SEP-OCT 1973



ELECTROCHEMISTRY IN INDUSTRIAL **PROCESSING &** BRITISH LIBRARY **BIOLOGY**

BOSTON SPA

APR 1975

0411.610

ELEKTRONNAYA OBRABOTKA MATERIALOY

TRANSLATED FROM RUSSIAN

ROCHEMISTRY IN INDUSTRIAL PROCESSING & BIOLOGY

ELECTROCHEMISTRY IN INDUSTRIAL PROCESSING & BIOLOGY (formerly Applied Electrical Phenomena)

is a translation of Elektronnaya Obrabotka Materialov, a publication of the Academy of Sciences of the Moldavian SSR. It covers the following subjects:

FUNDAMENTAL RESEARCH; PRECISION (SPARK AND ELECTRO-EROSION) MACHINING; SURFACE ALLOYING, HARDENING AND TREATMENT; USE OF ELECTRIC FIELDS IN CHEMICAL PRO-CESSING AND ORE BENEFICIATION, BIOLOGY, FOOD PROCESS-ING AND TREATMENT OF EFFLUENTS; DEVELOPMENT, DESIGN OF AND PRACTICAL EXPERIENCE WITH MACHINES AND EQUIP-MENT FOR ELECTRICAL MACHINING, TREATMENT AND PRO-CESSING.

Editorial Board of Elektronnaya Obrabotka Materialov:

Editor:

Academician B.P. Lazarenko

Director, Central Scientific Research Laboratory for Treatment of Materials, Academy of Sciences of the USSR,

Moscow, USSR.

Associate Editor:

M.K. Bologa

S.S. Chetverikov M.M. Fedorov Yu.N. Petrov A.A. Shakhov

Copyright © 1975 Scientific Information Consultants Ltd., 661 Finchley Road, London NW2 2HN, England. All rights reserved. No article contained herein may be reproduced for any purpose whatso-ever without permission of the publishers. For bibliographical accuracy the English issue carries the same number and date as the original Russian from which it was translated. When ordering any volume or particular issue of a Scientific Information Consultants journal, please specify the date and, where applicable, the volume and issue numbers of the original Russian.

Subscription £68.00 (U.K.) Single Issue: £12.00 (\$30.00)

(6 Issues): \$163.00 (Overseas) per annum

Single Article: £6.00 (\$15.00)

ELECTROCHEMISTRY IN INDUSTRIAL PROCESSING & BIOLOGY

Translation of ELEKTRONNAYA OBRABOTKA MATERIALOV

Imber 5 Sept/Oct 1973

CONTENTS

•		
ELECTRIC PRECISION MACHINING	Engl.	/Russ.
vin A.I., Evseyeva M.A., Nechayev A.V.		
THE MECHANISM AND FEATURES OF ELECTROCHEMICAL PRECISION CHINING OF METALS AT HIGH CURRENT DENSITIES chin V.D., Oznobkin I.I., Shastova A.K.	, 3	5
EXPERIMENTAL CHECK ON A PHYSICAL MODEL OF THE MECHANISM ELECTRICAL EROSION OF MATERIALS shkin B.P.	6	9
ODE SURFACE DYNAMICS DURING ELECTROCHEMICAL PRECISION CHINING OF METALS UNDER TRANSIENT CONDITIONS kit I.A., Garashchenko V.P.	8	11
ECTRICAL EROSION OF TRANSITION METALS IN SPECTRAL LIGHT JRCES	12	14
rdman G.N., Loskutov A.I. E DISSOLUTION OF Cr-STEELS UNDER CONDITIONS OF ELECTRO-		
EMICAL PRECISION MACHINING syuk B.A., Dmitriyeva Yu.P., Granovskiy Yu.V., Lapina E.R.	16	18
oodchikova R.I. FERMINATION BY THE RANDOM BALANCE METHOD OF FACTORS		
AT GOVERN THE ACCURACY OF SPARK MACHINING OF HOLES		
METALS shehuk S. E.	20	23
HEVEMENTS AND TRENDS IN ELECTRIC PRECISION MACHINING METALS OUTSIDE THE SOVIET UNION	23	26
ALLOYING METALLIC SURFACES		0
arenko B.R., Gitlevich A.E., Tkachenko V.N., Fursov S.P. ACCELERATION OF POWDER PARTICLES BY GAS DISCHARGE PLASMA		
THEIR INTERACTION WITH A SOLID khoturov A.D., Medvedeva O.A.	25	31
USE OF BORIDE-NITRIDE ALLOYS FOR SPARK HARDENING OF STEELS	28	34

ishnevetskiy I.I., Kotlova L.F., Semkin B.V., Smol'yaninov S.I. HE INFLUENCE OF THE ENERGY CHARACTERISTICS OF HIGH VOLTAGE ULSE ELECTRIC DISCHARGE ON THE DECOMPOSITION OF LIQUID		
YDROCARBONS	39	46
bik E.E., Skobochkin V.E., Lavrov I.S.		
HE ACTION OF A MAGNETIC (ELECTRIC) FIELD ON THE STRUCTURE AND		
HEOLOGICAL PROPERTIES OF DISPERSE SYSTEMS(CEMENT)	41	49
agirov M.A Volchenkov E.Ya., Kyazimov M.A.		
STUDY OF THE STRUCTURAL CHANGES IN POLYETHYLENE FILM CAUSED		
Y THE ACTION OF ELECTRIC DISCHARGES ON ITS SURFACE	44	51
arenko E.S., Galushko V.P., Duyunov V.N.,		
HE INFLUENCE OF SOLUTION ACIDITY AND TEMPERATURE ON THE RATE		
F ANODIC IONISATION OF IRON IN SULPHATE ELECTROLYTE	48	56
etrichenko V.N.		
HE CHANGE IN DISCHARGE GAP RESISTANCE IN THE LEADER STAGE OF		
SCHARGE DEVELOPMENT IN WATER	51	59
ishkov Yu.K.		
HE ELECTROHYDRODYNAMIC MODEL OF CONDUCTIVITY IN INSULATING		
QUIDS	54	62
embotskiy V.A., Mamakov A.A., Sorokina V.N.		
HE SIZE OF GAS BUBBLES FORMED UNDER ELECTROFLOTATION		
ONDITIONS	59	66
rinshteyn E.A., Noskov D.A.		
HERMOELASTIC PROCESSES IN SURFACE LAYERS OF A SOLID DURING		
JLSE BOMBARDMENT IN VACUUM	61	69
atov B. M.		
HE ELECTRIC CHARGE ON GAS BUBBLES EVOLVED ON A WIRE ELECTRODE	64	71
inza V.N., Anagorskiy L.A., Fedosov N.M., Papchenko V.I., Gakhov P.F.,		
eyneko A.D., Kruglova V.V.		
HE INGLUENCE ON ELECTROLYTIC CLEANING ON THE PROPERTIES		
F COLD-ROLLED ELECTRICAL STEEL	67	74
ELECTRICAL AND MAGNETIC EFFECTS ON LIVING ORGANISMS		
ebedik A.I., Zolotareva T.A.		
AGNETIC TREATMENT OF WATER AND TREATMENT IN IT OF SUGAR		
CET SEEDS	70	77
yduk V.N.		
ECTRICAL TREATMENT OF ROUGHAGE	73	81