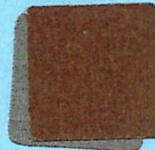
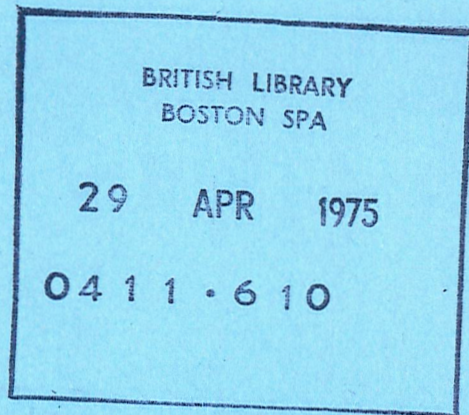


NUMBER 5

SEP-OCT 1973



ELECTROCHEMISTRY IN INDUSTRIAL PROCESSING & BIOLOGY



ELEKTRONNAYA OBRABOTKA MATERIALOV

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 PROCESSING AND ORE BENEFICIATION, BIOLOGY, FOOD PROCESSING AND TREATMENT OF EFFLUENTS; DEVELOPMENT, DESIGN OF AND PRACTICAL EXPERIENCE WITH MACHINES AND EQUIPMENT FOR ELECTRICAL MACHINING, TREATMENT AND PROCESSING.

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. Bologna

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 whatsoever 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

Number 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 MACHINING OF METALS AT HIGH CURRENT DENSITIES	3	5
Shchin V. D., Oznobkin I. I., Shastova A. K. EXPERIMENTAL CHECK ON A PHYSICAL MODEL OF THE MECHANISM ELECTRICAL EROSION OF MATERIALS	6	9
Shishkin B. P. MODE SURFACE DYNAMICS DURING ELECTROCHEMICAL PRECISION MACHINING OF METALS UNDER TRANSIENT CONDITIONS	8	11
Nikit I. A., Garashchenko V. P. ELECTRICAL EROSION OF TRANSITION METALS IN SPECTRAL LIGHT SOURCES	12	14
Rydman G. N., Loskutov A. I. THE DISSOLUTION OF Cr-STEELS UNDER CONDITIONS OF ELECTRO- CHEMICAL PRECISION MACHINING	16	18
Maslyuk B. A., Dmitriyeva Yu. P., Granovskiy Yu. V., Lapina E. R., Podchikova R. I. DETERMINATION BY THE RANDOM BALANCE METHOD OF FACTORS THAT GOVERN THE ACCURACY OF SPARK MACHINING OF HOLES IN METALS	20	23
Shchuk S. E. ACHIEVEMENTS AND TRENDS IN ELECTRIC PRECISION MACHINING OF METALS OUTSIDE THE SOVIET UNION	23	26
ALLOYING METALLIC SURFACES		
Garenko B. R., Gitlevich A. E., Tkachenko V. N., Fursov S. P. THE ACCELERATION OF POWDER PARTICLES BY GAS DISCHARGE PLASMA AND THEIR INTERACTION WITH A SOLID	25	31
Khoturov A. D., Medvedeva O. A. THE 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. THE INFLUENCE OF THE ENERGY CHARACTERISTICS OF HIGH VOLTAGE PULSE ELECTRIC DISCHARGE ON THE DECOMPOSITION OF LIQUID HYDROCARBONS	39	46
ibik E.E., Skobochkin V.E., Lavrov I.S. THE ACTION OF A MAGNETIC (ELECTRIC) FIELD ON THE STRUCTURE AND RHEOLOGICAL PROPERTIES OF DISPERSE SYSTEMS(CEMENT)	41	49
Magirov M.A., Volchenkov E.Ya., Kyazimov M.A. STUDY OF THE STRUCTURAL CHANGES IN POLYETHYLENE FILM CAUSED BY THE ACTION OF ELECTRIC DISCHARGES ON ITS SURFACE	44	51
Marenko E.S., Galushko V.P., Duyunov V.N., THE INFLUENCE OF SOLUTION ACIDITY AND TEMPERATURE ON THE RATE OF ANODIC IONISATION OF IRON IN SULPHATE ELECTROLYTE	48	56
Metrichenko V.N. THE CHANGE IN DISCHARGE GAP RESISTANCE IN THE LEADER STAGE OF DISCHARGE DEVELOPMENT IN WATER	51	59
Mishkov Yu.K. THE ELECTROHYDRODYNAMIC MODEL OF CONDUCTIVITY IN INSULATING LIQUIDS	54	62
Membotskiy V.A., Mamakov A.A., Sorokina V.N. THE SIZE OF GAS BUBBLES FORMED UNDER ELECTROFLOTATION CONDITIONS	59	66
Prinshteyn E.A., Noskov D.A. THERMOELASTIC PROCESSES IN SURFACE LAYERS OF A SOLID DURING PULSE BOMBARDMENT IN VACUUM	61	69
Radatov B.M. THE ELECTRIC CHARGE ON GAS BUBBLES EVOLVED ON A WIRE ELECTRODE	64	71
Razin V.N., Anagorskiy L.A., Fedosov N.M., Papchenko V.I., Gakhov P.F., Kheyneko A.D., Kruglova V.V. THE INFLUENCE ON ELECTROLYTIC CLEANING ON THE PROPERTIES OF COLD-ROLLED ELECTRICAL STEEL	67	74
ELECTRICAL AND MAGNETIC EFFECTS ON LIVING ORGANISMS		
Rebedik A.I., Zolotareva T.A. MAGNETIC TREATMENT OF WATER AND TREATMENT IN IT OF SUGAR BEET SEEDS	70	77
Ryduuk V.N. ELECTRICAL TREATMENT OF ROUGHAGE	73	81