35 min. and intensity of coloration should be measured immediately after addn. of the molybdate and not later than 30 min. B. Z. Kamich

ABB. 51A METALLURGICAL LITERATURE CLASSIFICATION

ZAKHAROV, YE. L.

Category: USSR/Analytical Chemistry - Analysis of inorganic substances.

G-2

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 31040

Author : Mashovets V. P., Zakharov Ye. L.

Inst : not given

Title : Analytic Determination of Carbon Fluorides in Anodic Gases of an Aluminum Cell

Orig Pub: Zh. prikl. khimii, 1956, 29, No 10, 1512-1521

Abstract: The method of determination of carbon fluorides in the gases is based on decomposition of the fluorides with water vapor in the presence of activated Al_2O_3 and SiO_2 (at $700-800^\circ$) followed by absorption of CO_2 ; CO is burned over CuO at $300-350^\circ$ and the resulting CO_2 is absorbed in alkaline solution of pyrogallol. The method is applicable in the separation of CF from higher fluorides. The method described is more sensitive and yield better reproducible results than the fluoride method. It was found that anodic gases of an Al-cell having fired anodes, do

Card : 1/2

-59-

Zakherov, E. L.

"Analysis of carbon fluorides in the anodic gases of an aluminum bath. V. P. Mashkovets and E. L. Zakherov. J. Appl. Chem. U.S.S.R. 29, 1631-4 (1956) (English translation). See C. A. 51, 6134c. H. M. R.

4
4E2c
4E11g
11

4b

137-58-6-13911

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 385 (USSR)

AUTHOR: Zakharov, Ye.L.

TITLE: Determination of Oxygen and Hydrogen Contents in Titanium by the Vacuum-melting Method (Opredeleniye sodержaniya kisloroda i vodoroda v titane metodom vakuum-plavleniya)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 14, pp 27-33

ABSTRACT: The apparatus for the determination of O₂ and H₂ in metallic Ti by the vacuum-melting method is described. The specimen tested is melted at 1900°C in an 8-10-kw induction furnace. The analysis is based on a measurement of the pressure at a constant volume after fractional distillation of the gaseous mixture at low temperatures. For specimens containing 0.2-0.3 O₂ and H₂ the extraction requires 15-40 min; the analysis of the evolved gases requires 20-30 min. Precision of the method for O₂ is ±1% and for H₂ 5-10% (relative). Bibliography: 18 A.S. references. 1. Titanium--Analysis 2. Hydrogen--Determination 3. Oxygen--Determination 4. Induction heating--Applications

Card 1/1

VINOGRADSKIY, V.F., kand. tekhn. nauk; ZAKHAROV, Ye.N., nauchn. red.; POPOV, N.V., red.

[Vacuum planing of scantling parts in continuous multiple-line processing on automatic lines] Vakuumnoe bazirovaniye bruskovykh detalei pri mnogopotochnom sposobe obrabotki na avtomaticheskikh liniyakh. Moskva, TSentr. nauchno-issl. in-t informatsii i tekhniko-ekon. issledovaniy po lesnoi, tselliulozno-bumazhnoi, derevoobrabatyvaiushchei promyshl. i lesnomu khoz., 1964. 23 p. (MIRA 18:5)

34974
S/080/62/035/002/014/022
D204/D302


11.9200
AUTHORS:

Petrov, A. D., ~~Zakharov, Ye. P.~~, Zadorozhnyy, N. A.
and Ponomarenko, V. A.

TITLE:

Synthesis of organosilicon monomers containing nitrile groups

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 2, 1962, 385-389

TEXT: The authors studied the catalytic effects of bis(β -cyanoethyl)-cyanamide (I), dimethylaminoacetonitrile (II) and dimethylaminoproionizirile (III) on the addition of unsaturated nitriles to trichlorosilane. Compounds II and III were found to be most effective, giving 60% yields of the substituted products (cyanoalcy trichlorosilanes). Identification of the latter by infrared spectroscopy proved unsuccessful owing to the great similarity of the spectra. Addition reactions of Cl_3SiH to -CN and acrylonitrile with the above catalysts, as well as in the presence of H_2PtCl_6 and benzoyl or tert.-butyl peroxides were studied. The

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Synthesis of organosilicon ...

S/080/62/035/002/014/022
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last 3 catalysts proved less effective. The additions of Cl_3SiH , $\text{CH}_3\text{SiHCl}_2$, $\text{C}_2\text{H}_5\text{SiHCl}_2$, $(\text{CH}_3)(\text{C}_2\text{H}_5)\text{SiHCl}$ and $(\text{C}_2\text{H}_5)_3\text{SiH}$ to $\text{CH}_2 = \text{CHCH}_2\text{CH}_2\text{CN}$ were also investigated in the presence of H_2PtCl_6 . 50 - 80% yields were obtained. Physical characteristics of the products which are considered to be of interest for the production of silicone oils, are given together with a summary of the experimental procedure. There are 3 tables and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: J. V. Jex and J. E. McMahon, U.S. Patents 2,908,699, 2,908,700 and 2,908,701, Ch.A. 2169e (1960); J. C. Saam and J. L. Speier, J. Org. Chem., 24, 427, (1959); T. C. Williams, R. A. Piko and F. Fekete, Ind. Eng. Chem., 51, 939, (1959); C. E. Reed, Plast. World, 16, 8, (1958). X

SUBMITTED: April 24, 1961

Card 2/2

RZHONDKOVSKIY, R.P., dotsent; SINOPAL'NIKOV, K.G., dotsent; SAKHAROV, N.M.;
GRIN'KO, N.K.; ZAKHAROV, Ye.P.; KHADZHNIKOV, R.N.; LESNYKH, V.A.

Problems of orogeny. Ugol' 40 no.12:19-24 D '65.

(MIRA 18:12)

1. Gornyy fakul'tet Permskogo politekhnicheskogo instituta.
(for Rzhondkovskiy, Sinopal'nikov).
2. Kadiyevskiy gorodskoy
komitet Kommunisticheskoy partii Ukrainy (for Sakharov).
3. Kombinat Luganskugol' (for Grin'ko, Zakharov).
4. Kadiyevskiy
filial Kommunarского gorno-metallurgicheskogo instituta (for
Khadzhnikov, Lesnykh).

PETROV, A.D.; ZAKHAROV, Ye.P.

Synthesis of alkylbenzenes according to the Grignard-Wurtz reaction with substitution of a hydrocarbon solvent for the ether. *Izv.vys.ucheb.zav.; khim.i khim.tekh.* 2 no.3: 384-389 '59. (MIRA 13:8)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I.Mendeleeva, kafedra tekhnologii gaza i zhidkogo topliva.
(Benzene) (Grignard reagents)

PETROV, A.D.; ZAKHAROV, Ye.P.; ZAVERYAYEV, Yu.M.

Synthesis of diphenyl alkanes by the Wurtz reaction in a tetrahydrofuran or methylal medium. Zhur. ob. khim. 30 no.9:2838-2846 S '60.

(MIRA 13:9)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Paraffins) (Furan) (Methylal)

ZAKHAROV YE.P.

S 33003

5/079/60/030/06/02/009
8002/8016

AUTHORS:

Patkov, A. D., Faloge, B. D., Malinicheva, T. G.,
Zakharov, Ye. P., Fedorov, G. M., Zakharenko, Ye. R.,
Kobayashi, K. A.

TITLES:

Properties of Naphthene Hydrocarbons of Different
Structural Types of the Composition C₁₄-C₂₆

SYNOPSIS:

There have been no data available on the most important physical properties of the various alkyl cyclohexanes of the composition C₁₄-C₂₆ with branched side chains, the alkyl decalin and the tricyclohexyl alkanes and didodecyl alkanes, an attempt was made here to detect some relationships between boiling point, density, refractive index, molecular weight, structure, number of naphthene rings, their actual arrangement in the molecule and the degree of the side chain branching. The following naphthene hydrocarbons were synthesized by hydrogenation of alkyl-unsaturated hydrocarbons of the benzene and naphthalene series which were obtained by

Properties of Naphthene Hydrocarbons of
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Composition C₁₄-C₂₆ 5/079/60/030/06/02/009
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The authors for the first time by means of separation and distillation
compounds: 1) alkyl cyclohexanes with one naphthene ring in the side chain,
2) 1,1-dicyclohexyl alkanes and 1,1'-dicyclohexyl alkanes, 3) 1,2-di-
cyclohexyl alkanes, 4) n-alkyl decalin, 5) 1,1'-di-(6-decyl) 1,2-di-
naphthene some isoparaffins of the carbon number C₁₄-C₂₆ and didodecyl
tricyclohexyl alkanes with cyclohexyl rings distributed along the chain
were synthesized by the Diels-Alder reaction. Heat of combustion,
refractive index, density, kinematic viscosity at 20°C and structure.
The heat of combustion was determined in a bomb calorimeter according to
FOOT 1591-22 (GOST 1591-22) and the results show that the heat of combustion
by volume of compounds with branched side chains is lower than that of
the higher the number of the naphthene rings in the molecule, the higher
It was further found that in the 1,1'-di-(6-decyl) 1,2-di-naphthene
solidification point, the viscosity, and the refractive index with the volume
decrease with increasing molecular weight. In alkyl cyclohexanes with
equal branching degree, however, an increase of these properties is

Properties of Naphthene Hydrocarbons of
Different Structural Types of the
Composition C₁₄-C₂₆ 5/079/60/030/06/02/009
8002/8016

observable, which reflects the influence of the mutual arrangement of
the rings in the molecule. It was further found that the density,
the calorific value by volume, and the viscosity increase proportionally
to the number of the tertiary, but especially of the quaternary carbon
atoms in the side chains. The synthetic procedure is briefly outlined in
the experimental part. Synthesis schemes are given. There are 1 table
and 20 references; 7 Soviet and 15 American.

ASSOCIATED: Institut organicheskoy khimii Akademii nauk SSSR
(Institute of Organic Chemistry of the Academy of Sciences
of the USSR)

RECEIVED: June 7, 1959

Card 1/3

S/020/60/132/03/36/066
B011/B008

53700(B)

AUTHORS: Ponomarenko, V. A., Zakharov, Ye. P., Zadorozhnyy, N. A.,
Petrov, A. D., Corresponding Member AS USSR

TITLE: On the Peculiarities of the Effect of the Silyl-groups.
The Chlorination of the Alkyl-chloro-silicon-hydrides ↑

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 3,
pp. 619-622

TEXT: In the paper under review the authors continued their investi-
gations on the induction influence of the silyl- and germyl-groups on
the properties of the bond neighboring the Si, as well as of that
further away from it. In the further development of these investigations
they studied the photochemical chlorination of the alkyl-silane-
chlorides of the following series: $(C_2H_5)_2SiH_2$, $(C_2H_5)_3SiH$,
 $(CH_3)(C_2H_5)_2SiH$, $(CH_3)(C_2H_5)(Cl)SiH$, $(C_2H_5)(Cl)_2SiH$, $(CH_3)(Cl)_2SiH$ and
 Cl_3SiH . SO_2Cl_2 served for the chlorination under conditions worked out
lately by M. G. Voronkov and V. P. Davydova (Ref. 11). Furthermore, the
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On the Peculiarities of the Effect of
the Silyl-groups. The Chlorination of
the Alkyl-chloro-silicon-hydrides

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B011/B008

authors wanted to study the influence of the electric negativity of the chlorine atoms, and of the alkyl- and aryl-groups on the oscillation frequencies of the Si-H bonds in some silicon mono- and dihydrides. The data in Table 1 concerning the "competing" chlorination of the Si-bonds of the hydrides mentioned above proved the expectations of the authors. They expected that the transition from $(C_2H_5)_2SiH$ to Cl_3SiH

must retard the chlorination of the Si-bonds rapidly. The series of the relative activity thus corresponds completely to the increasing electric negativity of the silyl-groups (Table 2). It is surprising that only the Si-H-bonds are chlorinated here, but never the C-H-bonds of the alkyl-chloro-silicon-hydrides, although they can, as a rule, also be chlorinated, as known. This differing behavior of both bonds is connected with the specificity of the Si-H-bond and the Si-atom itself. The Si-atom distinguishes itself, contrary to carbon, by an increased electrophily. On the basis of these data, the formation of mainly $(C_2H_5)_2SiHCl$ could be expected at the photochemical radical-

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On the Peculiarities of the Effect of
the Silyl-groups. The Chlorination of
the Alkyl-chloro-silicon-hydrides

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chlorination of the diethyl-silane with SO_2Cl_2 . At the chlorination of
the $(\text{C}_2\text{H}_5)_2\text{SiH}_2$ the authors obtained actually only diethyl-chlorine-
silane. An analogous result was obtained at the "competing" chlorination
of a mixture from $(\text{C}_2\text{H}_5)_2\text{SiH}_2$ and $(\text{C}_2\text{H}_5)_3\text{SiH}$. The separation of the
induction-, the steric- and other effects of the group R_nX_{-3n} on the
basis of the data of the reactivity is difficult. The data on the
oscillation frequencies of the Si-H-bond may to some degree be helpful
for the solution of this difficult problem (Refs. 7,8). According to
the opinion of the authors it would be best to utilize the group-
electric negativities of the silyl-groups for the transition from the
oscillation frequencies to the electric negativities. They refer to
their previous papers (Refs. 13,14) and state in conclusion that the
effective electric negativity of the silyl-group is considered to be
the sum of the influences of the 3 substituents connected with Si.
The effective electric negativity of other silyl-groups is determined
by the summation of the values of the 3 substituents which form the

H

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On the Peculiarities of the Effect of
the Silyl-groups. The Chlorination of
the Alkyl-chloro-silicon-hydrides

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B011/B008

corresponding silyl-group. The values of the oscillation frequencies of the Si-H- and Si-D-formations are easily determined on the basis of the equation mentioned. Table 2 shows a good agreement of the computed and the experimentally determined values. The substances produced by the authors are: di-(m-trifluoro-methyl-phenyl)-silane (I), di-p-tolyl-silane (II), bis(γ,γ,γ -trifluoro-propyl)-silane (III), methyl-(m-trifluoro-methyl)-phenyl-silane (IV), methyl-p-tolyl-silane (V), methyl- γ,γ,γ -trifluoro-propyl-silane (VI), methyl-vinyl-silane (VII). There are 2 tables and 14 references, 10 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo
Akademii nauk SSSR (Institute of Organic Chemistry imeni
N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: February 17, 1960

Card 4/4

S/153/60/003/02/16/034
B011/B006

5.3200

AUTHORS:

Petrov, A. D., Zakharov, Ye. P.

TITLE:

On the Reactivity of Some Tertiary Chlorides and Their Derivatives in the Grignard Reaction

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2, pp. 301 - 304

TEXT: Giving three examples of Grignard reactions (1) - (3), the authors prove that the yield in tertiary alcohols by this reaction decreases due to an increased reducing effect of the Grignard reagents and increased steric hindrance. Apart from metal halide admixtures temperature increase, and replacement of diethyl ether by other solvents, the correct selection of condensation reagents with respect to structure is of great importance for increasing the yield. Thus, by condensing two molecules of tert.-butyl chloride, hexamethyl ethane is obtained in a yield of only 3%, while reaction of pentamethyl-ethyl bromide with methyl magnesium bromide gives 48% hexamethyl ethane (Ref. 7). Recently, the authors, in collaboration with

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On the Reactivity of Some Tertiary Chlorides
and Their Derivatives in the Grignard
Reaction

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B011/B006

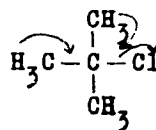
V. L. Sushchinskiy and T. I. Rogozhnikova (Ref. 8) showed that the branched tertiary alkyl halide 2-chloro-2,4-dimethyl pentane reacts more readily in some organomagnesium reactions than its isomer 2-chloro-2-methyl hexane or even tert.-butyl chloride. In order to compare the reactivities of 2-chloro-2,4-dimethyl pentane and tert.-butyl chloride in other reactions, the authors introduced the two compounds (and some of their derivatives) into the same reactions (see Table p. 302). The yields obtained, show that the reactivities of both these compounds and their derivatives are approximately equal. The authors assume the comparatively high yields obtained in the reactions in which $R = \text{iso-C}_4\text{H}_9$ to be due to the high mobility of the functional group caused by the polar effect of the iso-butyl radical. This leads to an "anionization" of the halogen or hydroxyl. This effect evidently compensates a certain decrease in reactivity due to increasing steric hindrance on passing from methyl- to isobutyl radicals. If, in addition, dynamic electron interaction ($\sigma\sigma$ -conjugation, Ref. 9) occurs in the substances used by the authors, it is clear that this interaction must affect the reactivities of the compounds containing an

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On the Reactivity of Some Tertiary Chlorides
and Their Derivatives in the Grignard
Reaction

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isobutyl radical and the ones containing a methyl radical fairly equally:



By reason of these findings, the authors come to the following conclusions and generalizations: The substitution of the isobutyl radical for the methyl radical in tertiary chlorides, even though steric hindrance increases it, does not reduce the reactivity of the chloride (or some of its derivatives) in Grignard reactions. The authors synthesized α,α,γ -trimethyl valeric acid, its acid chloride, and 2,2,4,4,6-pentamethyl heptanone-3 and determined their properties. These compounds have not been described in publications up to now. There are 1 table and 13 references, 5 of which are Soviet.

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On the Reactivity of Some Tertiary
Chlorides and Their Derivatives in
the Grignard Reaction

30663

S/153/60/003/02/16/034
B011/B006

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskoy institut im.
D. I. Mendeleyeva; Kafedra tekhnologii neftekhimicheskogo
sinteza (Moscow Institute of Chemical Technology imeni
D. I. Mendeleev, Chair of Technology of Petroleum-chemical
Synthesis)

SUBMITTED: July 12, 1958

LX

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