

GRCE, Z.

GRCE, Z. Fisheries on Vransko Lake. p. 217.

Vol. 8, No. 7. July 1956.

MORSKO RIBARSTVO

AGRICULTURE

Rijeka, Yugoslavia

So: East European Accession, Vol. 6, No. 2, February 1957

GRCE, Z.

"Results of fisherman from Kopacevo at Lake Vrana."

p. 266 (Morsko Ribarstvo) Vol. 9, no. 10, Oct. 1957
Rijeka, Yugoslavia

SO: Monthly Index of East European Accessions (EEAI) IC. Vol. 7, no. 4,
April 1958

GRCE, Z.

Kinds of fishes in Vrana Lake; diseases of some of them. p. 9.

Periodical: MORSKO RIBARSTVO.

Vol. 11, no. 1, Jan. 1959.

AGRICULTURE

SO: Monthly List of East European Accessions (EEAI) LC

Vol. 8, No. 4
April 1959, Uncl.

PERSIC, N.; GRCEVIC, N.
~~XXXXXXXXXXXXXXXXXXXX~~

Mental disorders as dominant symptoms in brain tumor. Neuropsi-
hijatrija 2 no.1-2:72-87 1954.

1. Iz Neuropsihijatrijske klinike Medicinskog fakulteta u Zagrebu
(Predstojnik: prof. dr R.Lopasic)
(BRAIN, neoplasms,
causing ment.disord.)
(MENTAL DISORDERS, etiology and pathogenesis,
brain tumor)

ERAK, P.; GRCEVIC, N.

Subacute sclerosing leukoencephalitis. Neuropsihijatrija 2 no.3:
145-151 1954.

1. Iz Klinike za dječje bolesti Med.fak. u Zagrebu (predst.prof.
dr. N. Skrivanelli) Neuropsihijatrijske klinike Med.fak.u Zagrebu.
(predst.prof. dr R. Lopasic)
(ENCEPHALITIS,
subacute sclerosing leuko-encephalitis)

ZESKOV, P.; GRCEVIC, N.; LBETIC, V.

Dumbbell ganglioneuroblastoma of the spine. Neuropsihijatrija 10
no.1/285-98 '62.

1. Iz Klinike za dječje bolesti, Neuropatološkog odjela Neurološko-
psihijatrijske klinike i Kirurske klinike Medicinskog Fakulteta u
Zagrebu.

(GANGLIONEUROMA)

(SPINAL CORD NEOPLASMS)

S

ROGINA, V.; GRCEVIC, N.

Amnestic syndrome in malignant angioglioma of the 3rd ventricle.
Neuropsihijatrija 11 no.1:102-109 '63

1. Iz Neurolosko-psihijatrijske klinike Med. fakulteta Sveuilista
u Zagrebu; predstojnik: prof. dr. R.Lopasic.

*

GRČEVIĆ, Dr Nenad, Neuropathological Laboratory (Neuropatološka Laboratorija), Neurological-Psychiatric Clinic (Neurološko-psihijatrijska Klinika), Faculty of Medicine (Medicinski Fakultet), Zagreb.

"The Pathology and Pathogenetic Mechanisms of Hydrocephalus."

Zagreb, Liječnički Vjesnik, Vol 85, No 9, September 1963, pp 943-963.

Abstract: [Author's English summary modified] So far as classification according to the time of the primary or causative condition is concerned, "congenital" cases of hydrocephalus should be regarded as limited to those caused during the earlier intrauterine period and "acquired" cases to those in which the causative agent has been operative subsequent to the postnatal period, while cases arising during the period between the times of prenatal and early postnatal development could be described as "perinatal." Criteria of time and function are combined to provide a survey of possible causative mechanisms and pathological conditions which may lead to such malformations, as well as of brain changes resulting therefrom.

Nine photographs, two tables, 86 Western references of both earlier and later date and four recent Yugoslav references.

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- 7 -

GRCIC, Aleksandar, sanitetski potpukovnik dr

Surgical therapy of prognathism. Voj.san.pregl., Beogr. 17 no.10:
1012-1015 0 '60.

1. Vojnomedicinska Akademija u Beogradu, Klinika za bolesti usta,
zuba i vilica
(PROGNATHISM surg)

YUGOSLAVIA

Antoniје SKOKLJEV, Momcilo MITROVIC and Aleksandar GRCIC, Clinic for Oral, Dental and Maxillary Diseases (Klinika za bolesti usta, zuba i vilica) Chief (Nacelnik) Col Prof Dr Safet LATIFIC; and ORL Clinic (Klinika za bolesti uva, nosa i grla) Chief Col Prof Dr Ante SOKCIC, Military Medical Academy of the Yugoslav Army (Vojnomedicinska akademija Jugoslavenske Narodne Armije,) Belgrade.

"A Case of Tumor of the Carotid Body."

Belgrade, Srpski Arhiv za Celokupno Lekarstvo, Vol 91, No 2, Feb 63; pp 205-209.

Abstract [German summary modified]: Case report in women aged 39; a walnut-sized tumor of 5 years duration. Excision was followed by uneventful cure and no recurrence within the 2 years' follow-up. Three Yugoslav and 15 Western references, 2 photomicrographs.

1/1

10

SIMIC, Zivadin, inz.; GRCIC, Bozo, inz.

The Seventh European Exhibition of Machine Tools at Brussels;
September 2-13, 1961. Tehnika Jug 17 no.5:Suppl.: Masinstvo
11 no.5:909-911 My '62.

GRCIC, J., dr., ing.

Study of the oscillations and stability of a water reservoir under
air pressure. Vodoprivreda Jug 2 no.7/8:179-193 '59. (EEAI 10:1)

1. Universite de Zagreb.
(Oscillations) (Hydraulics) (Reservoirs)

GRCIC, Josip, dr inz. (Zagreb)

~~Studies on the water level in wells. Gradevinar 15 no.5:163-166~~
Ap '63.

GRCIC, J., dr inz.

"Hydrotechnical research" by [prof. dr. inz.] Jaroslav Cabelka
and [doc. dr. inz.] Pavel Novak. Reviewed by J.Grcic. Građevinar
16 no.10:375 0 '64.

MIRJANIC, Nikola; MLADENOVIC, Dragomir; ~~GRCIC, Radivoj~~; KOSTIC, Pavle

Largactil in postoperative care. Srpski arh. celok. lek. 84 no.4:
501-510 Apr 56.

1. Ginekoloske-akuserska klinika Med. Fak. u Beogradu.

Upravnik: Sinisa Tasovac.

(CHLORPROMAZINE, ther. use

postop. care in surg. for gynecol. dis.)

(POSTOPERATIVE CARE, in various dis.

chlorpromazine in surg. for gynecol. dis. (Ser))

(GYNECOLOGICAL DISEASES, surg.

postop. care with chlorpromazine (Ser))

GRCIC, Radivoj

Roentgenological diagnosis of intrauterine fetal death. **Srpski**
arh. celok. lek. 87 no.7-8:671-675 J1-Ag '59.

1. Ginekolosko-akusersko odeljenje Opste bolnice u Srenckoj
Mitrovici, sef: dr. Radivoj Grcic.
(FETUS)

GRCIC, Radivoj; ZIVKOVIC, Jovan

Polymasty. Srpski arh. celok. lek. 87 no.10:953-956 0 '59.

1. Ginekolosko-gakusersko odeljenje Opste bolnice u Sremskoj
Mitrovici, sef: dr Radivoj Grcic.
(BREAST abnorm.)

YUGOSLAVIA

GRCIC, Radivoj, Chief (Sef), Department of Obstetrics and Gynecology of General Hospital (Ginekolosko-akusersko odeljenje Opste bolnice), Sremska Mitrovica.

"Spontaneous Rupture of the Muscle Rectus Abdominis as a Problem of Gynecologic Diagnosis."

Belgrade, Srpski Arhiv za Tselokupno Lekarstvo, Vol 91, No 4, Apr 63; pp 441-443.

Abstract : Hematoma of rectus abdominis with severe local (LLQ) and systemic symptoms responded to conservative treatment. Main difficulty was differential diagnosis, resolved by tentative aspiration of contents of protuberance (suspicion of ectopic pregnancy, incarcerated hernia.) Nine western references.

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2434

CSO: 2000-N

GRCIC, Radivoj; ZIVKOVIC, Jovan

Placenta praevia centralis accreta. Srpski arh. celok. lek. 88
no.3:233-235 Mr '60.

1. Ginekolosko-akusersko odeljenje Opste bolnice u Sremskoj Mitrovici.
Sef: dr Radivoje Grcic.

(PLACENTA PRAEVIA)

GRCIC, Radivoj

Chorea gravidarum. Srpski arh. celok. lek. 91 no.6:627-629
Je'63.

1. Ginekološko-akusersko odeljenje Opste bolnice u Sremskoj
Mitrovici. Sef: dr. Radivoj Grcic.

★

GRDEN, Lovro

Problem of decentralization at the Ljubljana 1 Post Office.
PTT zbor 14 no.7/8:177-178 Ag '62.

1 2 3 4 5 6 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

1ST AND 2ND COPIES

PROCESSES AND PROPERTIES INDEX

CA 2

Common Element

Crystal structure of diphenylmercury. A. I. Kitalgorodskii and D. R. Gedenich. *Bull. acad. sci. U.R.S.S., Class. sci. chem.* 1968; 200 (in Russian).—X-ray examn. of Ph_2Hg crystals gives $a = 10.75 \text{ \AA}$, $b = 8.30 \text{ \AA}$, $c = 5.50 \text{ \AA}$, with vol. of elementary cell 490 \AA^3 , 2 mols. per cell. Space group is C_{2h} with the Hg atom at the center of symmetry in the crystal. The C-Hg-C angle appears to be 110° with Ph rings in the same plane. G. M. K.

OPEN MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

REGION ROMANOV

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1 2 3 4 5 6 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

GRDENIC, D.

Yugoslavia (430)

Science

The absorption factor for single crystals in X-ray structure analysis, p. 149. GLASNIK MATEMATICKO-FIZICKI I ASTRONOMSKI, Vol. 4, no. 4, 1949.

East European Accessions List, Library of Congress, Vol. 1, no. 14, Dec. 1952. UNCLASSIFIED.

CA

Crystalline structure of mercury alkyl halides. D. H. (Lefschitz) and A. I. Kitagorodskii. *Zhur. Fiz. Khim.* 23, 1161-71 (1949); cf. *C.A.* 63, 7773r. Several x-ray methods applied to 0.012-cm. thick plates of compns. prepd. according to Shotts and Jacobs (*C.A.* 23, 1870) gave for tetragonal MeHgCl, EtHgCl, EtHgBr, and PrHgCl (all belonging to space group $D_{2d}^2 - P/nmm$) a and c 4.62 and 9.39, 4.65 and 10.52, 4.90 and 10.62, and 4.70 and 13.62 Å., resp., and for rhombic BuHgCl ($C_{2v} - P_{212}$) a 4.10, b 5.34, and c 15.16 Å. In the tetragonal crystals, Hg, halogen and the center of the alkyl radical are situated on the quaternary axis. The ordinates of Hg are 1.30, 1.31, 1.29, 1.22, and 1.28 Å., resp. The Hg-Cl, Hg-Br, and Hg-C distances are 2.50, 2.51, and 2.08 Å., all \pm 0.03 Å. The Me, Et, and Pr radicals seem to rotate about the c axis, but the rotation must be synchronized to avoid collisions. I. J. Bikerman

Chemical Structure

S.A.
Sect. A

541.57: 548.736.3

1292. The covalent bond length of mercury-chlorine. D. GANANI, *Ark. Kemi.*, 22, 14-25 (1950) in *Chemical Abstracts*, Summary in English.

The results of Brinkley and Schubert [*Z. Krist.*, 88, 448-55 (Nov., 1934)] for HgCl₂ are confirmed, and the atomic parameters refined to $y = 0.126 \pm 2$, $z = 0.050 \pm 4$ for the Hg atom and $y = 0.255$, 0.496 ± 5 ; $z = 0.486$, 0.880 ± 15 , respectively, for the Cl atoms, leading to an Hg-Cl distance of 2.25 Å. Oscillation photographs about [100] and microphotometry were used. The covalent Hg-Cl distance in various compounds is discussed. In HgCl₂, CH₂HgCl₂ and C₂H₄HgCl₂ it is about 2.30 Å, slightly more than the sum (2.47 Å) of the accepted covalent atomic radii, whereas in HgCl₂ and HgCl₂ (dissociated HgCl₂ vapour; see *Phys. Rev.*, 57, 21-3 (Jan. 1, 1940)) it is about 2.25 Å.

A. J. C. WILSON

GRDENICH, D.R.

"The crystal and molecular structure of mercury diethylenic oxide," Phys. Abs., 1952.

GRDENICH, D. R.

"A note on the calculation of the absorption factors for single crystals with high absorbing power," Phys. Abs., 1952.

GRDENIC, D.

(1)

Hg₂P₂I₂ — D. Grdenic, S. Ševčičar, and M. Kesler
 (Pac. Nat. Sci. Math., Zagreb, Yugoslavia). *Arhiv Kem.*
 24, 81-8 (1952) (in English). — P₂I₄ (20 g.) and 40 g. Hg were
 heated for 10 hrs. in a sealed tube of high-melting glass in an
 atm. of CO₂. At the bottom the tube was kept at 330-340°
 and in the center at 250°. Cooling took 2-3 hrs. The low
 part of the tube contained Hg₂P₂I₂ (88% of theory), HgI₂,
 Hg, and scarlet amorphous P. Well-developed crystals
 were obtained occasionally when the process was repeated
 with 1/10 of the above amounts. The compd. cannot be
 analyzed according to the Volhard method; the Souberain-
 Liebig method was used. Hg₂P₂I₂ can be prepd. also from 2
 g. P₂I₄ and 8 g. Hg in a sealed glass tube by heating for 15 hrs.
 in the same manner. The crystals are monoclinic. The
 unit cell and space lattice group were detd. from oscillation
 photographs taken with filtered CuK radiation. $a =$
 13.07 , $b = 12.44$, and $c = 17.16$ Å; $\beta = 120.2^\circ$. As the
 density is 7.69, the unit cell must contain 12 stoichiometric
 units of Hg₂P₂I₂; the space lattice group is $C_{2h}^2 - P2_1/c$.
 Werner Jacobson

GRDENIC, D.

"Aggregated Conditions Of Water In The Light Of Modern Science." p. 337
Vol. 40, No. 9, Nov. 1953, Zagreb.)

(PRIRODA,

SO: Monthly List of East European Accessions, Vol. 3, No. 3, Library of Congress,
March 1954, Uncl.

CORDELL, D.

5-3

YUGO.

Mercuric oxychloride as tri-chloromercury-oxonium chloro-
 (Hg₂Cl₂O₂)₂·Cl⁻ and H₂O (Zurich, Yugo-
 slavia). *Nature* 172, 781-2 (1953). $\sim 211\text{g Cl}_2/\text{Hg}$ was exam-
 ined by x-ray diffraction. Its crystals belong to the cubic
 tetrahedral class. The unit cell edge is $a = 0.22 \text{ \AA}$, and
 the space group is T^h_2 with four formula units in the
 elementary cell. The interatomic distances indicate the
 structure $[(\text{Hg}_2\text{O})_2\text{Cl}]^+$. Sidney Arden

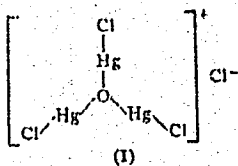
MA

Jan

GRDENIC, D.

YUGO

The crystal structure of trichloromercurioxonium chloride. ^{CH}
 S. Ševnikar and D. Grdenic (Univ. Zagreb), ⁽¹⁾
Acta Cryst. 8, 275-8 (1955). The crystal structure of the
 so-called trimeric oxytetrachloride, $2\text{HgCl}_2 \cdot \text{HgO}$, was
 analyzed by x-ray methods. It follows from the positions
 of all atoms, derived by means of the electron-d. projection,
 and from the symmetry relations, that the lattice consists of
 $(\text{ClHg})_3\text{O}^+$ cations and Cl^- anions (I). This compd. is
 therefore a trichloromercurioxonium chloride. The crystals



are cubic with the space group T^h-P2_13 . The unit cell,
 of dimension $a = 9.22 \text{ \AA}$, contains 4 formula units. The
 O atoms are located on triad axes and the $(\text{ClHg})_3\text{O}^+$ ion
 thus has trigonal symmetry. Moreover, it follows from
 the ut. coordinates that this ion is planar with O, Hg, and
 Cl atoms very nearly in a straight line, the distances O-Hg
 and Hg-Cl being 2.03 and 2.28 \AA , resp. Each oxonium
 ion has 3 neighboring Cl^- ions located between 2 Hg atoms
 with Hg... Cl^- distances of 2.94 and 3.94 \AA , resp.
 W. Nowacki

GRDENIC, D.

①
 ②

Compounds of the Group V elements with mercury. II. Mercury arseno-iodide $Hg_2As_2I_4$ and mercury antimoniodide $Hg_2Sb_2I_4$. D. Grdenić, K. Strunjak, and H. Dedić (Univ. Zagreb, Yugoslavia). *Arhiv kem.* 27, 69-68 (1955) (in English); *C. C. A.* 43, 9856e. — The prepn., analyses, and properties of new compds. $Hg_2As_2I_4$ (I) and $Hg_2Sb_2I_4$ (II) are given. For prep. I, 2.3 g.-atoms of Hg and 1 mole of AsI_3 were heated 10 hrs. in a sealed hard-glass tube 1 cm. in diam. and 25 cm. long, air having been previously displaced by dry CO_2 . Heating at 260° , with a third of the tube in an Al block, produced on the upper parts of the tube crystals of Hg_2I_4 and HgI_2 , mixed with small amts. of a brown undefined powder and drops of Hg, and at the bottom reddish brown crystal agglomerates of I. By heating the latter in a sealed glass tube as before, pure I was obtained. For prep. II, 2.5 g.-atoms Hg and 1 mole of SbI_3 were used in the same way as with I. The temp. of the Al block was first maintained 1 hr. at 210° , then 4 hrs. at $300-10^\circ$. As a result, there were obtained Hg iodides, drops of Hg, small amts. of an undefined brown product, and at the bottom a black cryst. cake of II, which, purified as in the case of I, gave sintered crystal agglomerates of II. Chem. analyses of several purified prepns. of I and II agree with the formulas given. Crystals

AMT

(P.C.L.)

of II are dark gray, nearly black with a violet tinge, and are dark gray in the transmitted light. X-ray investigation of II gave $a = 21.22 \text{ \AA}$, $c = 8.00 \text{ \AA}$, the crystals being tetragonal. Calcd. d. is 5.52 g./cc.; phenometrically d. is 5.40 g./cc. I and II do not change upon treatment with cold H_2O or acids, but are quickly destroyed by warm concd. HNO_3 or H_2SO_4 , in the latter case yielding iodine, and blacken in HCl . I blackens upon short exposure to daylight, but this effect is limited to a thin surface layer only. Neither I nor II is sensitive to air at room temp.; they ignite on heating, yielding HgI_2 and Hg , and As or Sb oxide. Both I and II are destroyed by warm NH_4KOH , with no gas evolution, leaving a gray powdery residue contr. the total amt. of Hg . The total amt. of I and half of the total amt. of As or Sb were in the alk. soln., the other half remaining in the residue in elementary state mixed with Hg . It is postulated that atoms of As or Sb together with Hg atoms form in the unit cells of I or II tridimensional polymeric octahedra, sharing all corners. The remaining cuboctahedral cavities accommodate the large iodo-arsonium or iodo-stibonium ions. N. Plavšić

GRDENIC, D.; KRISTANOVIC, I.

The crystal structure of di-pyridino-mercury chloride. p. 143.

CROATICA CHEMICA ACTA. (Hrvatsko kemijsko drustvo, Sveuciliste u Zagrebu i Hrvatsko prirodoslovno drustvo) Zagreb, Yugoslavia. Vol. 27, no. 3, 1955. (Arhiv za kemiju) In English.

Monthly list of East European Accessions (EPAI) LC, Vol. 8, no. 8, Aug. 1959

Uncl.

Grdenic, D.

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✓ The mercury-mercury bond length in the mercurous ion.
 I. The crystal structure of mercurous nitrate dihydrate.
 D. Grdenic (Univ. Zagreb, Yugoslavia). *J. Chem. Soc.*
~~1958, 1342-46.~~ Crystals of $Hg_2(NO_3)_2 \cdot 2H_2O$ are monoclinic, space group $I2/n$, $a = 8.61$, $b = 7.52$, $c = 6.30$ Å, $\beta = 103^\circ 48'$, and $Z = 2$. The structure was detd. by single crystal methods. Absorption corrections were applied to the data. The termination of series effect was very large so that the positions of H_2O and NO_3^- could not be obtained accurately. The Hg atoms are linked in pairs across centers of symmetry with Hg-Hg distance 2.54 ± 0.01 Å. Each Hg has 2 O neighbors from a NO_3^- ion at 2.42 and 2.40 and a third O neighbor from the H_2O at 2.15 Å. The close approach of the H_2O to the Hg gives evidence of an oxonium ion $[H_2O \cdot Hg \cdot Hg \cdot OH_2]^+ \cdot$. The Hg-Hg-OH₂ angle is about 100° . II. The crystal structure of mercurous fluoride. D. Grdenic and C. Djordjević. *Ibid.*: 1310-19. The crystal structure of Hg_2F_2 was detd. from x-ray powder photographs. The crystals are tetragonal, space group $I4/mmm$ with $a = 3.60$, $c = 10.90$ Å, and $Z = 2$. Both Hg and F are in the special position $4(e)$ with one parameter. A 3-dimensional line Fourier synthesis and a difference Fourier were used to locate the atoms. The Hg-Hg distance is 2.43 ± 0.05 and the Hg-F distance is 2.31 Å. The coordinates for Hg and F are $z = 0.111$ and 0.323 , resp.

Chem 1

Don T. Cromer

MA

7
 V. The tri(methylmercury)oxonium compounds. D. Grčić and B. Zado (Univ. Zagreb, Yugoslavia). *Chem. Abstr.* 29, 426-30 (1957) (in English).—The compds. (MeHg)₃OBF₄ (I), (MeHg)₃O (II), and (MeHg)₃OBr (III) were synthesized. MeHgOH (18 g.), prepd. by the Slotta and Jacobi method (*C.A.* 23, 1870), was dissolved in MeOH (50 ml.) carefully neutralized with 40% HBF₄, warmed with a small amt. of C, filtered and evapd. to dryness *in vacuo* at room temp. The residue was dissolved in as little MeOH as possible, the soln. filtered, a 15-fold vol. of dry Et₂O added to the filtrate, the pptd. crystals of I filtered off after staying overnight in the mother liquid, washed with Et₂O, and dried *in vacuo*. The colorless needlelike crystals are stable in dry atm., and m. 98°. II was obtained by dissolving 5 g. MeHgOH in 100 ml. dry MePh at 75°, filtering the soln., distg. it at about 50 ml., and cooling the residue to room temp. The needle-shaped crystals were filtered off, washed with dry petroleum ether and kept *in vacuo*, m. 137.5°. To obtain III, a soln. of II in C₆H₆ was boiled with a 50% excess of MeHgBr, III, m. 116°. The crystals of I have a hexagonal habit with prismatic and rhombohedral faces; picnometric d.: 4.11 g. cm.⁻³. The unit cell dimensions detd. by x-ray analysis are *a* 28.85 Å and *c* 10.72 Å.; calcd. d.: 4.26 g. cm.⁻³. The Patterson synthesis in projection along the *c* axes was made.

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2 may

gf

N. Plavčić

G R DENIC, D.

21
 Laboratory preparation of anhydrous chromium(III) chloride. D. Gindrić and M. Gjurović (Univ. Zagreb, Yugoslavia). *Croat. Chem. Acts* 30, 108-9 (1958) (in English).—One hundred g. of finely powd. hydrated Cr(III) chloride, $[\text{CrCl}_2(\text{H}_2\text{O})_6]\text{Cl}\cdot 3\text{H}_2\text{O}$, and 325 ml. of thionyl chloride were placed in a 1-l. round bottom flask with a ground joint holding an efficient reflux condenser protected with a CaCl_2 drying tube. The mixt. was gently refluxed on

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420
1-17-53

a water bath for 8 hrs. After this time no traces of HCl could be detected escaping from the condenser, and the color of the solid in the flask was completely changed from green to violet. Thionyl chloride was distd. over and then completely removed by heating the flask on a water bath first in a stream of dry air and eventually under reduced pressure. Crude anhyd. CrCl_3 could be easily shaken from the flask and stored in a tightly stoppered bottle. It deliquesced in open air because of the Cr(II) chloride present and must be purified by sublimation in a stream of dry Cl₂. The sublimation was carried out in a vitreous silica tube (2-3 cm. in diam., 80 cm. in length) in portions of 8-10 g. of the crude material placed in a porcelain boat at 950° in an elec. furnace. The sublimate was easily sepd. from the impurities deposited at the end of the tube and could be eventually purified by boiling with concd. HCl and washed with water.

67K
VI

Distr: 4E3d/4E3b/4E2c(j)

p-Bisphenylmercuribenzene. M. Malnar and D. Grdenic
(Univ. Zagreb, Yugoslavia). *J. Chem. Soc.* 1959, 3839.
The Grignard reaction of p-bisbromomagnesiobenzene with
phenylmercuric bromide was used for the prepn. of p-bis-
phenylmercuribenzene (I). To prep. the dimagnesium
compd., the Houben method [*Chem. Ber.* 38, 3796(1905)]
was used. It was found that the amt. of Mg dissolved could
be increased by a longer heating period und less solvent. The

yield of I, m. 143° (PhMc), was never higher than 16%
of the theoretical amt. The main product was an insol.
polymer. S. A. Liebman

DADIC, M.; GRDENIC, D.

Symmetrical and mixed bisalkylmercuric sulfides. Croat chem acta 32
no.1:39-42 '60. (EEAI 9:12)

1. Laboratory of Gneral and Inorganic Chemistry, Faculty of Science,
University of Zagreb, Zagreb, Croatia, Yugoslavia.
(Mercury sulfide) (Alkyl groups)

BRDENIC, D.

Distr: 4E2c(m)

27.

4
MSC(JS)
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✓ The coordination of tin in stannous chloride dihydrate. D. Grdenić and B. Kamenar (Rudjer Bosković Inst., Zagreb, Yugoslavia). *Proc. Chem. Sec.* 1960, 312-13. X-ray analysis indicated that 1 H₂O mol. in SnCl₂·2H₂O (I) is coordinated about the Sn atom, whereas the other H₂O mol. is located outside the coordination sphere. Four pairs of electrons, 1 of which is nonbonding, are arranged tetrahedrally about the central Sn atom. This rules out the possibility that I contains 2 H₂O mols. in the coordination sphere with 5 electron pairs, 1 of which is nonbonding, arranged in a trigonal-pyramidal configuration about the Sn atom. Further evidence for 2 kinds of H₂O is the loss of 1 mole of H₂O for each mole of I on dehydration at 80° and atm. pressure. I crystallizes in monoclinic prismatic crystals along {001}. The crystallographic data detd. from single-crystal oscillation and Weissenberg photographs are $a = 9.38 \text{ \AA}$, $b = 7.22 \text{ \AA}$, $c = 9.02 \text{ \AA}$, $\beta = 114^\circ 58'$, $V = 653.8 \text{ cu. \AA}$, $D_x = 2.710 \text{ g./cc}$, $Z = 4$, $D_s = 2.707 \text{ g./cc}$, $F(000) = 416$, space group $P2_1/c(C_2^2)$. The Sn—Cl and Sn—O bond lengths within the complex are 2.59 and 1.99 Å, resp.; and the bond angles Cl—Sn—Cl and O—Sn—Cl are 87.3° and 85.2°, resp. David T. Sorenson

GRDENIC, D.; PAVKOVIC-SEVDIC, D.

Gallium in Yugoslav bauxites. Rad mat fiz teh JAZU. no.319:167-
177 '61.

S/262/62/000/011/030/030
1007/1252

AUTHOR Grdina, Karel
TITLE Rotary supercharger of Czechoslovak manufacture
PERIODICAL Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 11, 1962, 85, abstract 42.11.585. (Chekhosl. tyazhelaya prom-st, no. 10, 1961, 8-15)

TEXT A description is given of the design and characteristics of Roots-type [misprint in original?—Ed note] superchargers. Seven sizes are produced by Czechoslovak industry. Design data: back pressure 1.4 kg/cm²; speed 4000 rpm; wheel diameter 140-210 mm; wheel length 125-350 mm; weight of superchargers from 20 to 48.5 kg. There are 11 figures.

[Abstracter's note: Complete translation.]

Card 1/1

GRDINA, YA. V.
AID No. 976-12 26 May

NITRIDING OF DIFFUSION-COATED STEELS (USSR)

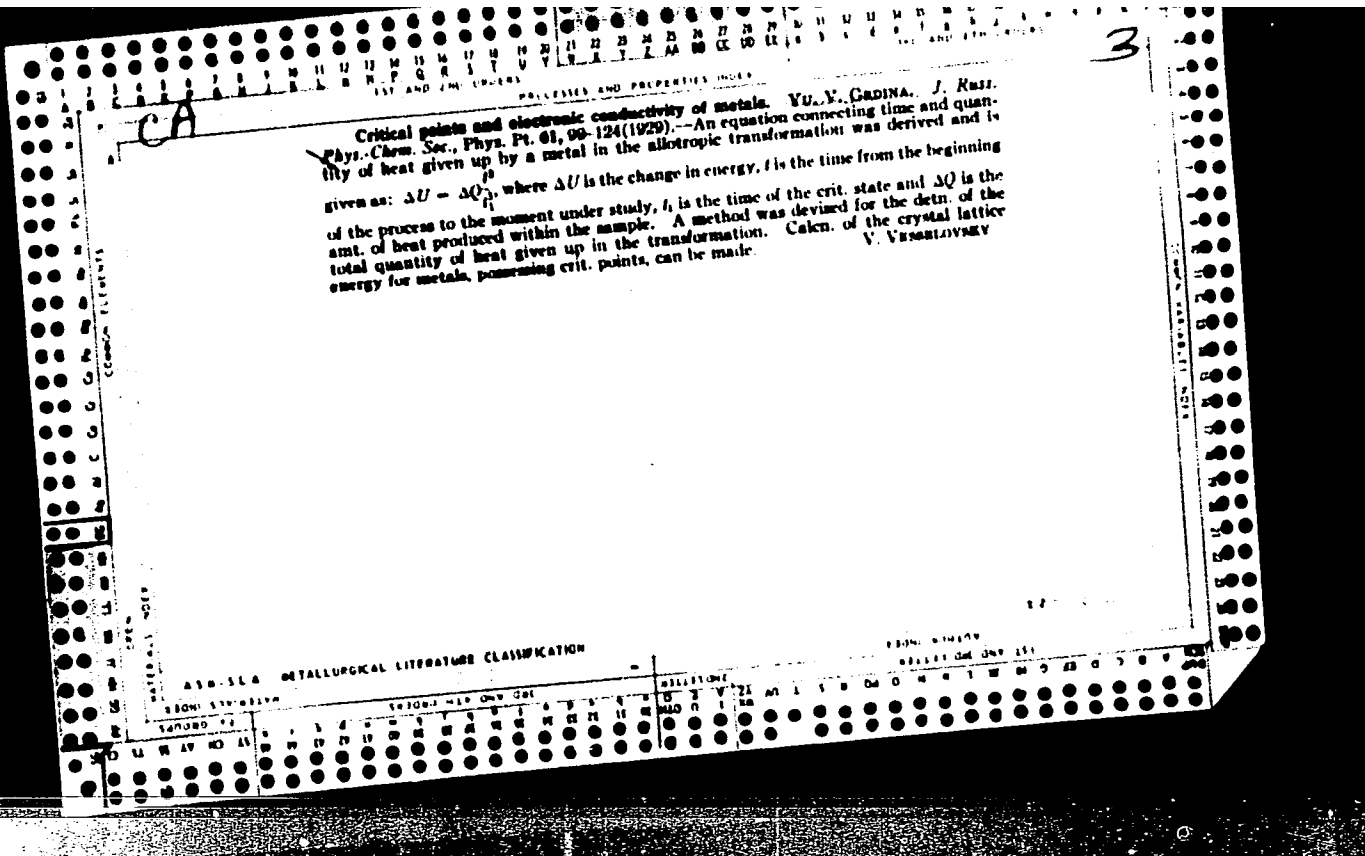
Grdina, Ya. V., and A. F. Sofroshenko. Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 2, 1963, 115-119.

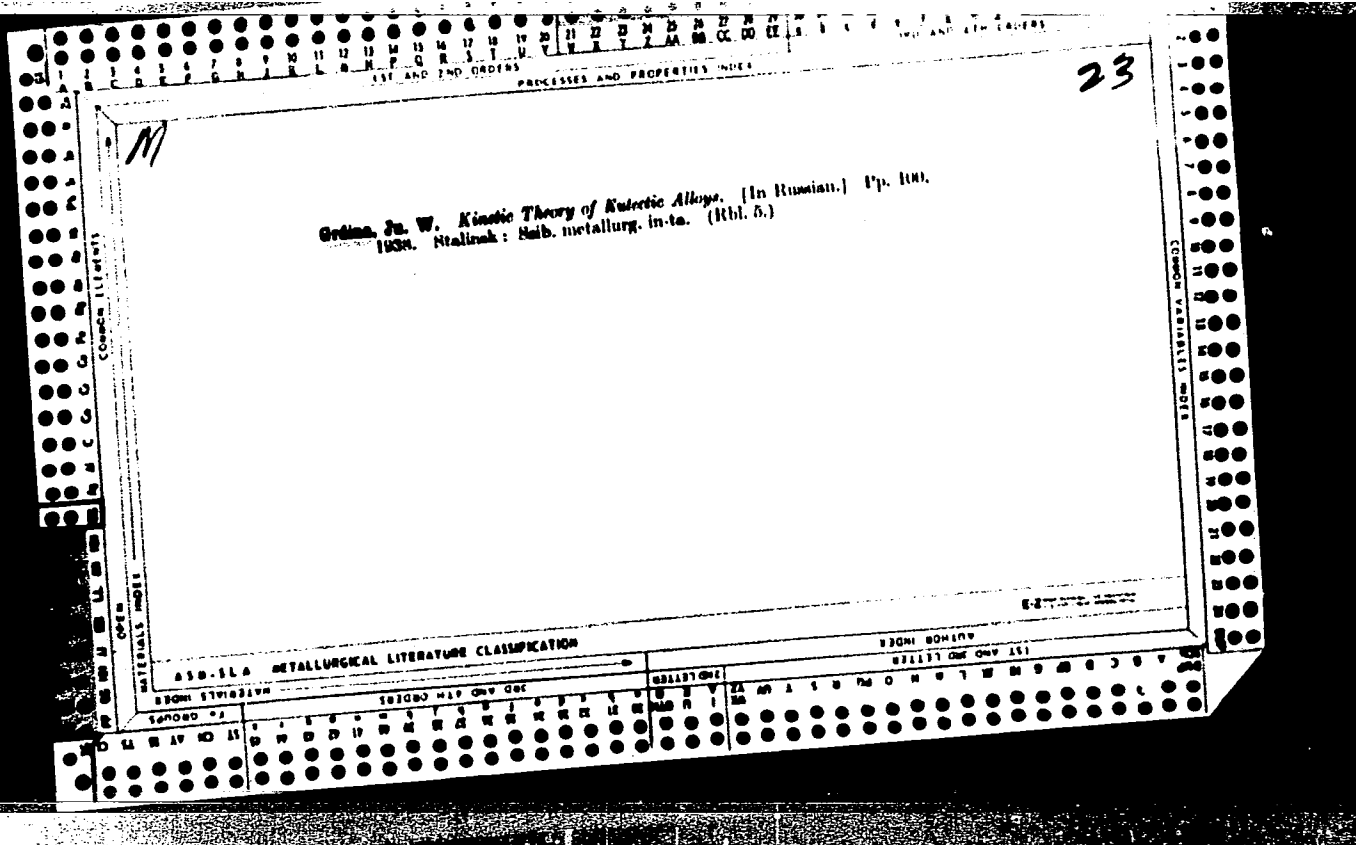
S/148/63/000/002/003/006

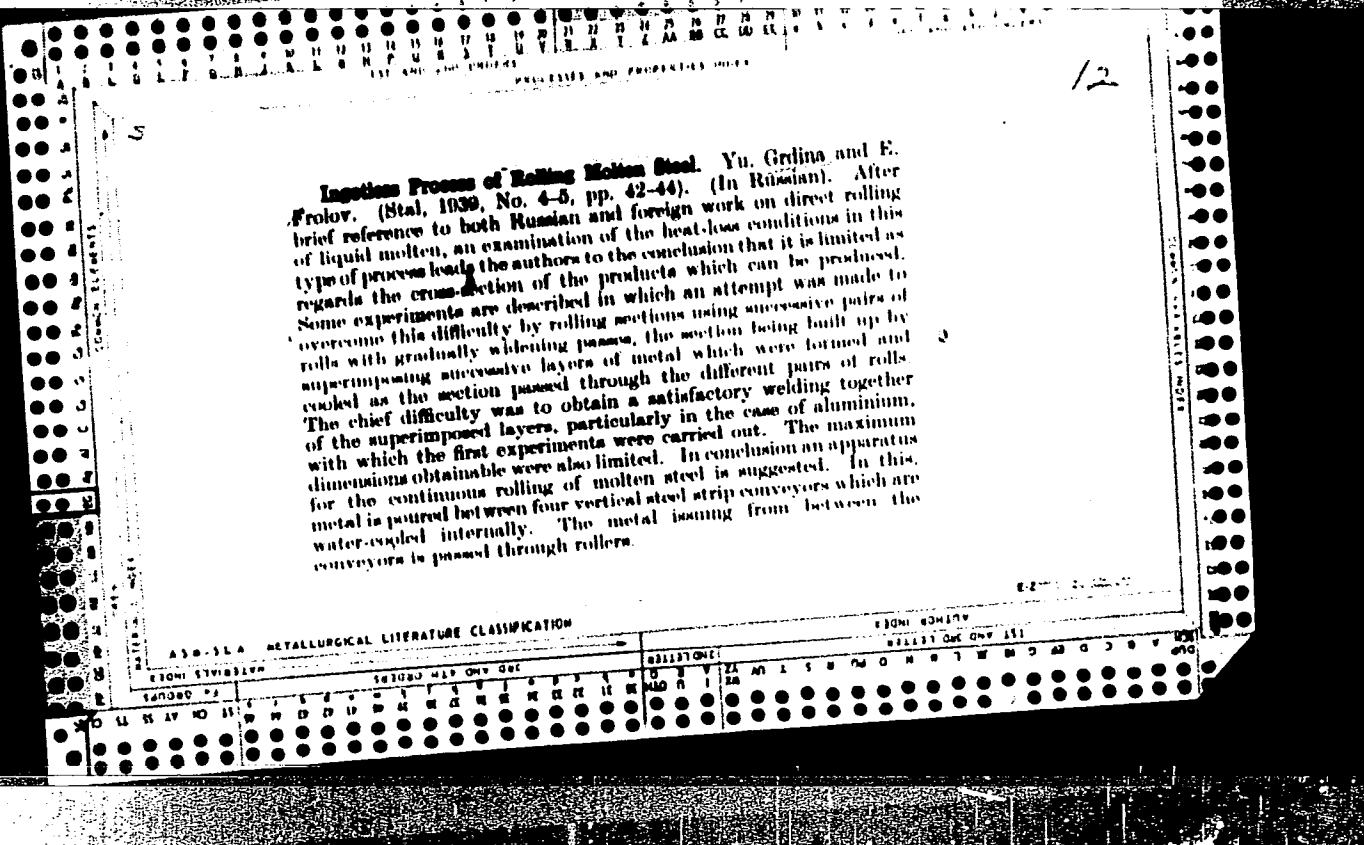
The Siberian Metallurgical Institute has experimented with the nitriding of CT3 steel [0.14-0.22% C] impregnated with Al, B, Ti, or Si and 38XMA steel [0.35-0.42% C, 1.35-1.65% Cr, 0.15-0.25% Mo] impregnated with Al. The nitriding done in cracked ammonia at 500-530°C for 22-24 hrs, produced in Al-, B-, Ti-, and Si-impregnated steels nitrided layers 0.4, 0.33, 0.30, and 0.16 mm deep, respectively, with corresponding hardnesses of 1500-1700, 2500-2800, 1600-1650, and 900-950 HV. Nitriding at a temperature of 850°C of specimens coated with B, Ti, and Si produced nitrided layers 0.30, 0.32, and 0.33 mm, deep, respectively, with corresponding hardnesses of 950-1000, 1000-1200, and 50 HV.

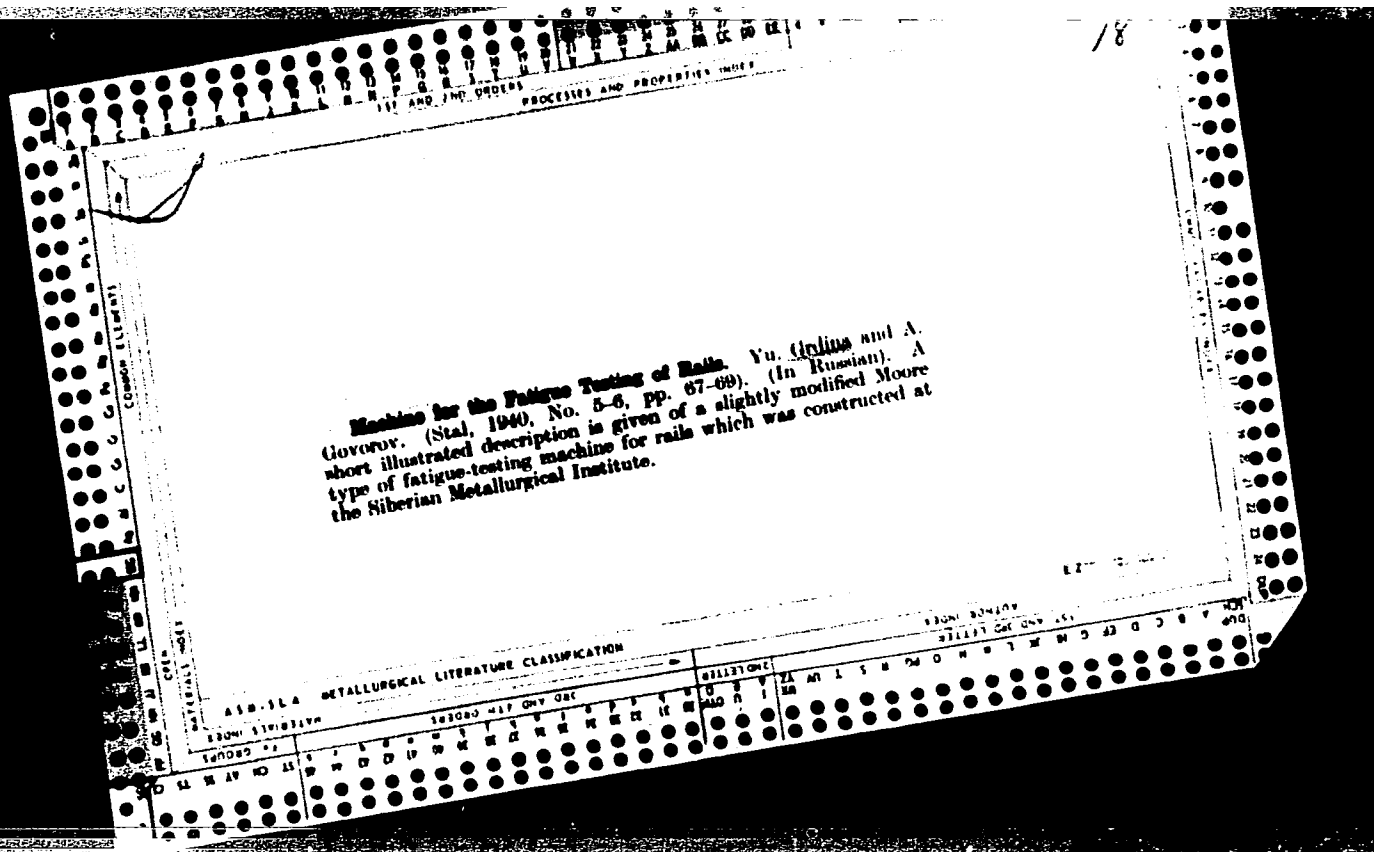
[WW]

Card 1/1









SHVETSA, Iu. V.; BABICH, G. F.; CRUZDEV, D. S.; PINKHUSOVICH, L. L.

"Study of Kerch Arsenic Rails (Kerchenskikh mysh'yakovistykh rel'sov)," Iz. Ak. Nauk SSSR, Otdel, Tekh. Nauk, No.2, 1941. Submitted 30 Sep 1940.

Report U-1530, 25 Oct 1951

GRADINA, Yu. V. Dr. Tech. Sci. and Prof. and ZUBAREV, V. F.

"Increase in the Strength of Rail Joints, # Stal', No. 4, 1948
Siberian Metallurgical Inst.

GRUBIN, H. V.

YU. V. GELMAN, A. A. GRUBIN, L. I. KRAMENIN:
In a Russian Symposium of Paper entitled "Heat Treatment of
Rails", edited by I. P. Bardin and published by the Soviet
Academy of Science, Moscow 1950. The following articles
appeared: Heavy profile rails and their heat treatment ...
(30 kg/m)

SC: 866103

GARDIN, I. P.

Y. F. GILLEN, N. A. GWARDY, N. N. BRUNSTEIN:

In a Russian Symposium of papers entitled "Heat Treatment of Rails", edited by I. P. Gardin and published by the Soviet Academy of Science, Moscow 1958. The following article appeared: Prevention of flake formation in undercooled rails.

CG: 8861B

GRINA, YU. V.

YU. V. GRINA, V. P. ZUBAROV:

In a Russian Symposium of Papers entitled "Heat Treatment of Rails", edited by I. P. Bardin and published by the Soviet Academy of Science, Moscow 1950; The following articles appeared; Flake formation in carbon steel.

SO: 886103

ORDINA, YU. V.

YU. V. GEDINA, L. L. PINKHUSOVICH, A. A. RASTORGUEV, N. I. STUPAK,
P. A. SOKOECLOV, V. F. ZUBAREV, A. A. GOVOROV:

In a Russian Symposium of Papers entitled "Heat Treatment
of Rails", edited by I. P. Bardin and published by the
Soviet Academy of Science, Moscow 1950. The following
articles appeared; Methods of prevention of flake formation.

SO: 886103

GREINA, YU. V.

YU. V. GREINA, L. L. PINKHUSOVICH, A. A. GOVOROV, V. A. SMIRNOV, P. A. SOKOLOV,
V. F. ZUBAREV:

In a Russian Symposium of Papers entitled "Heat Treatment of Rails", edited by I. P. Bardin and published by the Soviet Academy of Science, Moscow 1950, The following articles appeared; Investigation of slow cooling of rails in industrial (standard) boxes.

So: 8861g

~~GRDINA, Yu.V.~~ doktor tekhnicheskikh nauk; GOVOROV, A.A., dotsent;
KORSHKOVA, L.P., inzhener.

Factory investigation of the properties of experimental rails.
Trudy TSNII MPS no.111:32-40 '55. (MLRA 9:5)
(Railroads--Rails)

~~GRDINA, Yu.V.~~, doktor tekhnicheskikh nauk, GAYDAROV, Yu.V., kandidat tekhnicheskikh nauk; MOLCHANOV, A.S.

Fastening rails on reinforced concrete crane beams. Stroi.prom.34
no.12:23-24 D '56. (MLRA 10:2)

1. Glavnyy inzhener otdela kapital'nogo stroitel'stva (for Molchanov).

(Cranes, derricks, etc.) (Girders)

Crystallization

¹⁰
Equations of crystallization. Yu. V. Galina and L. A. Bliznova (Siberian Met. Inst., Gornitsk, Kemerovo Region). Doklady Akad. Nauk S.S.S.R. 109, 505-8 (1956). — Math.
Equations were derived for the formation of nuclei of the new phase in a supercooled medium with respect to time (isothermal process) or with respect to temp. J. R. L.

Distr: 482c

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11
11

GRDINA, ~~YU. V.~~ YU. V.

133-2-8/19

AUTHOR: Kazarnovskiy, D.S. (Cand.Tech.Sc.)

TITLE: Ways of Solving the Problem of Rails (Puti resheniya rel'sovoy problemy)

PERIODICAL: Stal', 1958, Nr 2, pp.138-144 (USSR)

ABSTRACT: The problem of increasing the service life of rails is discussed. After reviewing the achievements of Soviet technology in the manufacture of rails, the author points out that as yet the durability of rails in the USSR, as well as abroad, is insufficient. Strengthening of rails has been obtained by increasing the weight per length and the content of carbon in steel. However, increasing carbon above 0.75% is accompanied by a decrease in the tensile strength of notched specimens (Fig.2) and the brittleness of steel on impact bending (Fig.3). The increasing intensity of railway traffic and the distribution of defects in the rails taken off from lines are discussed. It is pointed out that increasing the weight of rails had little effect on the proportion of defects of a brittle nature, and as a result of wide investigations carried out by various institutions in post-war years, the following methods of

Card 1/4

133-2-8/19

Ways of Solving the Problem of Rails.

further improvement of the service life of rails seem to be possible: a) thermal treatment of rails from carbon steel, b) the manufacture of rails from alloy steels and c) improvement in the profile of rails and their service conditions on railways. After discussing the above conclusions are drawn. In the field of manufacture of rails: 1) An industrial check of the effect of surface hardening of the head along the whole length of rails made from carbon steels from a separate heating. 2) Organisation of the production of a proportion of rails (10-15%) for laying on curves from alloy steels. The required improvement of the quality of rails can be obtained by alloying with one or a few of the following elements: Mn up to 2%; Cr up to 3%; Mn up to 1% and Cr up to 1.2%; Mn 1%, Cr 1.2% and Si 0.75%. 3) Normalisation of rails from Bessemer steel with increased carbon content up to 0.75%. 4) A sharp decrease of residual stresses after cold straightening. 5) Increase in the production of rails 25m long. 6) The choice of optimum weight of ingots and method of their deformation for the manufacture of heavy rails (types P-65 and P-75). In the field of improvement of operating

133-2-8/19

Ways of Solving the Problem of Rails.

conditions of rails: 1) Improvement in the profile, in particular the solution of the problem of shape of the rail head for type P-50 and of the size of the radius of the upper face of the rail head. 2) Improvement in the layout of tracks - a decrease in the number of curves and an increase in their radius. 3) Optimum inclination of rails on curves. 4) Lubrication of side working face of external rails on curves. 5) Improved footing of bogies of locomotives into curves of a small radius. The following names are mentioned in the paper: T.M. Ravitskaya (cooperated with the author); K.N.Klimov (observation of service of rails on a special sector, Ukrainian Institute of Metals); Yu.V. Grdina, Prof., V.A.Tikhovskiy and N.P.Shchapov - members of the Interdepartments Rail Brigade (which functioned from 1947-1956); I.P.Bardin, Academician (in charge of NITO which functioned from 1951-1956, from 1956 functions of the above institution were taken over by the Interdepartmental Committee of the Academy of Sciences of the USSR, under the direction of I.P.Bardin); N.I.Dolotova (cooperated with the

Card 3/4

133-2-8/19

Ways of Solving the Problem of Rails.

author); D.S.Kazarnovskiy (in charge), M.G.Gershgorn, P.T. Besedin, N.P.Dyubin, I.P.Kravtsov and A.I.Kotenko (investigation of mechanical properties of rails from alloy steels in the Ukrainian Institute of Metals). There are 5 figures, 1 table and 17 Russian references.

ASSOCIATION: Ukrainian Scientific Research Institute of Metals.
(Ukrainskiy n.-i.institut metallov)

AVAILABLE: Library of Congress.

Card 4/4

KOTOV, A.V., inzh.; GOVOROV, A.A., kand.tekhn.nauk, dots.; GRDINA, Yu.V.,
doktor tekhn.nauk, prof.

Thermal wear and fatigue notches. Izv. vys. ucheb. zav.; chern.
met. no.7:147-152 J1 '58. (MIRA 11:10)
(Railroads--Rails) (Metals--Fatigue)

GRDINA, Yu.V., prof., doktor tekhn. nauk; BONDAR', L.A., inzh.

Kinetics of crystal nucleation. Izv. vys. ucheb. zav.; chern.
met. 2 no.4:73-78 Ap '59. (MIRA 12:8)

1.Sibirskiy metallurgicheskiy institut. Rekomendovano kafedroy
metallovedeniya i termoobrabotki Sibirskogo metallurgicheskogo
instituta.

(Crystallization) (Metal crystals)

~~GRDINA, Yu. V.~~ prof., doktor tekhn.nauk

Interaction between the hydrogen dissolved in steel and dis-
locations. Izv.vys.ucheb.zav.; chern.met. 2 no.5:69-72 My '59.
(MIRA 12:9)

1. Sibirskiy metallurgicheskiy institut. Rekomendovano kafedroy
metallovedeniya i termobrabotki Sibirskogo metallurgicheskogo
instituta.

(Steel--Hydrogen content) (Dislocations in metals)

GRDINA, Yu.V., doktor tekhn.nauk; GORDEYEVA, L.T., inzh.

Diffusion coating of steel by metals from a gaseous medium
with heating by high-frequency currents. Izv.vys.ucheb.zav.;
chern.met. 2 no.7:97-100 J1 '59. (MIRA 13:2)

1. Sibirskiy metallurgicheskiy institut. Rekomendovano
kafedroy metallovedeniya i termoobrabotki Sibirskogo metal-
lurgicheskogo instituta.

(Diffusion coatings) (Induction heating)

GRDINA, Yu.V.; TARASKO, D.I.; KAYGORODTSEV, V.S.

Heat treatment of railroad car axles. Izv.vys.ucheb.zav.; chern.
met, no.4:97-106 '61. (MIRA 14:4)

1. Sibirskiy metallurgicheskiy institut.
(Car axles) (Steel---Heat treatment)

S/148/61/000/004/007/008
E071/E480

AUTHORS: Grdina, Yu.V. and Krepysheva, L.B.

TITLE: An investigation into the composition of the gaseous phase in steel saturated with hydrogen

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no.4, 1961, 126-133

TEXT: A knowledge of the composition of gas in steel saturated with hydrogen, particularly the confirmation of the presence of methane, is necessary for checking the existing views on the problem of the formation of flakes. For this purpose, the authors investigated the composition of the gaseous phase in samples of 18 types of alloy steels. Steel specimens (22 mm dia. 17 mm long) were saturated with hydrogen by two methods: a) retention for 24 hours in a hydrogen atmosphere at 1100°C with subsequent quenching in water; b) electrolytically, in a 5% sulphuric acid solution with additions of sodium sulphide over 5-7 days. Precautions were taken to collect all the gas evolved from the specimens during the storage period between saturation and extraction by a hot vacuum method. Some of the
Card 1/3

S/148/61/000/004/007/008

An investigation into the composition..E071/E480

electrolytically treated specimens were of a square cross-section and these were remachined after the saturation treatment in order to open the pores and to obtain a more complete evolution of gas at room temperature. The specimens were machined under water and the gas evolved was collected. No relationship was found between the amount of alloying element within a group of steels and the amount of gas evolved, or between the hydrogen content of steel and its flake sensitivity. A comparatively high, up to 46%, carbon monoxide content and a low, up to 5.3%, content or complete absence of methane was observed in gases evolved during hot extraction. The latter is explained by the low stability of methane at temperatures above 600°C. The gas content of electrolytically saturated specimens was higher than that of specimens saturated at high temperatures. Methane (up to 3.2%) was found in all electrolytically saturated specimens. Gases evolved at room temperature before the machining of specimens consisted mainly of hydrogen and nitrogen. Methane (up to 26%) and carbon monoxide were present in the gas collected during machining. After a deep etching of the electrolytically saturated specimens of all steels, a small number of flakes of random orientation was observed.

Card 2/3

S/148/61/000/004/007/008

An investigation into the composition..E071/E480

A microscopic investigation did not show any noticeable structural changes in the region of the flakes. In specimens saturated at high temperature, a decarburization of flake walls was observed. It is concluded that a certain amount of methane is present in steels that have been saturated with hydrogen at either high or low temperature. The formation of methane can take place in steel even at room temperature. There are 3 figures, 2 tables and 11 references: 9 Soviet and 2 non-Soviet. The reference to an English language publication reads as follows:
Ref.8: I.H.Andrew, H.Lee, A.G.Quarrell. The Journal of the Iron and Steel Institute, v. 146, 1942, no.2.

ASSOCIATION: Sibirskiy metallurgicheskiy institut
(Siberian Metallurgical Institute)

SUBMITTED: October 8, 1960

Card 3/3

GRDINA, Yu.V.; KREPYSHEVA, L.B.

Mechanism of flake formation. Izv. vys. ucheb. zav.; chern. met.
4 no.10:94-103 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.
(Steel--Hydrogen content) (Metallography)

GRDINA, Yu.V.; KREPYSHEVA, L.B.

Theory on flake formation in steel (reply to I. E. Brainin's
article). Izv. vys. ucheb. zav.; Chern. met. 4 no.10:108-113
'61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.
(Steel--Hydrogen content) (Metallography)

GRDINA, Yu.V.; TARASKO, D.I.; KAYGORODTSEV, V.S.

Effect of heat treatment and the chemical composition of steel on
the fatigue strength of railroad axles. Izv. vys. ucheb. zav.;
chern. met. 4 no.12:144-148 '61. (MIRA 15:1)

1. Sibirskiy metallurgicheskiy institut.
(Steel--Heat treatment) (Car axles--Testing)

PLEKHANOV, P.S., inzh.; KOSHKIN, V.A., inzh.; KRITININ, I.A., inzh.;
Prinimali uchastiye: BAZHENOV, M.M.; VAYNSHTEYN, I.L.; POPOV, R.S.;
ZAKHARENKO, N.I.; MANCHEVSKIY, I.V.; GRDINA, Yu.V.; GOVORKOV, A.P.;
NESTEROV, N.A.; GRIGORKIN, V.I.

Rolling of high-manganese rails. Stal' 21 no.5:423-425 My '61.
(MIRA 14:5)

1. Kuznetskiy metallurgicheskiy kombinat (for Plekhanov, Koshkin,
Kritenin, Bazhenov, Vaynshteyn, Popov, Zakharenko, Manchevskiy).

2. Sibirskiy metallurgicheskiy institut (for Grdina, Govorkov,
Nesterov, Grigorkin).

(Railroads—Rails)

(Rolling (Metalwork))

POLUKHIN, Petr Ivanovich, prof., doktor tekhn. nauk; GRDINA, Yu.V.,
prof., ~~doktor tekhn. nauk~~; ZARVIN, Yevgeniy Yakovlevich, prof.;
GROMOV, N.P., prof., nauchnyy red.; GOROBINGHENKO, V.M., inzh.,
red. izd-va; ATTOPOVICH, M.K. [deceased], tekhn. red.

[Rolling and heat treatment of railroad rails] Prokatka i termi-
cheskaia obrabotka zheleznodorozhnykh rel'sov. [By] P.I. Polukhin
i dr. Moskva, Metallurgizdat, 1962. 510 p. (MIRA 16:2)
(Rolling (Metalwork)) (Railroads--Rails)

38388

S/148/62/000/004/003/006
E111/E435

18.11.62

AUTHORS: Grigor'kin, V.I., Grdina, Yu.V., Govorov, A.A.,
Nesterov, N.A.

TITLE: Influence of heat treatment on the mechanical
properties of austenitic manganese steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya
metallurgiya, no.4, 1962, 132-135

TEXT: The authors have studied the effect of heat treatment on
the mechanical properties of a commercial forged manganese
austenitic steel (0.93% C, 12.02% Mn, 0.13% Ni, 0.05% Cr,
0.14% Cu, 0.021% S and 0.09% P). Tempering at 300 to 700°C greatly
reduced strength and plastic properties. With isothermal holding
at 650°C all the mechanical properties deteriorate within 30 to
60 minutes and then remain almost steady. Hadfield steel is
notch sensitive. The fatigue limit was virtually independent of
tempering temperature, it was increased by preliminary dynamic
work hardening. To avoid great deterioration in mechanical
properties on heating to temperatures over 300°C, parts
Card 1/2

Influence of heat treatment ...

S/148/62/000/004/003/006
E111/E435

Hadfield steel should be re-quenched in water from 1050 to 1100°C.
There are 2 figures and 1 table.

ASSOCIATION: Sibirskiy metallurgicheskiy institut
(Siberian Metallurgical Institute)

SUBMITTED: March 31, 1961

Card 2/2

GRIGORKIN, V.I.; GRDINA, Yu.V.; GOVOROV, A.A.; NESTEROV, N.A.

Effect of heat treatment on the mechanical properties of
austenitic manganese steel. Izv.vys.ucheb.zav.; Chern.met. 5
no.4:132-135 '62. (MIRA 15:5)

1. Sibirskiy metallurgicheskiy institut.
(Manganese steel--Heat treatment)

GRDINA, Yu.V.; GOVOROV, A.A.; NESTEROV, N.A.; GRIGORKIN, V.I.

Full hardening in oil of a commercial batch of rails. Izv. vys.
ucheb. zav.; chern. met. 5 no.8:111-118 '62. (MIRA 15:9)

1. Sibirskiy metallurgicheskiy institut.
(Steel--Hardening) (Railroads--Rails)

NESTEROV, N.A.; GRDINA, Yu.V.

Increasing the heat-resistance of tool steel. Izv. vys. ucheb.
zav.; chern. mat. 5 no.10:125-130 '62. (MIRA 15:11)

1. Sibirskiy metallurgicheskiy institut.
(Tool steel—Thermal properties)
(Case hardening)

GRDINA, Yu.V.; KREPYSHEVA, L.B.

Possibility of thermal bursts and the role of stresses in floc
formation. Fiz. met. i metalloved. 14 no.1:75-79 J1 '62. (MIRA 15:7)

1. Sibirskiy metallurgicheskiy institut.
(Metals, Effect of temperature on)
(Thermal stresses)

S/148/62/000/012/006/008 .
E193/E383

AUTHORS: Nesterov, N.A. and Grdina, Yu.V.

TITLE: The effect of carbon saturation on the properties of a high-speed cutting steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 12, 1962, 120 - 125

TEXT: In continuation of an earlier work (Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no. 10, 1962) the authors have studied the effect of the formation of the θ -phase occurring in carbon-saturated, high-speed cutting steel, on the wear-resistance of this steel and its stability at high temperatures. The experimental work was carried out on steel P18 (R18) specimens, case-hardened to a depth of 1 mm by a 4-hour treatment at 1 000 °C. These were hardened by quenching from temperatures ranging from 1 000 - 1 280 °C with or without subsequent tempering, and the effect of various factors on the microhardness of the material was studied. The hardness of the core of case-hardened specimens increased slightly with increasing quenching temperature, reached a maximum at about 1200 °C and then decreased slightly.
Card 1/5

S/148/62/000/012/006/008
E193/E383

The effect of

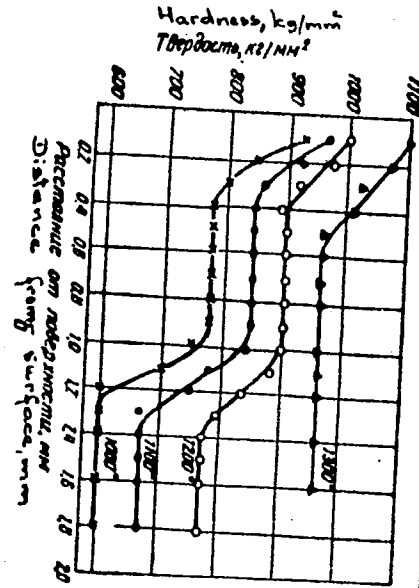
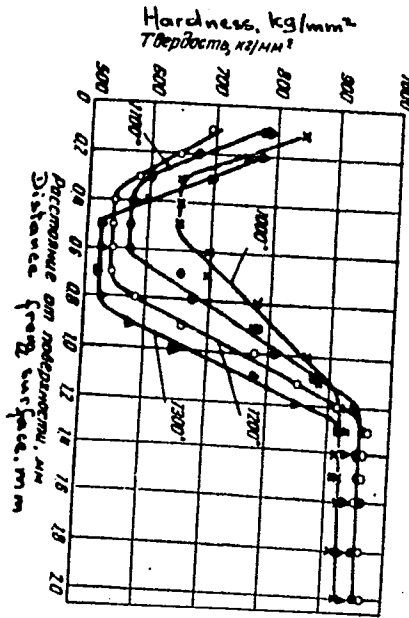
that its structure after quenching consisted of austenite and coarse needles of primary martensite; a complex carbide phase was precipitated at the boundaries of the original austenite/martensite grains. It was postulated that when the carbon content increased above a certain critical level, the thermal stability of the austenite (at the tempering temperatures) increased at a faster rate than that of martensite. As a result, the following sequence of various processes obtained during tempering: cessation of dispersion-hardening of the martensite and beginning of its decomposition; dispersion-hardening of the austenite; austenite-martensite transformation. The increase in hardness due to the transformation was not sufficiently great to compensate the loss in hardness due to decomposition of the primary martensite. The optimum carbon content of high-speed cutting steels (0.8-1.0%) was evidently the upper limit of the range in which the thermal stability of martensite is higher than that of austenite. Conclusions: 1) thermal stability and cutting properties of steel R18 are improved by saturating it with carbon; 2) the increase in the thermal stability of steel R18 brought about by the formation of an additional carbide phase (Θ -phase) is

Card 3/5

The effect of

S/148/62/000/012/006/008
E193/E383

Fig. 3:



Card 5/5

GRDINA, Yu.V.; SOFROSHENKO, A.F.

Combined chemical and thermal treatment of steel. *Izv. vys.*
Chim. zav.; chern. met. 6 no.2:115-119 '63. (MIRA 16:3)

1. Sibirskiy metallurgicheskiy institut.
(Case hardening)

S/148/63/000/002/005/006
E193/E135

AUTHORS: Nesterov N.A., and Grdina Yu.V.

TITLE: On the problem of the development of dispersion-hardening, cutting alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, no.2, 1963, 129-132

TEXT: The effect of titanium and silicon additions upon the ability of four ferritic, dispersion-hardening steels to retain their hardness at elevated temperatures was studied. The composition of the steels was:

	C	Cr	W	V	Ti	Si	Co
no.1	0.64,	3.70,	16.38,	1.44,	2.39,	1.95,	-
no.2	0.74	4.56	8.45	2.00	3.26	2.09	-
no.3	0.08	-	19.68	-	1.86	1.90	12.90
no.4	0.07	-	20.10	-	-	-	13.21.

In the first series of experiments, the effect of ageing at 650 - 750 °C upon the hardness of test pieces, preliminarily quenched from 1300 - 1350 °C, was investigated. The results are Card 1/4

On the problem of the development... S/148/63/000/002/005/006
E193/E135

reproduced in Fig.2, where hardness (HRC) of alloy no.1 (bottom) and no.2 (top) is plotted against ageing time (h) at 650, 700 and 750 °C (curves 1, 2 and 3 respectively): the corresponding data for alloys nos. 3 and 4 are plotted in a similar manner in Fig.4. In the next series of experiments, the cutting properties of alloy no.3 (hardness 59-61 HRC) and a cutting steel P 18 (R 18) (hardness 62-63 HRC) were compared. The cutting tool tips, measuring 5 x 12 x 16 mm, ground to $\gamma = 15^\circ$, $\alpha = 12^\circ$, $\phi = 60^\circ$, $\phi_1 = 10^\circ$, $\alpha_1 = 12^\circ$, and mechanically secured to their shanks, were used in turning tests conducted on steel Y8 (U 8) (hardness 170 HB) rods under the following conditions:
 $v = 60$ m/min; $t = 2$ mm; $s = 0.11$ mm/rev; $n = 315$ rev/min. No lubrication was used in the tests in which the time, T, required for the cutting tip to become completely blunt was determined. The average value of T for the steel U 8 was approximately 2 minutes, the corresponding figure for alloy no.3 being 7 minutes. (In the case of alloy no.3, occasional chipping of the cutting tips took place after about 1 min operation). The results of tentative experiments showed that hardness of
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alloy no.3 could be increased to 63-64 HRC by nitriding. It was concluded that the ferritic Fe-Co-W-Ti-Si alloys could be further improved to provide new, high-productivity cutting materials. There are 4 figures and 1 table.

ASSOCIATION: Sibirskiy metallurgicheskiy institut
(Siberian Metallurgical Institute)

SUBMITTED: June 26, 1962

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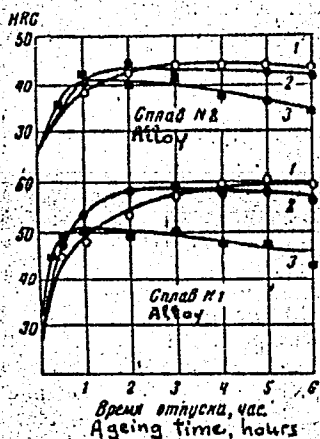


Fig. 2

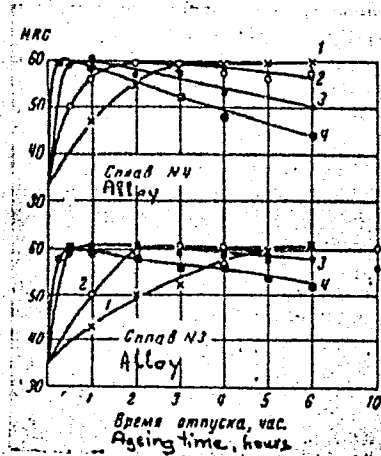


Fig. 4

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L-1076-63

EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AF3001055

S/0148/63/000/004/0129/0131

AUTHOR: Grdina, Yu. V.; Gordeyeva, L. F.; Timonina, L. G.

57
56

TITLE: Carburization of titanium with the use of a paste carburizer and high-frequency induction heating

SOURCE: IVUZ. Chernaya metallurgiya, no. 4, 1963, 129-131

TOPIC TAGS: titanium carburizing, case depth, wear resistance, high-frequency induction heating, induction heating

ABSTRACT: A method of Ti carburization with a pastelike carburizer and high-frequency induction heating in an He atmosphere has been developed by the authors. Specimens of Ti alloys VT4 [4-5% Al, 1-2% Mn] and VT6 [C-120 AV-AISI] 3 mm in diameter and 200 mm long or 40 mm in diameter and 10 mm thick were coated with a paste consisting of silver graphite and a binder, dried, heated to 850-1100C, and held for 10, 15, 20, and 30 min. With a carburization time of 15 min the depth of the carburized layer reached 0.25 mm, and the maximum hardness, 1780 HV₅₀. The disk-shaped specimens were tested for wear resistance at 220 rpm under a 75-kg load without lubricant. Wear resistance was found to vary with carburization

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ACCESSION NR: AP3001055

time. The best results were obtained in specimens carburized for 15 min; they had almost no weight loss in a 4-hr test. With carburization time of 10 min the carburized layer was worn off in 20 min. Specimens carburized for 20 min and 30 min resisted well for 2 hr, but then were worn off rapidly. Orig. art. has: 3 figures.

ASSOCIATION: Sibirskiy metallurgicheskiy institut (Siberian Metallurgical Institute)

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llm/yiv
Card 2/2

GRDINA, Ya.V.; KOTOV, A.V.

Tempering of cold-worked rail steel. Izv. vys. ucheb. zav.; chern.
met. 6 no.4:132-135 '63. (MIRA 16:5)

1. Sibirskiy metallurgicheskiy institut. (Railroads--Rails)
(Steel--Cold working) (Tempering)

GRDINA, Yu.V.; TSARAPKIN, L.V.

Effect of certain factors on the corrugation-type wear of rails.

Izv. vys. ucheb. zav.; chern. met. 6 no.6:156-160 '63.
(MIRA 16:8)

(Railroads--Rails) (Mechanical wear)

GRDINA, Yu.V.; TSARAPKIN, L.V.

Causes for the formation of unevennesses in railroad rails in
the process of their manufacture. Izv. vys. ucheb. zav.;
chern. met. 6 no.8:132-136 '63. (MIRA 16:11)

1. Sibirskiy metallurgicheskiy institut.

GRDINA, Yu.V.; GOVOROV, A.A.; NESTEROV, N.A.; GRIGORKIN, V.I.

Alloyed steel rails. Izv. vys. ucheb. zav.; chern. met. 6
no.10:120-124 '63. (MIRA 16:12)

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GRDINA, Yu.V.; KOSHKIN, V.A.; GORDIN, O.V.; SAKHAROVA, N.A.

Inoculation of rail steel. Izv. vys. ucheb. zav.; chern. met.
6 no.10:129-133 '63. (MIRA 16:12)

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GRDINA, Yu.V.; GORDIN, O.V.

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Izv. vys. ucheb. zav.; chern. met. 6 no.12:152-157 '63.
(MIRA 17:1)

1. Sibirskiy metallurgicheskiy institut.

GRDINA, Yu.V.; TARASKO, D.I.

Heat treatment of railroad car axles. Izv. vys. ucheb. zav.;
chern. met. 6 no.12:169-170 '63. (MIRA 17:1)

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GRDINA, Yu.V.; KOTOV, A.V.

Tempering of work-hardened rails and their service. Izv. vys.
ucheb. zav.; chern. met. 7 no.2:129-130 '64.

(MIRA 17:3)

1. Sibirskiy metallurgicheskiy institut.