

CONTENTS

	<u>Page</u>
Preface.....	iii

MEMORIAL ADDRESS AND CHLORATE TECHNOLOGY

Robert Burns MacMullin 1898 - 1997	
F. Hine.....	2
Electrolytic Sodium Chlorate Technology: Current Status	
B.V. Tilak and C.P. Chen.....	8

ANODES AND ION EXCHANGE MEMBRANES

Bubble Aggregation by Thermocapillary Flow During Electrolytic Gas Evolution	
H. Kasumi, S. Guelcher, Y. Solomentsev, P. Sides, and J. Anderson.....	40
Current Distribution on a Membrane Cell Anode	
P. Bosander, P. Byrne, E. Fontes, and O. Parhammar.....	45
Deactivation of Thermally Formed Ru/Ti Oxide Electrodes - An A.C. Impedance Characterization Study	
B.V. Tilak, V. I. Birss, and S. K. Rangarajan.....	58
Performances of IrO ₂ -Ta ₂ O ₅ -SnO ₂ /Ti Anodes in <i>p</i> -Phenolsulfonic Acid Bath for Tin Plating	
R. Otagawa, M. Morimitsu, H. Meng, H. Tamura, and M. Matsunaga.....	79
Anodic Reactions in a Methane Sulfonic Acid Bath With and Without Catechol for Tin Plating	
T. Kunihiro, M. Morimitsu, and M. Matsunaga.....	84
Improvement of Coating Layer in Salt Electrolysis Membranes	
K. Okuyama, A. Kashiwada, H. Obanawa, and Y. Uchi.....	90
Effect of Brine Impurities on Membrane Performance at High Current Density	
K. Umemura, Y. Saito, and T. Shimohira.....	95

CHLOR-ALKALI INDUSTRY, CELL TECHNOLOGY, AND LOW OVERVOLTAGE HYDROGEN CATHODES

Past, Present and Future of the Chlor-Alkali Industry	
H. Burney.....	105

Chlor-Alkali Electrolysis Technologies Applied in Japan K. Yamaguchi.....	127
DeNora's DN350 Membrane Cell Electrolyzer L. Iacopetti and G. Morris.....	145
Novel High Performance Hydrogen Cathode Coating Y.-M. Tsou	160
Ni-Fe Alloy New Cathodes for Chlor-Alkali Electrolysis K. Suetsugu, T. Sakaki, K. Yoshimitsu, K. Yamaguchi, A. Kawashima, and K. Hashimoto.....	169

OXYGEN DEPolarized CATHODES

A Study of the Gas Diffusion Electrodes for Chlor-Alkali Membrane Cell N. Furuya and H. Aikawa.....	180
Reduction in Power Consumption of Chlor-Alkali Membrane Cell Using Oxygen Depolarized Cathode K. Saiki, A. Sakata, H. Aikawa, and N. Furuya.....	188
Liquid-Permeable Gas Diffusion Electrode for Chlor-Alkali Membrane Cell S. Nakamatsu, N. Furuya, K. Saiki, H. Aikawa, and A. Sakata.....	196
The Behavior of Pilot Cell with Gas Diffusion Electrode K. Hayashi, A. Sakata, N. Furuya, H. Aikawa, and K. Saiki.....	209
Pilot Cell Scale Manufacture of the Gas Diffusion Electrode O. Ichinose, H. Aikawa, T. Watanabe, and A. Uchimura.....	216
Long Term Performances of Gas Diffusion Electrode in Laboratory Cells A. Sakata, M. Kato, K. Hayashi, N. Furuya, H. Aikawa, and K. Saiki.....	223
Stability Improvement by Thin Layer Coating of Charged Fluoro-Polymer on Gas- Diffusion Electrode of Oxygen Reduction for Novel Soda Electrolysis M. Sudoh, T. Kondoh, T. Ueda, and K. Okajima	234

PAPERS PRESENTED AT THE 195TH MEETING IN SEATTLE

Raney Nickel Dispersion-Plated Low Hydrogen Overvoltage Cathode E. Endoh, M. Nakao, and Y. Takechi	245
Experimental and Computer Simulations of the Chlorate Cell P. Byrne, E. Fontes, G. Lindbergh, and O. Parhammar.....	260