Accepted Manuscript

The pH-dependent corrosion behavior of ternary oxide semiconductors and common metals and its application for solution-processed oxide thin film transistors circuit integration

Sung Woon Cho, Young Been Kim, Da Eun Kim, Kyung Su Kim, Young Dae Yoon, Won Jun Kang, Woobin Lee, Hyung Koun Cho, Young Hun Kim

PII: S0925-8388(17)31510-4

DOI: 10.1016/j.jallcom.2017.04.289

Reference: JALCOM 41693

To appear in: *Journal of Alloys and Compounds*

Received Date: 24 February 2017

Revised Date: 26 April 2017

Accepted Date: 27 April 2017

Please cite this article as: S.W. Cho, Y.B. Kim, D.E. Kim, K.S. Kim, Y.D. Yoon, W.J. Kang, W. Lee, H.K. Cho, Y.H. Kim, The pH-dependent corrosion behavior of ternary oxide semiconductors and common metals and its application for solution-processed oxide thin film transistors circuit integration, *Journal of Alloys and Compounds* (2017), doi: 10.1016/j.jallcom.2017.04.289.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

The pH-dependent corrosion behavior of ternary oxide semiconductors and common metals and its application for solution-processed oxide thin film transistors circuit integration

Sung Woon Cho, Young Been Kim, Da Eun Kim, Kyung Su Kim, Young Dae Yoon, Won Jun Kang, Woobin Lee, Hyung Koun Cho,* and Young Hun Kim

School of Advanced Materials Science and Engineering, Sungkyunkwan University, 2066 Seobu-ro, Jangan-gu, Suwon, Gyeonggi-do, 16419, Republic of Korea

* Corresponding author. Tel.: +82 31 299 4733; fax: +82 31 290 7410.

E-mail address: chohk@skku.edu (H. K. Cho).

Abstract. Individual oxide semiconductors and metals experience unique pH-dependent phase-transition into natively stable phases (metal, metal ions, or oxide phases) in various acidic and basic solutions. Thus, the corrosion behavior of oxide semiconductors and metals can be engineered by controlling pH values. In particular, the specific pH value induced interesting corrosion behaviour that oxide semiconductor becomes chemically-stable and metal solely experiences active ionization. First, the pH-dependent corrosion behavior of ternary oxide semiconductors [ZnSnO (ZTO) and InZnO (IZO)] and common metals (Mo and Mo/Cu) was explored based on theoretical Pourbaix diagram and experimental corrosion data. Next, the pH-dependent corrosion behavior based back-channel wet-etch (BCWE) process using pH-controlled wet etchants was designed and applied for chemical damage-,

Download English Version:

https://daneshyari.com/en/article/5459135

Download Persian Version:

https://daneshyari.com/article/5459135

Daneshyari.com