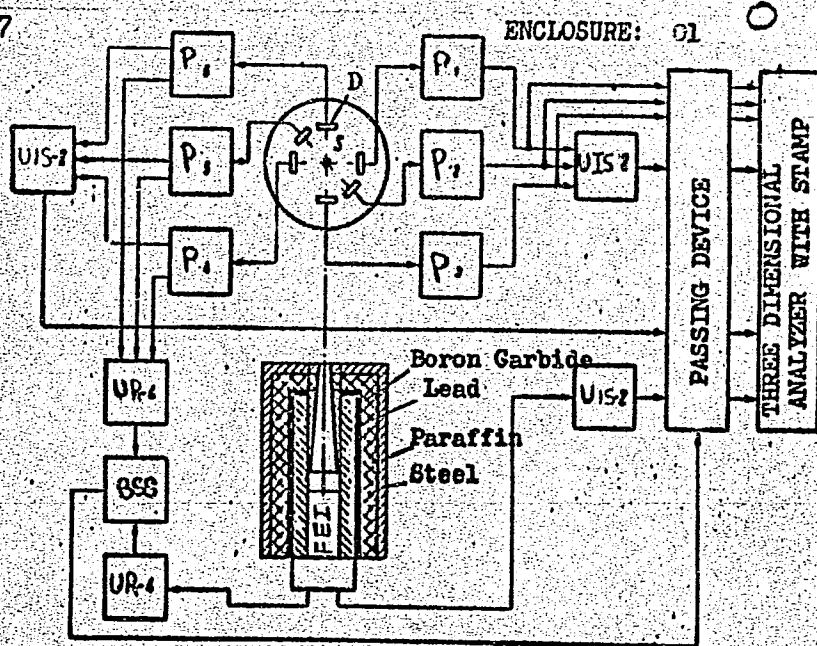


L 27264-65

ACCESSION NR: AP5004007

- S - Dividing source
- D - Semiconductor-Detectors
- P - Low-noise Preamplifiers
- UR-4 Rapid amplifiers
- UIS-2 linear amplifiers
- BSS - Rapid scheme of matching



Card 3/3

Fig. 1. Diagram of the Experimental Set-up

POPEKO, Vasilii Sidorovich; GORBATOV, Yevgeniy Ivanovich; YERMOLIN,
I.P., red.; IOFINOVA, Ts.B., red.izd-va; PROKOF'YEVA, L.N.,
tekh.red.

[Work practices of the Sudov Logging Camp of the Bratsk Lumber
Combine] Opyt raboty sudovskogo lespromkhozha kombinata Bratskles.
Moskva, Goslesbumizdat, 1959. 15 p. (MIRA 13:3)
(Bratsk District--Lumbering)

POPEL', A. A.

PA 163T52

USSR/Metals - Zinc Plating
Chemistry - Zinc, Determination

Jun 50

"Amperometric Determination of Zinc in Brasses and
Zinc Plating Baths," A. A. Popel', A. T. Marunina

"Zavod Lab" Vol XVI, No 6, pp 658-661

Describes procedure for determining zinc in brasses
and electrolytes of acid and alkaline zinc plating
by method of amperometric titration with potassium
ferrocyanide. Determination takes 15-25 min and ac-
curacy of method is sufficient for routine proxi-
mate analysis.

163T52

Chemical Abst.
Vol. 48 No. 4
Feb. 25, 1954
Analytical Chemistry

~~Amperometric determination of barium. A. M. Vasil'ev and A. N. Popov. *Nashy Komisii Akad. Khim. Nauk S.S.S.R., Otdel. Khim. Nauk* 6(7), 128-34(1952).—Ba was detd. by amperometric titration with K_2CrO_4 in the presence of NH_4Cl , acetate, K, Sr, and Ca ions. When the mole ratio $NH_4Cl:BaCl_2$ was 100:1, or when the mole ratio $KNO_3:Ba(NO_3)_2$ was 200:1 the results were good. As much as 1.5M of acetate ion did not affect the detn. The titration could be done at pH 4-7 but if Ca or Sr is present the necessary range is pH 5-6.5. At mole ratio Ca:Ba of 50:1 the error was within 1%. If the mole ratio Sr:Ba was 30:1, Ba could still be detd. but not with larger amts. of Sr. Ba could be detd. in the presence of both Sr and Ca if their mole ratio to Ba was not more than 50:1. The usual app. with a dropping Hg electrode was used. Titrations were at a potential of 1 v. referred to the satd. calomel electrode. Ba could be detd. from 0.002M aq. solns. within an error of 1%. K_2CrO_4 soln. was 0.5M for most titrations but 0.01M for dil. solns. of Ba. $BaCrO_4$ ppt. was formed slowly so 5-20 min. was required for establishment of the equil. current. Work with very dil. solns. was difficult. Below pH 4 the results were low because of the soly. of $BaCrO_4$. Above pH 7 results were low because some basic chromate of Ba was formed.~~

Hurtilla Mayette

MAE
7/13/54

POPEL, A. A.

USSR

✓ Determination of the solubility of 8-quinolinol in mixed solvents. A. M. Vasil'ev, A. A. Popel, and M. M. Prokhorova. *Uchenye Zapiski Kazan. Univ.* 113, No. 8, 75-81 (1953); *Referat. Zhur., Khim.* 1954, No. 38175. The soly. of 8-quinolinol in water-acetone and water-alc. solns. at 20° was studied polarographically and amperometrically (A. A. Popel; *ibid.* 110, 4, (1950)). The concns. of Me₂CO and alc. were varied from 2.5 to 35 vol.%. The soly. of 8-quinolinol in H₂O-Me₂CO solns. rose sharply with the increase of Me₂CO concn. At 20% Me₂CO the soly. was 8 times as much as the soly. in H₂O and twice as much as the soly. in a 20% H₂O-alc. soln. The soly. of 8-quinolinol was also studied in NH₃ solns. at 25°. The concn. of NH₃ was varied from 0.4 to 4.9 mole/l. The disocn. const. of 8-quinolinol detd. from its soly. in NH₃ solns. was 0.4×10^{-11} . The effect of temp. and concn. of NH₄Cl on the soly. of 8-quinolinol was also detd.

M. Hosh

Handwritten signature

POPEL, A. A.

USSR

✓ Solubility and acid-base properties of 5,7-dibromoquinolinol. A. M. Vasil'ev, A. A. Popel and G. P. Kholakova. *Uchenye Zapiski Kazan. Univ.* 113, No. 8, 83-90 (1973); *Referat. Zhur., Khim.* 1954, No. 38178. — The soly. was detd. in 0.5–4.0N HCl, 0.5N HNO₃, 0.5×10^{-2} –0.5N NaOH. In the acids the soly. of 5,7-dibromoquinolinol increased with the concn. of the acid. In the alkali the soly. increased with the concn. of NaOH and reached a max. at 0.1N. From the soly. detn. was calcd. the dissoc. const. of 5,7-dibromoquinolinol as base (K_b) and as acid (K_a). The calcd. values were $K_b = 2.15 \times 10^{-11}$ and $K_a = 1.2 \times 10^{-10}$. The pH at the isoelec. point was calcd. to be 5.7. Soly. detn. were also made in 10–80% aq. Me₂CO solns. and in pure Me₂CO. At an Me₂CO concn. of 10–20% the soly. of 5,7-dibromoquinolinol increases 5–10 times. Acidification of the H₂O-Me₂CO solns. with HCl doubled the soly. M. Hosh

SI

POPELI, H. H.

Application of organic reagents for amperometric titration. *Anal. Pap.* *Univ. Zapad. Kras. Gubern. Univ. Ser. V. 1. (1955)*. *Khim.* 115, No. 3, 10-22 (1955).—The literature on amperometric titrations with org. reagents is reviewed for detn. of K, Cu, Ag, Au, Mg, Ca, Zn, Cd, Al, Ti, Zn, Hg, Pb, Sn, Bi, Fe, Co, Ni, Bi, and Cd cannot be successfully titrated with antipyrine; Bi can be titrated with diantipyrylmethane in sulfate solns. contg. Cl or CNS complexes. Good results were obtained in Br solns. at potentials from -0.3 to -0.5 v. with 0.03-0.12 g./l. KBr. The same reagent also is usable for titration of Cd in acidic solns.

4
4E2C
4E2C
4E2C

r-shaped with a sharp break
G. M. Kosolapoff

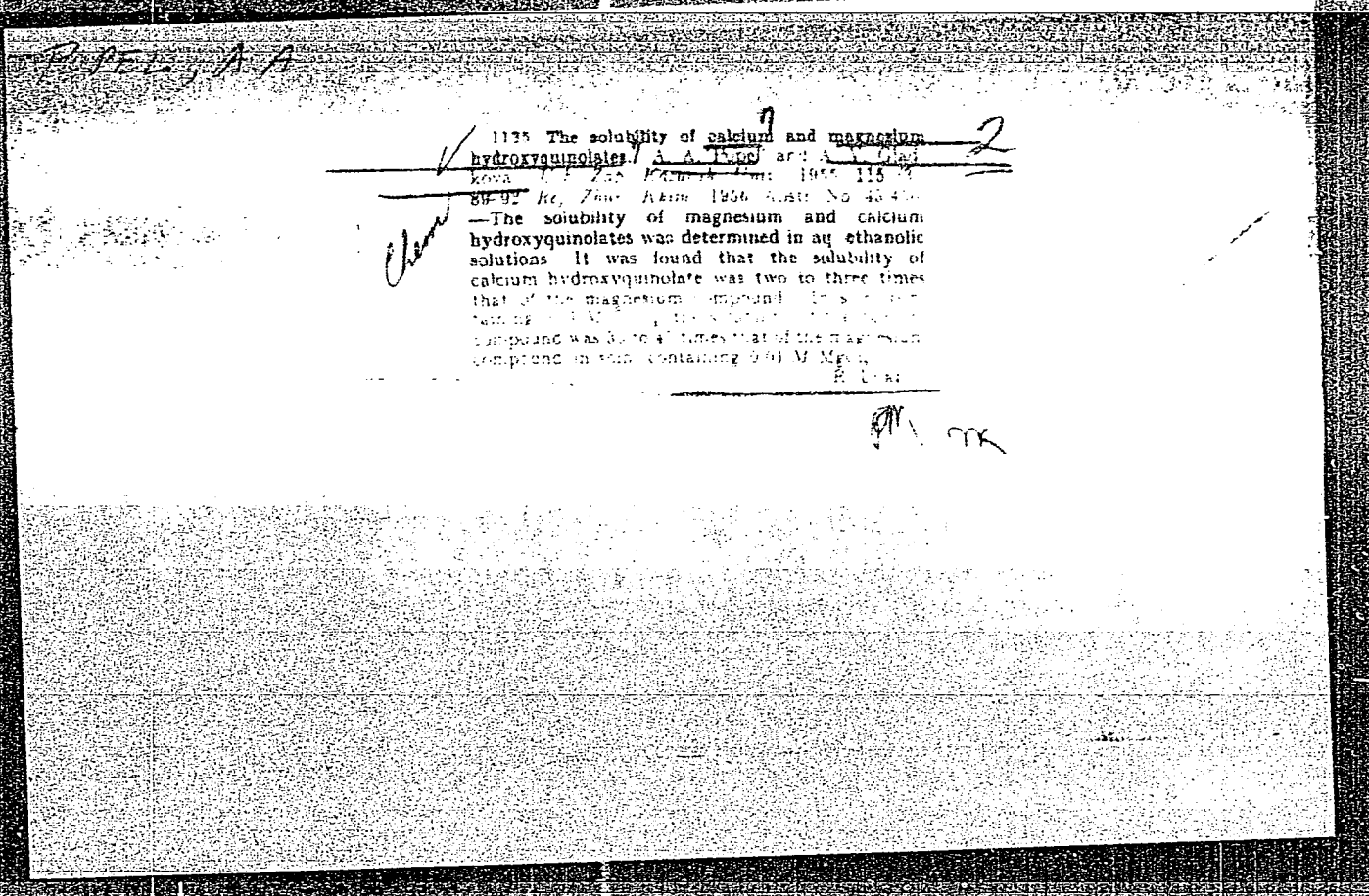
NS 17a

Chain Analytical Chemistry

POPEL, A. A.

Stability of dihydroxyacetone, A. A. Popel and N.
A. G. ...
[Redacted text]

4
4E4
4E2d



1135 The solubility of calcium and magnesium hydroxyquinolates. A. A. Papp and A. I. Gerasimov

Tr. Khim. Akad. Nauk SSSR: 1957: 115-117
80-92 Re. Zhur. Khim. 1956 Issue No 43-44

—The solubility of magnesium and calcium hydroxyquinolates was determined in aqueous ethanolic solutions. It was found that the solubility of calcium hydroxyquinolate was two to three times that of the magnesium compound. In a 0.1 M solution of 0.1 M Ca^{2+} the solubility of the calcium compound was 3 to 4 times that of the magnesium compound in a solution containing 0.01 M Mg^{2+} .

TRK

POPEL, A. A.

USSR/Analysis of Inorganic Substances

G-2

Abs Jour: Ref Zhur-Khimiya, No 6, 1957, 19572

Author : A. A. Popel, L. P. Maksimova

Inst : University of Kazan

Title : Photocolorimetric Determination of Niobium

Orig Pub: Uch. Zap. Kazansk. Un-ta, 1956, No 5, 86 - 90

Abstract: The method of determination of Nb as phosphate-molybdate-niobate blue (A.A. Davydova, Z.M. Vaysberg, Zavod. laboratoriya, 1947, 9, 1038) is improved. For the determination of Nb in alloy steels, the weighed sample of 0.1 g is dissolved in 8 - 10 ml of 6 n. H_2SO_4 . Fe is oxidized by adding several drops of concentrated HNO_3 . In order to avoid Nb hydrolysis, 5 ml of 2% HF are

Card 1/3

- 48 -

SOV/137-58-8-18172

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 281 (USSR)

AUTHORS: Popel', A. A., Skrebkova, L. M.

TITLE: A Study of the Conditions for the Quantitative Separation of Antimony From Solutions With the Aid of Diantipyrilmethane (Izucheniye usloviy kolichestvennogo vydeleniya sur'my iz rastvorov s pomoshch'yu diantipirilmetana)

PERIODICAL: Uch. zap. Kazansk. un-ta. 1957, Vol 117, Nr 2, pp 184-187

ABSTRACT: Experiments were conducted with standard solutions of Sb with additions of a radioactive isotope. After creating a definite concentration of the halide, Sb is precipitated with an acid alcohol-water solution of diantipyrilmethane (D). The most complete precipitation occurs in the presence of I (to $5 \cdot 10^{-9}$ g/ml). The precipitate is dissolved in an alcoholic solution of HCl (1N HCl and 50% of alcohol) and Sb is determined polarigraphically. The excess of D has no effect on the height of the step. The error of the determination of Sb is <0.02 mg. 1. Antimony—Separation 2. Radioisotopes—Applications 3. Solutions—Polarographic analysis

Card 1/1

P. K.

POPEL', A.A.; SAPRYKOVA, Z.A.

Using the nuclear magnetic relaxation method for the analysis
of alloys and electrolytes of electroplating baths. Zav. lab.
31 no.8:957-959 '65. (MIRA 18:9)

1. Kazanskiy gosudarstvennyy universitet imeni Ul'yanova-
Lenina.

POPEL', A.A.; GRAZHDANNIKOV, Ye.D.

Determination of paramagnetic ions by the proton magnetic resonance method. Trudy po khim.i khim.tekh. no.1:37-42 '63.

(MIRA 17:12)

POPEL', A.A.; GRAZHDANNIKOV, Ye.D.

Determination of small amounts of paramagnetic and diamagnetic ions by the method of nuclear magnetic relaxation. Zhur. anal. khim. 18 no.11:1291-1294 N '63. (MIRA 17:1)

1. Kazanskiy gosudarstvennyy universitet imeni V.I. Ul'yanova-Lenina.

POPEL', A. A.

4

The Second All-Union Conference on the Preparation and Analysis of High-Purity Elements, held on 24-28 December 1963 at Gorky State University im. N. I. Lobachevskiy, was sponsored by the Institute of Chemistry of the Gorky State University, the Physicochemical and Technological Department for Inorganic Materials of the Academy of Sciences USSR, and the Gorky Section of the All-Union Chemical Society im. D. I. Mendeleev. The opening address was made by Academician N. M. Zhavoronkov. Some 90 papers were presented, among them the following:

A. A. Popel' and Z. A. Saprykovo. Quantitative determination of paramagnetic ions in solution by NMR methods.

I. Ye. Zimakov. Determination of microimpurities (10^{-7} to $10^{-8}\%$) by repeated radioactive dilution.

A. A. Tumanov and V. S. Yefimychev. Determination of micro-concentrations with salicylan-2-aminophenol.

(Zhur ANAL Khim, 19 No. 6, 1964, p. 777-79)

POPEL', A.A.; GRAZHDANNIKOV, ~~V.~~D.

Effect of paramagnetic ions on the magnetic relaxation of fluorine nuclei in solution. Dokl. AN SSSR 149 no.2:371-373 Mr '63.

(MIRA 16:3)

1. Kazanskiy gosudarstvennyy universitet im. V.I.Ul'yanova-Lenina.

Predstavleno akademikom B.A.Arbuzovym.

(Fluorine) (Nuclear magnetic resonance and relaxation)

(Complex compounds)

POPEL', A. A.; GRAZHDANNIKOV, Ye. D.

Effect of diffusion on the relation between the intensity of
proton resonance lines and the concentration of paramagnetic
ions. Izv. AN SSSR. Ser. fiz. 27 no.1:86-89 Ja '63.
(MIRA 16:1)

1. Kafedra analiticheskoy khimii Kazanskogo gosudarstvennogo
universiteta im. V. I. Ul'yanova-Lenina.

(Diffusion) (Nuclear magnetic resonance and relaxation)
(Ions)

S/020/63/149/003/027/028
B192/B102

AUTHORS: Popel', A. A., Dautov, R. A., Zakharov, A. V.

TITLE: Influence of the symmetry of a paramagnetic complex on the proton relaxation time

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 3, 1963, 637-638

TEXT: The pH dependence of the transverse proton relaxation time, T_2 , was measured for aqueous solutions of halides and nitrates of copper, cobalt, nickel, iron, manganese and chromium. With copper bromide solutions (ion concentration 0.4 mol) a rapid decrease from 4.5 to 2 seconds followed for T_2 if the pH increased from 0.5 to 3. It is assumed that this effect is caused by a decrease in the symmetry of the complex entailing an increase of the relaxation effect of the copper ions. The assumption was confirmed by measurements of the effective g-factor of the Cu^{2+} ions: For the $-lg(H^+)$ values -0.35, 0.0 and 1.85 ϵ_{eff} 2.177, 2.181, and 2.188 was derived. Also the change in the color of the solution from blue to brownish yellow indicates a change in the
Card 1/2

Influence of the symmetry of a ...

S/020/63/149/003/027/028
B192/B102

symmetry of the complex. A similar decrease of T_2 , if pH increased from 1.5 to 3, was observed for CrCl_3 solutions with the color of the solution shading from violet into green. For chromium nitrate and copper nitrate no decrease of T_2 with increasing pH was derived. It is assumed that the change of symmetry is due to the formation of hydroxide-halide complexes. For the MnCl_2 solutions no decrease of T_2 was derived, in agreement with theoretical considerations. There are 3 figures.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina (Kazan' State University imeni V. I. Ul'yanov-Lenin)

PRESENTED: November 5, 1962, by B. A. Arbuzov, Academician

SUBMITTED: October 31, 1962

Card 2/2

114947

5.5450

S/048/63/027/001/029/043
B125/B102

AUTHORS: Popel', A. A., and Grazhdannikov, Ye. D.

TITLE: Effect of diffusion on the extent that the intensity of the proton resonance line depends on the paramagnetic ion concentration

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27, no. 1, 1963, 86 - 89

TEXT: The assumption that the self-diffusion coefficient influences the resonance amplitude is confirmed. For this purpose formulas

$$A = \frac{K_D}{K_D \left(1 + \frac{K_1}{\mu_{\text{eff}}^2 N_{\text{non}}} \right)} \quad (4) \quad \text{and} \quad \frac{N_{\text{non}}}{A - A_0} = K_D N_{\text{non}} + \frac{K_1 K_D}{\mu_{\text{eff}}^2 A} \quad (5)$$

giving the amplitude of the absorption signal are verified by measuring the dependence of the proton resonance amplitude on the concentration of the paramagnetic ions (Cu^{2+} , Ni^{2+} , Co^{2+} , VO^{2+} , V^{3+} and V^{2+}). The coefficient K_D depends on the diffusion coefficient, μ_{eff} is the ion magnetic moment,

Card 1/2

Effect of diffusion ...

S/048/63/027/001/029/043
B125/B102

N ion is the paramagnetic ion concentration. The proton resonance was studied with an apparatus designed according to the nuclear induction scheme. (4) and (5) describe satisfactorily all experimental facts and are well suited for estimating comparatively the diffusion coefficients of different nuclei. There are 2 figures and 1 table. *f*

ASSOCIATION: Kafedra analiticheskoy khimii Kazanskogo gosudarstvennogo universiteta im. V. I. Ul'yanova-Lenina (Department of Analytical Chemistry of the Kazan State University imeni V. I. Ul'yanov-Lenin)

Card 2/2

GLAUBERMAN, A.Ye.; POPEL', A.M. [Popel', O.M.]

Photoeffect with exciton involvement. Ukr. fiz. zhur. 10 no.8:
925-926 Ag '65. (MIRA 18:8)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.

NIKOLAYEV, N.A., kand.tekhn.nauk; POPEL', A.M., inzh.

Some results of using line suspension insulators from hard
glass. Elek.sta. 33 no.12:62-65 D '62. (MIRA 16:2)
(Electric insulators and insulation)
(Electric lines—Overhead)

NIKOLAYEV, N.A., kand. tekhn. nauk; POPEL', A.M., inzh.

Distribution of potential on insulators from hard glass. Elek.
sta. 35 no.11:52-54 N '64. (MIRA 18:1)

ACCESSION NR: AP4016947 Z/0030/64/000/002/0038/0042

AUTHOR: Petru, F. (Engineer); Bocek, VL (Engineer); Krsek, J. (Engineer);
Popela, B. (Engineer)

TITLE: Construction and technology of a helium-neon laser

SOURCE: Jamna mechanika a optika, no. 2, 1964, 38-42

TOPIC TAGS: laser, resonator, helium emission, neon emission, helium spectrogram,
neon spectrogram, stimulated emission, high frequency generator

ABSTRACT: The authors describe the construction and technology of a continuous emitting He-Ne (9:1) laser. A resonator was used consisting of two concave mirrors 50mm in diameter (radius of curvature - 800 mm) with 13 dielectric interference layers for a maximum reflective capacity at a wavelength of 1.1523 μm . The setup for measuring the emission spectra is described. Three different shapes of tube were tested, differing in length, diameter, gas pressure and the angle of closure. The first sign of stimulated emission was achieved with spherical mirrors at a distance of 860 mm; it appeared as a new emission line at a wavelength of 1.15 μm . Various frequency patterns were observed, and the most typical ones were photographed; some of these photographs are reproduced in the paper. "In conclusion, the authors thank M. Rubes, K. Stefka

1/2

Card

ACCESSION NR: AP4016947

and M. Horky for developing the technology of tube manufacture, Z. Vesela for work on the high frequency generator, R. Chudoba for work on the optical bench and O. Moudry for the spectral measurements." Orig. art. has: 13 figures and 1 table.

ASSOCIATION: Ustav pristrojove techniky CSAV, Brno (Institute for Equipment Design, Czechoslovak Academy of Sciences)

SUBMITTED: 06Dec63

DATE ACQ: 18Mar64

ENCL: 00

SUB CODE: SD,PH

NO REF SOV: 000

OTHER: 012

2/2

Card

ACC NR: AP7003753 SOURCE CODE: CZ/0030/67/000/001/0001/0004
AUTHOR: Krsek, J. (Engineer); Popela, B. (Engineer)
ORG: Institute for Instrument Technology, Brno (Ustav pristrojove techniky)
TITLE: Adjusting gas laser resonators Part I
SOURCE: Jemna mechanika a optika, no. 1, 1967, 1-4
TOPIC TAGS: laser, gas laser, gas laser resonator, resonator mirror
ABSTRACT: The paper deals with requirements for setting up resonator mirrors. Equations are introduced for tilting mirrors of various resonator types, and the conditions for their correct functioning are stated. Orig. art. has: 8 figures and 8 formulas. [Based on authors' abstract] [WA-014] [KS]
SUB CODE: 20/SUBM DATE: 19Aug66/

Card 1/1

UDC: 621.378.33

POPEL, Eugen

Socialist competition on the level of new tasks. Munca sindic 5
no.12:15-18 D '61.

1. Presedintele comitetului sindicatului de la Uz. metalurgice din
Tirgoviste.

(Rumania—Industries)
(Socialist competition)

YESIN, O.A.; PASTUKHOV, A.I.; POPEL', S.I.; DZEMYAN, S.K.

Desulfuration of steel and slag by electric currents in arc
furnaces. *Izv. vys. ucheb. zav.; chern. met.* no. 11:20-26
'60. (MIRA 13:12)

1. Ural'skiy politekhnicheskii institut.
(Desulfuration) (Steel--Electrometallurgy)

POPEL', D.

Kolkhoz close to the Arctic Circle; from work practice of the "Osvobozhdenie" Fishing
kolkhoz in Mezen's District. Arkhangel'sk. Arkhangel'shoe knizhnoe izd-vo 1954. 58 p.

1. Agriculture, Cooperative - Russia - Archangel (Province) 2. Fisheries - Russia.

PICHUGIN, A. A.; POPEL', G. V.; FIRSOV, I. Ya.; TESLENKO, I. N.

Automation of the process of cooling softened water. Khim.
volok. no.6:62-63 '62. (MIRA 16:1)

(Water-Softening) (Automatic control)

POPEL L.V.

11E

The fate of nucleic acid in the intestines and liver of angiotomized dogs. L. V. Popel. *J. Physiol. U. S.* N. R. 28, 680-8 (in German, 688) (1940).—Under normal physiol. conditions free as well as bound purine bases participate in the metabolism of nuclear substances, but the bound bases have a larger part in it. T. Laanes

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND LETTERS

AUTHOR INDEX

2ND LETTERS

3RD AND 4TH LETTERS

MATERIALS INDEX

5TH GROUP

POPEL, I. V. // F

ca

PROCESSES AND PROPERTIES INDEX

The role of the liver in animal metabolism of nucleic acid. Experiments on angiotomized dogs. I. L. V. Popel. *Physiol. U. S. S. R.* 29, 302-3 (in English, 365) (1940); *cf. C. A.* 36, 4878. Adult dogs were kept fasting for 48 hrs. before the operation. The liver tissue was then removed for control analysis. Immediately, 1 g. histidine in 15 cc. of water was injected into the portal vein and another piece of liver was removed after ten min., and again after 20 min. These dogs were regarded as "acute" cases. In other "chronic cases" the liver tissue was taken 20 and 30 days after the angiotomy. In "acute" cases histidine intake led within 10 min. to an increase in allantoin many times the normal value; after 20 min., the value fell, but was still above normal level. In chronic cases a similar rise in allantoin was noticed. Uric acid, creatinine and creatine contents of the liver tissue were unchanged. No other amino acids affected the allantoin content. It is concluded that adult animals can synthesize purine bodies from histidine. The place of synthesis in dogs is the liver. Synthetic ability differs in different animals and does not depend on the initial allantoin content of the liver. 10 references.

C. S. Shapiro

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

Common Elements

Common Variables Index

OPEN

MATERIALS INDEX

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

GROUPS

LETTERS

ALPHABETIC

POPEL', L.V.

Changes in protein fractions of the blood plasma in combined injuries.
Voen.-med. zhur no.5:17-22 My '57 (MIRA 12:7)
(BLOOD PROTEINS, in var. dis.
exper. inj. of various types (Rus))

GORDEYEVA, K.V.; KOSYAKOV, K.S.; PAVLEVA, L.M.; POPEL', L.V.

Changes in various properties of fibrinogen in radiation sickness.

Probl. gemat. i perel. krovi 5 no. 9:11-15 '60. (MIRA 14:1)

(RADIATION SICKNESS) (FIBRINOGEN)

POPEL, Milos

Scientific societies affiliated with the Czechoslovak Academy of
Sciences (1961-1962). Vestnik CSAV 72 no.1:120-123 '63.

POPEL, Milos

Scientific societies affiliated to the Czechoslovak Academy
of Sciences. Vestnik GSAV 70 no.5:693-700 '61.

POPEL, M.

"Third National Conference of Workers in Technical Libraries and Technical and Economic Information Centers."

NOVA TECHNKA. Praha, Czechoslovakia. No. 4, 1959

Monthly list of East European Accessions (EEAI), IC, Vol. 3, No. 6, Jun 59, Unclass

L 4539-66 EWT(1)

ACCESSION NR: AP5020696

UR/0185/65/010/008/0925/0926

AUTHORS: Hlauberman, A. Yu.; Popel', O. M. ^{44,85} ^{44,85}

TITLE: A photoeffect with exciton participation

SOURCE: Ukrayinsk'kyy fizychnyy zhurnal, v. 10, no. 8, 1965, 925-926 ^{71,44,85} ³⁷ ²³

TOPIC TAGS: exciton, internal photoeffect, photoionization, semiconductor band structure, forbidden band, light absorption

ABSTRACT: A method of elementary node excitations is used to include directly the effect of the interaction of various excitation branches and describe processes stimulated as a result of this interaction by an external electromagnetic field. Qualitative results are obtained by considering a two-band model of a semiconductor and a simple crystal in which all atoms in the normal state have two s electrons and the excited state is some nondegenerate p state. For a sufficiently wide forbidden band the method of node excitations is comparatively easy to apply. In the field of the light wave the excitation Hamiltonian can be described by a sum $H_0 + W(t)$, where $W(t)$,

Card 1/2

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L 4539-66

ACCESSION NR: AP5020696

3

treated as a perturbation, contains all terms describing the interaction with light. If the interactions among the quasiparticles are neglected, one obtains four terms; two of these correspond to the exciton absorption of light and the ordinary internal photoeffect. The two other terms and their conjugates describe new processes; the photoionization of Frenkel excitons is one of these and leads to an approximate expression for the absorption coefficient. The inverse process, expressed in the Hamiltonian by the conjugate term, is discussed. It is stated that the second process in which two excitons participate can be considered similarly. Orig. art has: 7 formulas

ASSOCIATION: L'vivs'kyi derzhuniversytet im. I. Franka [L'vovskiy gosudarstvennyy universitet im. I. Franko] (L'vov State University)

SUBMITTED: 15May65

ENCL: 00

SUB CODE: OP, SS

41,54

NR REF SOV: 003

OTHER: 000

OC

Card 2/2

KOVALENKO, P.G.; POPEL', P.K.; LUPKO, A.Ya., red.; VAYNSHENKER,
I.M., tekhn. red.

[Collection of regulations on wages for workers of state
agricultural enterprises] Sbornik polozhenii ob oplate
truda rabotnikov gosudarstvennykh predpriatii sel'skogo
khoziaistva. Kiev, Gossel'khozizdat USSR, 1963. 391 p.
(MIRA 16:12)

(Agricultural wages)

POPEL', S.G.

Rice

Temporary irrigation systems for growing rice by inundation. Gidr. i mel., no. 1, 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, MARCH 1952. UNCLASSIFIED.

S/148/62/000/011/008/013
E111/E435

AUTHORS: Perminov, A.A., Popal', S.I., Smirnov, N.S.

TITLE: Adhesion of very simple boric enamels to low-carbon steel

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.11, 1962, 150-155

TEXT: Although the use of $\text{SiO}_2\text{-Na}_2\text{O-B}_2\text{O}_3$ with small additions of other components as the base for ground enamels is increasing, the effect of the main components on the strength of adhesion has not yet been studied. In the present work the adhesion of molten enamels to a polished surface of a 0.084% carbon steel was investigated. Adhesion was calculated from measured values of the surface tension of the melt and the contact angle. The surface tension was measured at 1000°C by the maximum argon bubble pressure method. Of the main components, B_2O_3 had the greatest effect on adhesion: it substantially reduced interparticle bonding in the melt and its adhesion to both oxidized and unoxidized steel. Fig.2 shows the effect of other additions (abscissa, mol %; ordinate, adhesion, erg/cm^2) for the system $67\text{SiO}_2\text{-15Na}_2\text{O-18B}_2\text{O}_3$

Card 1/3

Adhesion of very simple boric enamels .. E111/E435

S/148/62/000/011/008/013

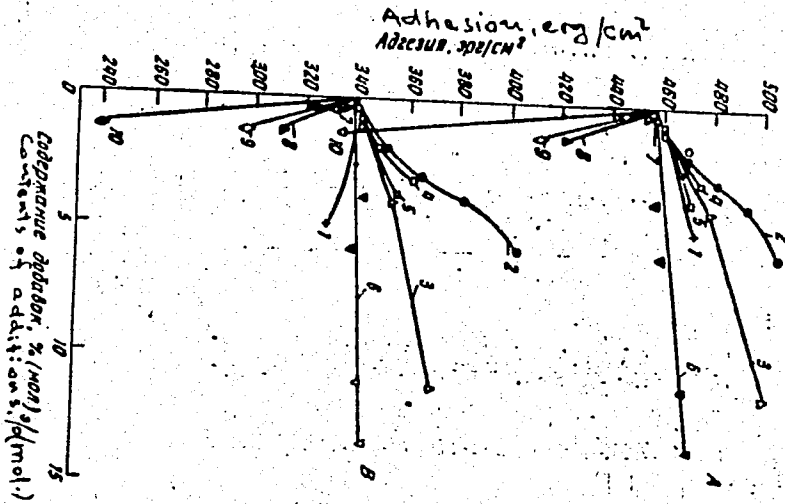


Fig.2. 1 - Al₂O₃; 2 - Fe₂O₃; 3 - CaF₂; 4 - Co₂O₃; 5 - MnO;
6 - TiO₂; 7 - ZrO₂; 8 - Cr₂O₃; 9 - V₂O₅; 10 - MoO₃

Card 3/3

FOPEL, S. I.

USSR/Chemistry - Dolomites
Chemistry - Dissociation

apr 49

"Process of Redistribution of Ions During the Thermal Dissociation of Binary Salts,"
O. A. Yesin, P. V. Gel'd, S. I. Fopel, Chair of Theory of Metallurgical Processes, Ural
Ind Inst imeni S. M. Kirov, 6 1/4 pp

"Zhur Prik Khim" Vol XXII, No 4

Investigated thermal dissociation of dolomite $\text{CaMg}(\text{CO}_3)_2$ with formation of the solid phase
 CaCO_3 and MgO . Submitted 25 May 48

60/49T27

CA

2

Method of measurement of the interfacial tension at high temperatures. S. I. Popel, O. A. Ekin, and P. V. Gold (S. M. Kirov Ural Polytech. Inst., Sverdlovsk). *Doklady Akad. Nauk S.S.S.R.* 74, 1087-1100(1980).—The interfacial tension δ is detd. from the height h (measured from the top to the equator of the drop) of a drop, photographed with x-rays, which permits photography of a drop of metal (15-25 mm.) in a fused slag. With ρ_1 and $\rho_2 = d.$ of the metal and of the medium, resp., $\delta = \frac{1}{2}(\rho_1 - \rho_2)gh^2$, where g = acceleration of gravity. The method was applied to drops of Hg (against air and against H₂O, at 30°), of Cu (against gas, at 1300°), and of cast iron (against gas, at 1400°). It gives generally too low values of δ as compared with detns. with the aid of other equations, but close thereto. Frozen drops generally show h smaller by about 10% than in the molten state, which may give rise to deviations in δ of ~14-25% with the $dh.$ taken as those of the solids, and of ~6-20% with the use of the $dh.$ of the fused substances. Consequently, δ ought to be detd. in the

liquid state. The method is indicated for chemically aggressive or highly viscous substances. N. Thon

C a
1951

Interphase tension of iron alloys at the slag interface
S. F. Popel, O. A. Esin, and P. V. Gel'd (S. M. Kirov Ural Polytech. Inst., Sverdlovsk). *Doklady Akad. Nauk S.S.S.R.* 75, 227-30(1950); cf. *C.A.* 45, 2743h.—A previously described method was used to det. the interphase tension between molten Fe alloys and slags. A pig iron contg. C 3.45, Si 2.21, Mn 0.64, P 0.263, and S 0.105% had at 1420° a surface tension with gas of 1022 erg./sq. cm. and interphase tensions of about 630, 700, and 750 erg./sq. cm. with slags contg. 9, 14, and 50% Al₂O₃ (plus 47% CaO, balance SiO₂). A synthetic Fe alloy contg. 4.6% C and 0.4% Si had at 1480 to 1550° a surface tension with gas of 675 and interphase tensions of about 550, 600, and 610 with slags contg. 10, 27, and 39% CaO (plus 20% Al₂O₃, balance SiO₂). When Na₂O replaced about 5% of the CaO in the 39% CaO slag, the interphase tension at 1400° dropped to about 500, and when Na₂O completely replaced the CaO the value became 410. A synthetic slag contg. SiO₂ 48, CaO 26, and Al₂O₃ 26% had at 1420 to 1510° interphase tensions of about 600, 510, 480, and 260 with Fe alloys contg. Si 0.4, C 4.8; Si 8.0, C 2.8; Si 20, C 2.6; Si 40, C 0.2%. The results are explained by the ionic theory of slags on the basis that cations and anions of the slag which have a large ratio of charge to radius will strongly adhere to each other and displace ions with weak fields from the surface layer.
A. G. Guy

POPEL', S. I.

Z 7731

USSR/Chemistry - Silicon Monoxide

May 52

"Structural Characteristics of Solid Silicon Monoxide," P. V. Gel'd and S. I. Popel', Ural Polytechnic Inst imeni S. M. Kirov

Zhur Prik Khim, Vol 25, No 5, pp 465-473

Mineralogical, electron-microscopic, and X-ray analysis of synthetic preps of silicon monoxide showed that during rapid cooling of the vapors a metastable solid monoxide of silicon is formed which is closely related structurally to glasses and contains a small amount of dispersed silicon.

257T31

POPEL', S. I.

USSR/Chemistry - Silicon

Jun 52

"Liquid Silicon Oxide," P. V. Gel'ld, S. I. Popel', Yu. P. Nikitin, Chair of Theory of Metallurgical Processes, Ural Polytech Inst imeni Kirov

"Zhur Prikl Khim" Vol XXV, No 6, pp 592-601

In cooling of gases from furnaces for smelting of Si alloys, silicon oxides are condensed with the formation of a liquid phase contg up to 85% of SiO. Oxidation of Si and its alloy proceeds gradually with intermediate formation of SiO. The interphase tension at the boundary of Fe-Si alloys with slag fusions was measured. Si substantially lowers the

219730

USSR/Chemistry - Silicon (Contd)

Jun 52

surface energy of the alloy. Substitution of Fe by Cr, i.e., conversion of ferrosilicon to ferro-silicon chromium, is accompanied by a very slight rise of the interphase tension. The very low interphase tension at the boundary of the silicon-silicate melt is explained by the formation of SiO, which lowers the energy differential between the phases in contact and favors of unification their structurally similar elements.

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POPPEL, S. I.

Chemical Abst.
ol. 48 No. 9
May 10, 1954
Metallurgy and Metallography

4
③ Mct
Liquid silicon oxide (SiO₂). P. V. Gel'd, S. I. Popel, and
V. A. P. Nikitin. *J. Appl. Chem. U.S.S.R.* 25, 675-82
(1952) (Engl. translation).—See C.A. 47, 8621k.

H. L. H.

SSSR/Metals - Iron, Interphase Tension 11 Mar 52

"Effect of Carbon on the Interphase Tension of Iron at the Boundary With Slag," S. I. Popel', O. A. Yesin, Yu. P. Nikitin, Ural Polytech Inst Imeni S. M. Kirov, Sverdlovsk

"Dok Ak Nauk SSSR" Vol LXXXIII, No 2, pp 253-255

Describes expts for detg interphase tension of a number of iron-carbon alloys at boundary with slag in range of 1,450-1,500°, using method of resting drop in combination with X-raying. Since existing integral formulas for approximating interphase or surface tension are too complicated and give

214766

Greatly divergent results, more convenient and sufficiently precise calg method of graphical integration was employed. Submitted by Acad A. N. Frumkin 10 Jan 52.

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POPEL' S. I.

FCFEL', S. I.

Electrocapillary Phenomena

Electrocapillary phenomena at high temperatures.

Dokl. Ak. SSSR 83 No. 3, 1952

Ural'skiy Politekhnikheskiy Institut im.

S. M. Kirova Sverdlovsk. red. 10 Jan. 1952

SO: Monthly List of Russian Accessions, Library of Congress, August, 1952 ~~1953~~, Uncl.

POPEL, S. I.

Met. 3

British Abstracts
B1, July 1963
Ferrous metal =
Energy

Electrocapillary phenomena at different compositions of metal and slag. Yu. P. Nikitin, O. A. Esin, and S. I. Popel (*C. R. Acad. Sci. U.R.S.S.*, 1952, 87, 813-815).—Electrocapillary phenomena in the system liquid Fe-C alloy-slag are investigated. Exchange of CaO for Na₂O in the slag causes lowering of interphase tension, δ_m , along the whole course of the cathode branch of the electrocapillary curve. It follows that on the boundary of Fe-C or Fe-P alloys and slags the surface activity of Na ions is higher than that of Ca ions. P is also a surface-active agent but it lowers δ_m to a smaller degree than equal at-% of C. Whilst adsorption of C decreases with the increase of cathode potential, the adsorption of P does not depend upon it. S. K. LACHOWICZ.

POPEL', S.I.

USSR/Physics - Metallurgy

Card 1/1 Pub. 147 - 20/27

Authors : Krasovskiy, N. N.; Nikitin, Yu. P.; Esin, O. A.; and Popel', S. I.

Title : Calculation of surface tension by the form of a recumbent drop

Periodical : Zhur. fiz. khim. 28/9, 1678-1679, Sep 1954

Abstract : A table for the calculation of surface tension according to the form of a recumbent drop and a suitable method for the graphical integration of an equation for such a drop are briefly described. The method, which has numerous advantages, is also applicable to drops of different size and form. Examples of such calculations are shown. Five references: 3-USSR; 1-Indian and 1-English (1883-1953). Table; graph.

Institution : The S.MKirov Ural Polytechnicum, Faculty of the Theory of Metallurgical Processes, Sverdlovsk

Submitted : April 20, 1954

POPEL', S. I.; Yesin, O. A.; Nikitin, Yu. P.

"The Surface Activity of Carbon and Phosphorus at the Metal-Slag Interface"

Tr. Ural'skogo Politekhn. In-ta, sb. 49, 1954, 82-86

Interfacial tension of iron-carbon and iron-phosphorus alloys with synthetic slag was determined by photographing drops lying on a corundum block and correlating the results with X-ray data. Established that as the carbon and phosphorus content is increased, the interfacial tension is decreased. The effect of phosphorus is less than that of carbon. Interfacial tension of above alloys is close to that of the surface tension. Interfacial tension of iron-carbon alloy with carbide slag was estimated using the cooled drop method, and found to be less than the surface tension of the slag. (RZhKhim, No 3, 1955)

SO: Sum-No 845, 7 Mar 56

KUZNETSOV, Sergey Ivanovich; POPEL', S.I., redaktor; LUCHKO, Yu.V., redaktor
izdatel'stva; KOVALENKO, N.I., tekhnicheskii redaktor

[Manufacture of alumina; problems in physical chemistry] Proizvodstvo
glinozema; voprosy fizicheskoi khimii. Sverdlovsk, Gos. nauchno-tekhn.
izd-vo lit-ry po chernoi i tsvetnoi metallurgii, Sverdlovskoe otd-nie.
1956. 115 p. (MLRA 9:12)
(Alumina)

Popov L.S.I.
MIKHAYLOV, V.V., doktor tekhnicheskikh nauk, professor, redaktor; GRUZINOV, Vladimir Konstantinovich, kandidat tekhnicheskikh nauk, redaktor; POPPEL, Stanislav Iosifovich, kandidat tekhnicheskikh nauk; KEL'NIK, V.P., redaktor; ZIN, Y.G., tekhnicheskii redaktor

[Physical and chemical principles of the blast furnace process and the modern method of producing cast iron; transactions of a conference convoked by the Metallurgical Institute of the Ural Affiliate of the U.S.S.R. Academy of Science, March 23-27, 1955] Fiziko-khimicheskie osnovy domennogo protsesssa i sovremennaiia praktika proizvodstva chuguna; trudy soveshchaniia, sozvannogo Institutom metallurgii Ural'skogo filiala AN SSSR i Magnitogorskim metallurgicheskim kombinatom, 23-27 marta 1955 g.g. Magnitogorsk. Pod red. V.V.Mikhailova. Sverdlovsk, Gos.nauchno-tekhn. izd-vo lit-ry po chernoii i tsvetnoi metallurgii, Sverdlovskoe otd-nie, 1956. 403 p. (MLRA 10:3)

1. Akademiya nauk SSSR. Ural'skiy filial, Sverdlovsk. Institut metallurgii.

(Blast furnaces) (Cast iron--Metallurgy)

Papel, S. I.

7
Measurements of Densities of Molten Silicates. S. I. Popel
and O. A. Esin. (*Zhur, Priklad. Khim.*, 1958, 22, 407, 408-
409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000). [In Russian]. Density measurements of molten silicate
systems (FeO-SiO₂, FeO-SiO₂-CaO, and CaO-SiO₂-Al₂O₃)
relevant to blast-furnace and steel-making slags at 1400° C
were carried out. The method of determination was based
on the measurement of the maximum pressure during the
formation of bubbles at the end of a tube (6 mm dia.) dipped
into the melt to different depths. The apparatus used is
described. — *x*

4E20

PM

Pollet, S. L.

7
The densities of fused silicates. S. I. Popel and O. A. *2*
Esin. *J. Appl. Chem. U.S.S.R.*, 29, 707-11 (1956) (English
translation). See *C.A.* 50, 10323b. B. M. R. *3*

RM
MT

Popel, S. I.

Surface tension of simplest oxide systems. S. I. Popel and O. A. Esin (Ural Polytech. Inst., Sverdlovsk). *Zhur. Fiz. Khim.* 30, 1193-201(1956).—The max. bubble pressure was identical whether N or A was used as the gas and was almost independent of the rate of bubbling (a few bubbles per min.) but a little different for different capillaries; the total error of the surface tension (σ) values was 6%. The σ of FeO 97, Fe₂O₃ 3 wt.-% (apparently at about 1400°) was 590 ergs/sq. cm. and was lowered to 500 when the concn. of Fe₂O₃ rose to 8%. In melts of FeO-Fe₂O₃-SiO₂ at 1340-1400°, σ was higher, the higher was the concn. c_1 of FeO, when the concn. c_2 of SiO₂ varied between 7 and 30%. In the MnO-SiO₂-FeO system at 1400°, σ decreased when c_2 increased (between 20 and 45%). The effect of 1-7% CaO on the σ of FeO-Fe₂O₃ melts at 1350-1400° was small, and σ was 430-480. The σ of FeO-Fe₂O₃ melts at 1300-1400° was lowered by Na₂O, e.g. to 350 when c_1 was 60% and the Na₂O content was 15%. Substitution of CaO for FeO in ferrous silicates at $c_2 = 21$ to 25% had little effect on σ . The effect of temp. between 1360 and 1460° was small. The results are accounted for by the potential energy of the ionic interaction. J. J. Bikerman

2

POPEL, S.I., YESIN, O.A., KONOVALOV, G.F.

"Surface Activity of Iron Oxide and Sulphur on the Boundary: Steel-Slag,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

POPEL, S.I.

"Slag Flowing on the Surface of Liquid Metal,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

POPEL, S.I., YESIN, O.A., BRATCHIKOV, S.G., RAZUMOV, V.N., PLOTNIKOV, I.M.

"Electrochemical Desulphurization of Steel in Induction Furnace,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of
Metallurgy, Moscow, July 1-6, 1957

137-1958-2-2361

POPEL', S.I.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 22 (USSR)

AUTHORS: Popel', S.I., Yesin, O.A.

TITLE: The Surface Tension and Densities of the Simplest Oxide Systems
(Poverkhnostnoye natyazheniye i plotnosti prosteystshikh oksidnykh sistem)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 497-504. Diskus., pp 505-512

ABSTRACT: The surface tension σ of molten oxides was measured by the value of the maximum pressure in the bubbles. This was the method used to determine the densities of the silicate melts. The experiments were carried out at temperatures of 1340°-1400°. The crucibles, capillaries, and tubes were prepared from Fe. N₂ served as the working gas. The surface tension of FeO with a 6.3% Fe₂O₃ content was 590 ergs/cm². When the Fe₂O₃ and SiO₂ contents were increased, the surface tension declined evenly, reaching 400 ergs/cm² as the SiO₂ and Fe₂O₃ contents reached 30.5% and 4.8%, respectively. The density of FeO at 1400° equaled 4.90 g/cm³. The addition of SiO₂ caused a drop in density such that, when the SiO₂ content reached 30%, the density fell to

Card 1/2

137-1958-2-2361

The Surface Tension and Densities (cont.)

3.67 g/cm³. The dependence of the specific volume on the composition was almost of a straight-line character, which showed how near an FeO-SiO₂ system comes to being an ideal one. When in MnO-FeO-SiO₂ alloys SiO₂ was substituted for the MnO portion the surface tension declined in a straight-line fashion from 517 ergs/cm² when the SiO₂ and FeO contents were 19.8% and 21.3%, respectively, to 400 ergs/cm² when they were 45.0% and 23.7%, respectively. In CaO-FeO-SiO₂ alloys of orthosilicate composition the surface tension was 410-440 ergs/cm², changing but little when FeO was introduced in place of CaO. By contrast, the density in that event declined from 4.0 to 3.23 g/cm³. The specific-volume curve against percent CaO (mol) followed a concave upward path.

S.P.

1. Oxides—Surface tension—Measurement 2. Silicate—Density
—Density—Determination 3. Crucibles—Applications

Card 2/2

POPEL', S.I.

AUTHORS: Popel', S. I. and Yesin, O. A.

78-3-21/35

TITLE: Surface Tension of Fused Silicates. (Poverkhnostnoye natyazheniye rasplavlennykh silikatov.)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1957, Vol.II, Nr.3, pp. 632-641. (USSR)

ABSTRACT: Although detailed information is available on the surface tension of oxidizing slags, the same cannot be said of blast-furnace types of slag. The few values that are available show great discrepancies and fail to show the effect of composition. In the present investigation the surface tension of $\text{CaO} - \text{SiO}_2 - \text{Al}_2\text{O}_3$ and $\text{CaO} - \text{SiO}_2 - \text{MgO}$ melts were determined by two independent methods: maximal pressure in a bubble, and stationary drop. At 1750°C the surface tension of silica was only about 400 erg/cm^2 , rising with addition of alumina. A rise was also observed when silica was replaced by lime, but the introduction of magnesia

Card 1/3

137-58-6-11520

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 39 (USSR)

AUTHORS: Popel', S.I., Nikitin, Yu.P.

TITLE: The Effect of Components Dissolved in Iron on Its Interphase Tension with Slag (Vliyaniye komponentov, rastvorenykh v zheleze, na yego mezhfaznoye natyazheniye so shlakom)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1957, Nr 67, pp 60-63

ABSTRACT: A measurement is made of the interphasic tension σ of Fe and of ferroalloys at the metal (ME) - slag (SL) boundary. A thin plate of fused magnesia is placed on the bottom of a graphite crucible, and on it rests a drop of ME immersed in SL. The crucible is subjected to X-rays and a shadow image of the drop is produced on a film. An enlargement yields its true dimensions. σ is determined therefrom by means of graphs. The ME used was of technical purity. The SL was of chemically pure oxides. Experiments with Fe-V, Fe-Si, and Fe-Ti employed SL of the following weight % composition; CaO 46, SiO₂ 36, Al₂O₃ 18, while in the experiments with Fe-Mn and Mn-Si the SL were of the following composition (in % by weight):

Card 1/2

CaO 25, SiO₂ 65, Al₂O₃ 12. The densities of the ME were

137-58-6-11520

The Effect of Components (cont.)

calculated from their values at room temperature, on the assumption that their coefficients of expansion were the same as with steel containing 0.45% C. The densities of SL, as measured by the change in maximum pressure in the bubbles on immersion of the tube into the melt, are 2.80 and 2.66 g/cm³, respectively, for the first and second SL. The experiments were run at 1480-1560°C. The σ values of the Fe-Mn, Fe-Si, and Mn-Si alloys vary against concentration in virtually linear fashion and constitute 1200 and 1080 erg/cm² for Fe and Mn respectively, 710 erg/cm² for Fe-Si at 60 atomic % Si, and 700 erg/cm² for Mn-Si at 50 atomic % Si. In the alloys Fe-V and Fe-Ti the corresponding curves are bent slightly upward and drop to 400 erg/cm² at 27% Ti, and 480 erg/cm² at 38% V. The drop in σ in the case of Fe-Mn is explained by the adsorption of MnO, the concentration of which in the SL after the experiment was higher (up to 3.8%) than that of FeO (up to 1%). In the case of other alloys, the drop in σ is induced chiefly by the appearance of weaker bonds within the metal phase, e.g., as a result of the formation of quasi-molecules of FeSi and Fe₃Ti. An increase in the concentration of Ti, V, Si, and Mn at the ME-SL boundary and the good solubility of oxides thereof in the SL ensures the oxidation of these additions in the steel-smelting furnace at the ME-SL surface. 1. Metals--Properties 2. Slags--Properties X-rays --Application 3. Metals--Phase studies

Card 2/2

S.P.

Papet, S. I.

27

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1-4E2C

Effects of sulfur on the phase boundary tension between metals and slags. S. I. Papet, O. A. Esip, O. P. Konevlov, and N. S. Smirnov (S. M. Kuzov Ural Politecn. Inst. Sverdlovsk), *Doklady Akad. Nauk S.S.S.R.* 117, 104-8 (1957). — For the desulfurization of molten steel and the behavior of slag inclusions in ingot casts the surface tension conditions on the phase boundary metal/slag are of primordial importance. S is known to decrease considerably the surface tensions, and to promote wetting characteristics on solid surfaces (cf. Kozakevich, et al., *C.A.* 49, 8063f). The authors used the same x-ray shadow-casting method previously described (*C.A.* 45, 2743a; 46, 3581f), pure Fe, FeS, and two synthetic slag compos., one similar to steel, the other to blast-furnace slags (with 35% and 47% CaO, 27.2% and 1.0% FeO, resp.) were used in MgO or Al₂O₃ crucibles. Dissolving of the crucible material did not affect the phase-boundary phenomena. The shape of the metal drops on the slag melts are considerably changed (flattened) if the S content in the metal is increased, the surface tension is decreased. At 1630° to 1670° the surface tension of pure Fe to the slags is 1015, and 700 ergs/sq. cm., and decreased to about 500 and 350 ergs/sq. cm., resp., if 2% S was added to the melt. The exper. results are important for the study of the transition of S from the metal melts into the slags, and explain the great stability of non-metallic inclusions in steel if they contain much S and FeO in the same time. Such emulsions do not easily coalesce because the electrokinetic potential impeding this process is considerably changed by the action of S (cf. Deryagin, *C.A.* 32, 3232).

W. Eitel

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11/1

SOV/137-58-9-18659

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 71 (USSR)

AUTHORS: Yesin, O.A., Kholodov, A.I., Gel'd, P.V., Popel', S.I.

TITLE: Electrochemical Refining and Alloying of Ferrous Metals (Elektrokhimicheskoye rafinirovaniye i legirovaniye chernykh metallov)

PERIODICAL: V sb.: Staleplavil'n. proiz-vo, Moscow, Metallurgizdat, 1958, pp 151-161

ABSTRACT: A description is offered of the results of experiments in 1948-1952 in the electrochemical refining and alloying of metals. The laboratory experiments were run in a resistance furnace with a Silit electrode and in a 50-kg high-frequency furnace. Electrochemical refining of metal proved feasible. The application of an external electrical field to a metal-slag system makes it possible to regulate the speed and completeness of transfer of S from the metal into the slag. Pilot-plant experiments at the Verkh-Isetsk Plant employed a D-C generator (1000 amps, 120 v). The metal was poured into a 300-kg ladle. The results of the industrial experiments showed that when an external electrical field was applied the removal of

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SOV/137-58-9-18659

Electrochemical Refining and Alloying of Ferrous Metals

sulfur from the steel proceeds with considerably greater efficiency than without electrolysis. Depending upon the initial composition of the metal and the slag and upon the quantity thereof, the S content diminished by 0.020-0.045% during the first 10 min. Simultaneously with the removal of S from the metal, an increase in Si content was observed. Current efficiency was from 20 to 96%. The experiments demonstrated the desirability of further development of the method and of its introduction into industrial practice.

L.K.

1. Ores--Processing
2. Metals--Production
3. Iron alloys--Production
4. Metals--Electrochemistry

Card 2/2

POPEL', S.I., kand. tekhn. nauk, dots.

Surface tension of steel smelting slags. Izv. vys. ucheb. zav; Chern.
met. no.4:61-68 Ap '58. (MIRA 11:6)

1. Ural'skiy politekhnicheskiy institut.
(Open-hearth process) (Surface tension)

POPEL, S. I.

nonmetallic inclusions in ingots of rimming-steel de-oxidized by different methods. S. I. Popel, G. F. Konovalov, and N. A. Butkevich (Met. Works. Seversk). Izv. Vysshikh Ucheb. Zavedenii, Chernaya Met. 1958, No. 6, 51-7. -- A study was made of chem. and phase compn. of nonmetallic inclusions in 850-kg. ingots of 0.13-0.16% C rimming steel deoxidized in the furnace (a) with ferromanganese, and (b) ferromanganese and ferrosilicon. The inclusions were extd. and studied in relation to the depth in the ingot. The results showed that introduction of ferrosilicon (2 kg./ton) decreases the amt. of inclusions about 1/3. Their phase compn. is also altered by ferrosilicon adds.: the content of high-m.p. inclusions, such as corundum and spinel, is decreased, while the quantity of low-melting silicates increases. Explanation of this is found in the nature of the emulsions formed. Introduction of ferrosilicon increases the emulsion concn. and lowers the viscosity of the dispersed phases and their adhesion to metal, thereby forming larger particles and facilitating their removal from the metal. 23 references. B. N. Daniloff

J. Distr: 4E2c

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SOV/137-59-1-1516

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 202 (USSR)

AUTHORS: Popel', S. I., Yesin, O. A., Korpachev, V. G.

TITLE: On the Method of Measuring the Surface Viscosity of Silicate Melts
(K metodike izmereniya poverkhnost'noy vyazkosti s'likatnykh rasplavov)

PERIODICAL: Izv. Sibirsk. otd. AN SSSR, 1958, Nr 5, pp 66-73

ABSTRACT: A description of apparatus and methods employed in the determination of the surface viscosity (V) of high-temperature silicate melts. The process is based on the method of damped oscillations (O) of a disk which intersects the surface of the liquid. The vibrating device consists of an iron disk, 20 mm in diameter and 6 mm high, which is rigidly coupled to a rod by means of a special joint and is suspended by a nichrome wire. The joint carries a small mirror and a clamp for the wire; the upper face of the joint supports two iron plates in which torsional vibrations are induced with the aid of an electromagnet; the vibrations are registered on a graduated scale by means of a ray of light reflected from the mirror. The slag being investigated is charged into an Fe crucible, 50 mm deep and 50 mm

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SOV/137-59-1-1516

On the Method of Measuring the Surface Viscosity of Silicate Melts

in diameter, and the crucible is placed into an electric Krypton furnace. The temperature of the melt is controlled with the aid of an optical pyrometer; in order to achieve an inert atmosphere, N_2 is introduced into the hermetically-sealed furnace. The depth of immersion of the disk is determined by means of a control lamp mounted on the lifting mechanism. After the desired temperature had been attained, the crucible containing the slag is placed into the furnace which is then closed; the vibrating device is centered, the disk is immersed into the slag to a depth equivalent to half of its height, and torsional O's are induced in it. Depending on the V , the amplitude is recorded at intervals of one, five, ten or more O's, and from these O's the logarithmic surface damping decrement, λ_{surf} , is computed. After repeating this procedure five or more times the disk is immersed into the slag to a depth of 5 mm measured from its upper surface and the volumetric damping decrement, λ_{vol} , is determined. The relative value α of the V of the surface layer is determined from the ratio $\alpha = \lambda_{surf} / \lambda_{vol}$; in order to determine the absolute values of the V , the thickness of the surface layer must be known. The volumetric V is computed from the magnitude of the damping decrement of the disk O's within the slag. The apparatus is previously calibrated at a temperature of $20^\circ C$ against standard liquids, such as water, mercury, and liquid paraffin. An investigation of the surface and volumetric V demonstrated that the surface layer of a number of

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SOV/137-59-1-1516

On the Method of Measuring the Surface Viscosity of Silicate Melts

liquid slags exhibits an increased ν ; the latter increases when SiO_2 and Fe_2O_3 are introduced into the FeO , or when MgO and Al_2O_3 are added to the silicate melt.

Z. F.

Card 3/3

POPEL', S.I., dots., kand.tekhn.nauk

Surface tension of iron and iron alloys. Izv.vys.ucheb.zav.:
chern.met. no.10:51-61 0 '58. (MIRA 11:12)

1. Ural'skiy politekhnicheskii institut.
(Surface tension) (Liquid metals) (Iron)

POPEL', S.I., dots., kand.tekhn.nauk

Surface tension in iron and iron alloys. Izv.vys.ucheb.zav.; chern.met.
no.11:53-61 N '58. (MIRA 12:1)

1. Ural'skiy politekhnicheskiy institut. Rekomendovano kafedroy teorii
metallurgicheskikh protsessov.
(Iron alloys--Testing) (Surface tension)

PERMINOV, A.A., inzh.; POPEL', S.I., kand. tekhn. nauk, dotsent;
SMIRNOV, N.S., kand. tekhn. nauk.

Wettability of iron and its oxides by molten silicates.

Izv. vys. ucheb. zav.; chern. met. no.12:35-39 D '58.

(MIRA 12:3)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov

i Ural'skiy politekhnicheskii institut.

(Adhesion--Testing)

(Surface tension)

5(4), 18(3)

AUTHOR:

Popel', S. I.

SOV/76-32-10-24/39

TITLE:

The Effect of the Components of an Oxide Melt on Its Interfacial Tension With Iron (Vliyaniye komponentov oksidnogo rasplava na yego mezhfaznoye **natyazheniye s zhelezom**)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2398 - 2402 (USSR)

ABSTRACT:

The influence of CaO, SiO₂, Al₂O₃ and FeO on the interfacial tension of iron and the oxide phase the composition of which is similar to that of simple furnace and steel-melt slags was investigated. The interfacial tension was determined according to a method described already (Ref 6) and an X-ray taken of the iron drop in the oxide melt at 1580°C. The changes of the interfacial tension (σ) in dependence on the concentration of Al₂O₃ and CaO is shown in a graph. The value for σ is high and in this system amounts to 1060-1290 erg/cm²; it changes little with the composition. This value increases a little

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The Effect of the Components of an Oxide Melt on Its
Interfacial Tension With Iron

SOV/76-32-10-24/39

in the exchange of SiO_2 with CaO or Al_2O_3 . This tends to show a strong attraction of the iron atoms among themselves and their low interaction with the ions of the slag. In further experiments the collaboration of G.F.Konovalov the influence of the iron oxide was investigated. With an increase of the iron oxide concentration an intense decrease in the interfacial tension was found. At 70% FeO in the slag the value σ amounts to only 1000 erg/cm^2 . The iron oxide is therefore a surface active component with regard to the boundary metal-slag. This is explained by the effect of the oxygen in FeO as well as by the good solubility of FeO in the metal phase. The formation of the slag inclusions in steel is made easier by the reduction of the interfacial tension by FeO and these inclusions are thermodynamically more stable. Finally, the author thanks Professor O.A.Yesin. There are 1 figure, 2 tables, and 18 references, 16 of which are Soviet.

Card 2/3

The Effect of the Components of an Oxide Melt on Its
Interfacial Tension With Iron

SOV/76-32-10-24/39

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

SUBMITTED: May 15, 1957

Card 3/3

POPEL, S.I.

POPEL, S.I.

Liquid Fe and Fe-Ni alloys to solid oxides.

report submitted for the 5th Physical Chemical Conference on Steel Production.

MOSCOW - 30 JUN 63

POPEL' S. I.

НЕМЕТАЛЛИЧЕСКИЕ ВКЛЮЧЕНИЯ СТАЛИ

С.И.Попель Г.Ф.Кочнев	Очистка ковшой стали от углеродистых включений
С.Е.Волков А.М.Семарин	Влияние метода раскисления стали в вакуумной печи на процесс ее десульфурации.
Д.К.Бутов Л.М.Мельников	Влияние вихревой обработки на структуру литой стали.
С.Т.Ростовцев Д.И.Турецкий В.И.Богдановский К.С.Прасолов	Окисные неметаллические включения в конвертерной ралывовой стали.
В.А.Уразов Ю.Т.Лушников Душечко	Включения в микротвердностной стали, содержащей титан.
Ю.Т.Лушников Душечко О.В.Димит Е.В.Круглова	Включения в микротвердностной стали, содержащей ванадий и молибден.
А.И.Ковалев	Осадочные включения в процессе электрошлаковой стали.
С.Г.Велико П.М.Давыдов	Разработка и внедрение новой технологии выплавки шихтовочной стали.
В.П.Корсаков П.Я.Давид	Возможные пути улучшения раскисления металла.

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jun 1959.

POPEL, S.I.

18(5) PHASE I BOOK EXPLOITATION SOV/2048
Sverdlovsk. Ural'skiy politekhnicheskii Institut imeni S.M. Kirova
Teoriya i praktika litynogo proizvodstva (Theory and Practice in the
Foundry Industry) Moscow, Mashiz, 1959. 231 p. and 32 p.
(Series: Itis [Sbornik] vsp. 89). Errata slip inserted. 5,000
copies printed.

Ed.: A.A. Gorbakov, Corresponding Member, USSR Academy of Sciences,
Deater of Technical Sciences, Professor; Tech. Ed.: S.A. Dugin,
Eng. Ed. (Ural-Siberian Division, Mashiz); A.V. Matitsina,
Engineer.

PURPOSE: This book is intended for engineering and scientific workers
at institutes and machine-building plants, as well as for students
at advanced courses at vuzes.

COVERAGE: This collection consists of articles dealing with practical
problems in foundry processes. The articles review the achieve-
ments of Ural foundry workers in the past 40 years and present
aspects of a current study on the casting of nodular cast iron,
its properties and casting methods. A description is given of
artistic and architectural casting. Consideration is given to the
problem of combatting gases in steel and aluminum. The structure
of cast steel is discussed. A recent investigation of vacuum
casting including its characteristic properties and new applications
is also presented. There are 32 pages of photographs illustrations
at the end of the book. No personalities are mentioned. References
follow each article.

TABLE OF CONTENTS:

Popel, S. I. Wetting Refractories With Molten Metal and Slag 162
The purpose of this study was to investigate the effect of car-
bon, manganese, silicon, sulfur, and phosphorus dissolved in
iron on the wetting of magnesia and other materials by the iron
and to determine the magnitude of the contact angles formed by
liquid slags on various surfaces. The method and results of the
investigation are described. It is concluded that the magnitude
of contact angle formed by the drop of commercially pure iron on
magnesite surface is 115-120° and the angle formed by CaO-SiO₂-
Al₂O₃ and CaO-SiO₂-MgO slags varies slightly with composition.
And at the temperature of 1800-1750 °C is equal to 112-125°. It
is concluded that carbon, manganese, silicon, sulfur and phos-
phorus dissolved in iron improve the wetting of magnesia by
iron.

Popel, S. I. (Candidate of Technical Sciences). Effect of Steel
Surface Properties and Degree of Oxidation on Burn-on of Mold Com-
position to Castings 173
The author describes the processes of penetration of melt into
a capillary-porous body and its velocity, and the adhesion of
low-carbon steel with the oxide fusion.

POPEL', S. I.

"The Interphase Tension of Iron at the Interface with a Silicate Smelt
(Measuring by the Form of the Drops)."

report presented at the Section on Colloid Chemistry, VIII Mendeleev Conference of
General and Applied Chemistry, Moscow, 16-23 March 1959.
(Koll. Zhur. v. 21, No. 4, pp. 509-511)

POPEL', S.I., kand.tekhn.nauk

Wetting of refractory materials by molten metal and slag.
Trudy Ural.politekh.inst. no.89:162-172 '59. (MIRA 12:8)
(Liquid metals) (Surface tension)

D'YAKONOV, V.I.; POPEL', S.I.

Nonmetallic inclusions in vacuum-smelted ball-bearing steel during various methods of introducing chromium. Izv. vys. ucheb. zav.; chern. met. 7 no.10:17-21 '64.

(MIRA 17:11)

1. Ural'skiy politekhnicheskiy institut i Ural'skiy institut chernykh metallov.

L 39764-65 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/JG

ACCESSION NR: AP4047334

S/0148/64/000/010/0017/0021

23
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AUTHOR: D'yakonov, V. I.; Popel', S. I.

TITLE: Nonmetallic inclusions in vacuumed ball-bearing steel with different methods of chromium alloying

SOURCE: IVUZ. Chernaya metallurgiya, no. 10, 1964, 17-21

TOPIC TAGS: vacuum treatment, nonmetallic inclusion, carbon steel, chromium additive, quartz, tungsten additive, ball bearing steel, chromium alloying

ABSTRACT: Vacuum treatment of ball-bearing steel greatly improves quality but the problem of lowering the number of inclusions has been inadequately studied. Therefore, the authors undertook a study of the effects of vacuum refining carbon steel on inclusions and on their composition by using the method of Cr inoculation. The charge was composed of 150 g sponge iron with 0.05% C, 0.007% Si, 0.006% Mn, 0.005% S and 0.008% P, and 5 g crushed electrode. Metallic chromium (99.5% Cr) was added in batches of 0.5, 1 and 1.5%. Specimens were treated in a

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ACCESSION NR: AP4047334

3

high-frequency vacuum furnace at 1585 C. After the completion of boiling Cr was introduced and the specimens subjected to furnace cooling. The second method consisting in charging Cr together with the iron into a cold furnace produced 50% less inclusions in the degassed Cr specimens. The content of wustite was 6-7%, quartz 53% and chromite and chromium oxide 60% lower. Cr added to degassed metal produced 0.050 to 0.082% (weight of steel) oxides. An increase in the amount of Cr did not change the number of inclusions. Orig. art. has: 3 tables.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Urals Polytechnic Institute);
Ural'skiy institut chernykh metallov (Urals Institute of Ferrous Metals)

SUBMITTED: 01Apr63

ENCL: 00

SUB CODE: MM

NR REF SOV: 012

OTHER: 001

pure metal (Cr) 18

Card 2/2 (m)

POPEL', S.I.; TSAREVSKIY, B.V.; DZHEMILEV, N.K.

Isotherms of density and surface tension of iron and manganese melts. Fiz. met. i metalloved. 18 no.3:468-470 S '64. (MIR. 17:11)

1. Ural'skiy politekhnicheskii institut imeni Kirova.

POPEL', S.I. (Sverdlovsk); SMIRNOV, I.A. (Sverdlovsk); PASTUKHOV, A.I.
(Sverdlovsk)

Kinetic characteristics of reactions in an oxygen-blown converter
bath during smelting with the use of vanadium pig iron. Izv. AN
SSSR. Met. no.4:21-29 M-Ag '65. (MIRA 18:8)

L 64552-65 EWP(e)/EWT(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b) JD

ACCESSION NR: AP5020770

UR/0226/65/000/008/0050/0054

AUTHOR: Sherstobitov, M. A. ; Popel', S. I. ; Tsarevskiy, B. V.

TITLE: Method of determining the rate of penetration of melts into capillary porous materials

SOURCE: Poroshkovaya metallurgiya, no. 8, 1965, 50-54

TOPIC TAGS: liquid metal, foam metal, electric conductivity, electric resistance, electrodynamics, iron oxide, silicon dioxide, magnesium

ABSTRACT: The method consists in continuous determination of the level of the melt in the sample by measurement of the electrical resistance. It is applicable to systems in which the electrical conductivity of the impregnated body is substantially different from that of the starting body. A study was made of the movement of melts of $\text{FeO-SiO}_2\text{-Fe}_2\text{O}_3$ into pressed samples made of powders of fused magnesium at 1220-1420 C. The movement was measured with an automatic electrical potentiometer. The samples were cylindrical with a diameter of 20 mm and a height of 40-50 mm, pressed from a moist (7% water) mixture of pulverized

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ACCESSION NR: AP5020770

fused magnesium of known particle size and refractory clay (9%). Porosity of the samples was 37.5-38.5% and was practically identical over the length. The percentage of open pores exceeded 99%. Simultaneous temperature measurements were made with platinum-platinum rhodium thermocouples. Results showed that the depth of penetration increases with time according to the parabolic curve $l^2 = K \tau$, where l is the length of the sample and K is the penetration constant which increases with a decrease in the proportion of silicon dioxide and with a rise in temperature. Orig. art. has: 4 formulas, 2 figures.

ASSOCIATION: Ural'skiy politekhnicheskiy institut S. M. Kirova (Ural Polytechnic Institute)

SUBMITTED: 30Jun64

ENCL: 00

SUB CODE: MM

NR REF SOV: 008

OTHER: 004

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Card 2/2

DERYABIN, A.A.; YESIN, O.A.; POPEL', S.I.

Specific features of electrocapillary curves in oxide melts.
Zhur. fiz. khim. 39 no.4:966-972 Ap '65.

(MIRA 19:1)

1. Ural'skiy politekhnicheskii institut. Submitted April 14,
1964.

PAVLOV, V.V.; POPEL', S.I.

Temperature dependence of the surface tension of solutions.
Zhur. fiz. khim. 39 no.4:973-977 Ap '65.

(MIRA 19:1)

1. Ural'skiy politekhnicheskiy institut. Submitted May 6, 1964.

DZHEMILEV, N.K.; POPEL', S.I.; TSAREVSKIY, B.V.

Isotherms of density and surface tension of manganese and silicon melts. Porosh. met. 5 no.10:71-74 0 '65. (MIRA 18:11)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.