

## Zinc Nickel Codeposition in Ammonium Sulfate Combined Effect of Cadmium and Boric Acid

To cite this article: Yassine Addi *et al* 2010 *Meet. Abstr.* **MA2010-02** 2104

View the [article online](#) for updates and enhancements.

### You may also like

- [New -ray production cross sections for the 4.439 and 6.129 MeV lines of  \$^{12}\text{C}\$  and  \$^{16}\text{O}\$ . Astrophysical implications](#)  
S. Ouichaoui, Y. Rahma, J. Kiener et al.
- [Analytical fits to the synchrotron functions](#)  
Mourad Fouka and Saad Ouichaoui
- [Zinc Nickel Codeposition in Ammonium Sulfate Combined Effect of Cadmium and Boric Acid](#)  
Yassine Addi, Patrick Duverneuil and Ali Khouider



### Your Lab in a Box!

The PAT-Tester-i-16: All you need for Battery Material Testing.

- ✓ All-in-One Solution with integrated Temperature Chamber!
- ✓ Cableless Connection for Battery Test Cells!
- ✓ Fully featured Multichannel Potentiostat / Galvanostat / EIS!

[www.el-cell.com](http://www.el-cell.com) +49 40 79012-734 [sales@el-cell.com](mailto:sales@el-cell.com)

**EL-CELL**<sup>®</sup>  
electrochemical test equipment



## ZINC NICKEL CODEPOSITION IN AMMONIUM SULFAT COMBINED EFFECT OF CADMIUM AND BORIC ACID

\*ADDI. Yassine. \*\*DUVERNEUIL. Patrick \*KHOUIDER. Ali

\*Faculté de Chimie USTHB Bp 09 Bab-ezzouar Alger ;

\*\*Laboratoire de chimie des procédés ENSIACET Toulouse France  
addi\_yassine@yahoo.fr

### Abstract

Zinc-nickel electrodeposited alloys are of great interest since these alloys show higher corrosion protection, better mechanical properties and thermal stability compared to bare zinc and other zinc alloys coatings[1]. Zinc-nickel alloys were obtained from ammonium sulfat baths in presence of boric acid and cadmium. It has been shown that anomalous codeposition[2] can be minimized by using boric acid[3] combined with cadmium . Boric acid favours deposition of zinc-nickel coatings with a homogeneous phase structure ( $\text{Ni}_5\text{Zn}_{21}$ ), whereas cadmium minimizes zinc deposition leading to a codeposition where the coating contains a higher nickel poucentage. Boric acid raises current efficiency of the deposition process by blocking surface sites for hydrogen evolution.

### References:

[1]-Y.P.Lin, J.Robert Selman, *J.Electrochem.Soc.*140 (1993)1299

[2]-B.C.Baker ;A.C.West.*J.Electrochemical.Soc.*,144,169(1997).

[3]-C.Karwas, T.Hepel , *J.Electrochem.Soc.*, 135(1988)(4)839-844