
Molten Salts and Ionic Liquids 24 (MSIL-24): In Memory of Yasuhiko Ito

Editors:

M. Ueda

A. Bund

R. A. Mantz

P. C. Trulove

A. Ispas

H. C. De Long

T. Tsuda

V. Di Noto

A. L. L. East

D. P. Durkin

W. Reichert

Sponsoring Divisions:



Physical and Analytical Electrochemistry



Electrodeposition



Energy Technology



Industrial Electrochemistry and Electrochemical Engineering

ECSJ Molten Salt Committee



Published by

The Electrochemical Society

65 South Main Street, Building D
Pennington, NJ 08534-2839, USA

tel 609 737 1902

fax 609 737 2743

www.electrochem.org

ecstransactions™

Vol. 114, No. 6

Copyright 2024 by The Electrochemical Society.
All rights reserved.

This book has been registered with Copyright Clearance Center.
For further information, please contact the Copyright Clearance Center,
Salem, Massachusetts.

Published by:

The Electrochemical Society
65 South Main Street
Pennington, New Jersey 08534-2839, USA

Telephone 609.737.1902
Fax 609.737.2743
e-mail: ecs@electrochem.org
Web: www.electrochem.org

ISSN 1938-6737 (online)

ISBN 978-1-62332-658-6 (PDF)

Printed in the United States of America.

Table of Contents

<i>Preface</i>	<i>iii</i>
In-Situ X-ray Diffraction/Fluorescence Analysis of Dy-Cu Electrochemical Alloying and Dealloying in Molten LiCl-KCl-DyCl ₃ <i>Y. Katasho, T. Oishi</i>	3
Electrowinning of Light Metals from Molten Salts Electrolytes <i>G. M. Haarberg</i>	13
Electrodeposition of Ti in molten AF-ACl-A ₃ TiF ₆ (A = Li, Na, K) <i>Y. Norikawa, T. Nohira</i>	23
Fabrication of α -W and β -W Films By Using CsF-CsCl-WO ₃ Molten Salt: Effect of Oxygen Contents in W Films <i>H. Wang, Y. Norikawa, T. Nohira</i>	33
Theoretical Study of Ion Pairing in Protic Ionic Liquids of ΔpK_a range 6 to 18 <i>S. S. Rana, J. Cayer, A. L. L. East</i>	43
Oxygen Evolution Behavior of Ni-Containing Alloy Electrodes in NaOH-KOH Hydrate Melt <i>K. Kawaguchi, T. Nohira</i>	53
Effect of Deposition Conditions on Properties of Aluminum Deposit Obtained from Aluminum Chloride-Acetamide Melts <i>Y. Ito, T. Takeguchi, K. Ui</i>	59
Al Electroplating on Etched CFRP Surfaces in AlCl ₃ -EmImCl Ionic Liquids <i>N. Kishi, H. Matsushima, M. Ueda</i>	65

Introduction of Cyclic Structures into Phosphonium Salts As Potential Guest Substances for Ionic Clathrate Hydrates <i>K. Kawabata, S. Azuma, J. Shimada, Y. Tsuchida, K. Tsunashima, T. Sugahara, A. Tani</i>	75
Physicochemical and Thermal Behaviors of Room-Temperature Phosphonium Ionic Liquids Based on Fluorosulfonyl(trifluoromethylsulfonyl)Amide Anion As Potential Electrolytes <i>S. Kikuchi, K. Nishikawa, T. Kawaji, K. Tsunashima, H. Hotta, A. Yokobiki, Y. Tsuchida, Y. Funasako, H. Yamada</i>	81
Dependence of Carboxylate Anions on Physicochemical Properties of Tributyl-octylphosphonium-Based Ionic Liquids <i>H. Akamatsu, S. Kubo, S. Kikuchi, Y. Tsuchida, K. Tsunashima, H. Hotta, A. Yokobiki, Y. Funasako, Y. Okuno, A. Hamada, H. Yamada, A. Tani</i>	89
Anodic Dissolution and Electropolishing of Titanium in an Amide-Type Ionic Liquid Containing Halide Ions <i>K. Yoneda, N. Serizawa, Y. Katayama</i>	97
Evaluation of the Solid-Electrolyte Interphase Formation in a Bis(fluorosulfonyl)amide Based Ionic Liquid in the Presence Lithium Ion Using Different Redox Probes <i>S. Momose, M. L. Thomas, N. Serizawa, Y. Katayama</i>	105
Study of Chemical Reactions in Molten Salts By Electrochemical Transient Techniques <i>S. A. Kuznetsov</i>	111
Electrochemical Study of Zr from Anodic Dissolution using a Consumable Zirconium Nitride Anode <i>C. K. W. Solem, Z. Wang, K. S. Osen, A. M. Martinez</i>	133
The Role of Asymmetry of Perfluoro anion in Ionic Liquids: From Basic Physical Properties to the Application in Lithium Batteries <i>H. Matsumoto, K. Kubota, H. Sano</i>	145
Anodic Dissolution of Al-Fe and Al-Fe-Si Alloys in Emimcl-AlCl ₃ Electrolyte <i>J. Nunomura, H. Matsushima, Y. Kyo, Y. Kojima, M. Ueda</i>	157
Electrodeposition of Aluminum-Silicon Films in Chloroaluminate Ionic Liquids <i>K. Venkatesh, A. Ispas, A. Bund</i>	167

Redox Reaction of Some Nitroxyl Radicals in 1-Butyl-1-Methylpyrrolidinium Bis(fluorosulfonyl)amide in the Presence and Absence of Lithium Ion <i>Y. Katayama, S. Kato, N. Serizawa</i>	175
Electrochemical Characterization of Silver and Iron Ions in Choline Chloride-Ethylene Glycol DES Electrolyte <i>G. Jahrsengene, Z. Wang, A. M. Martinez</i>	181
Use of Pulsed Potentials for Electropolishing TA6V Parts Elaborated By Additive Manufacturing in Deep Eutectic Solvent <i>F. Roy, M. L. Doche, Q. Orecchioni, J. Y. Hihn, J. Tardelli</i>	195
Gold and Gold Alloys Electropolishing in Choline Chloride-Glycerol Deep Eutectic Solvents <i>J. Rodriguez, N. Ziza Ahamadi, M. L. Doche, J. Y. Hihn</i>	207
The Local Changes in the Physicochemical Properties during Cu Electrodeposition in an Ionic Liquid Composed of $[\text{CuCl}_2]^-$ <i>N. Serizawa, S. Kuwahara, X. Li, Y. Katayama</i>	219
Synthesis and Characterization of Novel Polymerizable Boronium Ionic Liquids <i>D. P. Durkin, C. D. Stachurski, W. Cho, C. M. Kinnaman, N. E. Larm, J. H. Davis Jr., P. C. Trulove</i>	227
Finding Diffusivity and Solubility of Impurities inside ILs By MD <i>D. Aryal, A. Rotondaro, T. Nakano, T. Morimoto</i>	237
Author Index	245