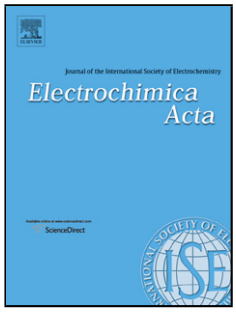

Title: Chloroanthraquinone as a grafted probe molecule to investigate grafting yield on carbon powder

Author: Annaïg Le Comte Thierry Brousse Daniel Bélanger

PII: S0013-4686(16)30246-8
DOI: http://dx.doi.org/doi:10.1016/j.electacta.2016.01.219
Reference: EA 26601

To appear in: *Electrochimica Acta*

Received date: 24-7-2015
Revised date: 27-1-2016
Accepted date: 29-1-2016

Please cite this article as: Annaïg Le Comte, Thierry Brousse, Daniel Bélanger, Chloroanthraquinone as a grafted probe molecule to investigate grafting yield on carbon powder, Electrochimica Acta http://dx.doi.org/10.1016/j.electacta.2016.01.219

Chloroanthraquinone as a grafted probe molecule to investigate grafting yield on carbon powder.

Annaïg Le Comte[a,b,c], Thierry Brousse[1b,c] and Daniel Bélanger[1a*]

a. Département Chimie, Université du Québec à Montréal, CP8888, Succ. Centre-Ville, Montréal, Québec, Canada H3C 3P8

b. Institut des Matériaux Jean Rouxel (IMN), Université de Nantes, CNRS, 2 rue de la Houssinière, BP32229, 44322 Nantes Cedex 3, France

c. Réseau sur le Stockage Electrochimique de l'Energie (RS2E), FR CNRS 3459, France

Abstract

Spontaneous grafting of chloroanthraquinone (ClAQ) groups on Black Pearls carbon by reduction of the corresponding *in-situ* generated diazonium cations was successfully achieved. The presence of an halogen atom on the quinone molecule allowed the use of different spectroscopic characterization techniques to determine the accurate quinone content of the modified carbon. Electrochemical characterization highlighted that the presence of chlorine atom on the grafted molecule did not affect the electrochemical response or the grafting reaction efficiency. The amount of ClAQ molecules at the carbon surface after grafting was

1 ISE member

*Corresponding author.Fax: +1 514 987 3000.

Université du Québec à Montréal, Case postale 8888, succ. Centre-ville, Montréal, Québec, H3C 3P8, Canada

E-mail: belanger.daniel@uqam.ca (D. Bélanger).

Revised : January 12, 2016