Solid State Science and Technology, Vol. 16, No 1 (2008) 175-180
ISSN 0128-7389
Corresponding Author: radiah@nuclearmalaysia.gov.my

CORROSION BEHAVIOUR OF Al AND Al ALLOYS CONTAINING Zn, Sn AND Cu IN SEAWATER

Siti Radiah Mohd Kamarudin1, Muhamad Daud1,
Abd. Razak Daud2
[1]*Malaysian Nuclear Agency (Nuclear Malaysia)*
Bangi, 43000 Kajang, MALAYSIA
[2]*Faculty of Science and Technology, Universiti Kebangsaan Malaysia*
43600 Bangi, Selangor, Malaysia

ABSTRACT
The corrosion behaviour of aluminium (Al) alloys in seawater medium was investigated using potentiodynamic technique, complemented by Scanning Electron Microscopy (SEM) and EDAX. SEM was carried out to characterize the corroded surface and to observe the extent of corrosion attack on the Al alloys tested in seawater. EDAX analysis was used to identify elements present on the specimen surface. The results indicate that zinc (Zn), stanum (Sn) and copper (Cu) as alloying elements enhance corrosion behaviour of the aluminium in seawater by shifting the potential to a more negative value. In the presence of those elements, the Al alloys becomes more active, having potential of more than –1.0 VSCE and showed active corrosion behaviour.

http://journal.masshp.net/wp-content/uploads/Journal/2008/Jilid%201/Siti%20Radiah%20Mohd%20Kamarudin%20175-180.pdf

REFERENCES

[1]. J.T. Reding and J.J.Newport, (1966); The Influence Of Alloying Elements On Aluminum Anodes In Seawater, Dow Chemical Co.
[2]. H.P. Godard, (1981); An Insight Into the corrosion Behaviour of Aluminum. Plenary Lecture. National Association of Corrosion Engineers. Material Performance. 9-15.
[3]. C.B.Breslin, W.M.Carroll. (1993); The Activation of Aluminum by Activator elements. Science. Vol. 35, 197-203.
[4]. Christian Vargel. (2004); Corrosion of Aluminum. Elsevier Ltd, UK. 26
[5]. Francis L.Laque. (1975); Marine Corrosion Causes And Prevention. John wiley & Sons, Inc. 191
[6]. S.L. Wolfson. (1994); Operating Performance Of Aluminum Anodes – Results From Lab And Field Tests. Materials Performance, 22.
[7]. A.G. Munoz, S.B.Saidman, J.B. Bessone. (2001); Influence Of In On The Corrosion Of Zn-In Alloys. Corrosion Science 43, 1245-1265.
[8]. C.B.Breslin, L.P.Friery, W.M.Carroll. (1994); Corrosion Science 36, 85.
[9]. A.Barbucci, G. Cerisola, G. Bruzzone and A.Saccone. (1997); Electro. Acta.Vol.42.