
High Temperature Corrosion and Materials Chemistry 9 – A Symposium in Honor of Professor Robert A. Rapp

Editor:**D. A. Shifler**

Naval Materials Division
Office of Naval Research
Arlington, Virginia, USA

Sponsoring Divisions:**High Temperature Materials****Corrosion**

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

ecstTMtransactions**Vol. 41, No. 42**

Copyright 2012 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)
ISSN 1938-5862 (print)
ISSN 2151-2051 (cd-rom)

ISBN 978-1-56677-984-5 (PDF)
ISBN 978-1-60768-343-8 (Softcover)

Printed in the United States of America.

ECS Transactions, Volume 41, Issue 42
High Temperature Corrosion and Materials Chemistry 9 - A Symposium in
Honor of Professor Robert A. Rapp

Table of Contents

<i>Preface</i>	<i>iii</i>
----------------	------------

Chapter 1
Thermodynamics and Reaction in Molten Salts

Thermochemistry of Neutral and Charged Vapor Complexes over NaBr-LnBr ₃ Systems <i>L. S. Kudin and D. A. Ivanov</i>	3
---	---

Acid-Base Reaction of Eutectic LiCl-41m/o KCl Melt Equilibrated with Gas Atmospheres Containing HCl, H ₂ O, and O ₂ at 600°C <i>N. Otsuka</i>	13
---	----

Status of Carbonate Fuel Cell Materials <i>C. Yuh, A. Hilmi, L. Chen, A. Franco, and M. Farooque</i>	21
---	----

Chapter 2
Corrosion in Mixed Gas Environments

Effect of Copper on the Dusting of Fe-Ni Alloys <i>J. Zhang and D. J. Young</i>	37
--	----

Metal Dusting Corrosion: Mechanisms and Control <i>T. A. Ramanarayanan and C. Chun</i>	47
---	----

Metal Dusting Resistant Copper-Based Materials <i>C. Chun, S. Desai, and T. A. Ramanarayanan</i>	61
---	----

Fireside Corrosion in Oxy-Fuel Combustion of Coal <i>G. R. Holcomb, J. Tylczak, G. H. Meier, K. Jung, N. Mu, N. Yanar, and F. Pettit</i>	73
---	----

Evaluating Materials and Fuels Using an Atmospheric-Pressure Low-Velocity Burner Rig <i>D. A. Shifler</i>	85
---	----

Chapter 3 Corrosion of Ceramics

Hysteresis in the Active Oxidation of SiC <i>N. Jacobson, B. J. Harder, and D. D. Myers</i>	105
--	-----

Development of Refractory Ceramics for the Oxygen Evolution Reaction (OER) Electrocatalyst Support for Water Electrolysis at Elevated Temperatures <i>A. V. Nikiforov, C. Prag, J. Polonský, I. M. Petrushina, E. Christensen, and N. J. Bjerrum</i>	115
--	-----

Chapter 4 Oxidation

Issues Concerning the Oxidation of Ni(Pt)Ti Shape Memory Alloys <i>J. L. Smialek</i>	127
---	-----

Interactions between Metallic Interconnects and Ceramic Electrodes in SOFC Operating Environments <i>R. Amendola, P. E. Gannon, S. W. Sofie, and A. J. Weisenstein</i>	137
---	-----

Oxidation Behavior of Stainless Steel 441 and 430 in Dual Atmosphere - Effects of Alloy Grain Boundaries <i>Y. Zhao and J. W. Fergus</i>	147
---	-----

Author Index	155
--------------	-----