



BE2140326P2

Screen-Printed Heavy Metal Detection Electrode

PRODUCT DESCRIPTION

This product is a one-shot disposable electrode. Designed to give an excellent response for heavy metal detection, for use in stripping voltammetry. Ideal for the environmental water testing sector.



The electrode is provided on a substrate containing 6 electrodes. The substrate can be cut easily using scissors. The substrate used allows the electrode to be "self-supporting" and easy to use when submerging the working area in solutions.

PRODUCT DETAILS

Working Electrode

C2130610D1—It contains a bismuth compound and gives excellent response for heavy metal detection such as lead, zinc and cadmium.

Counter Electrode

C2030519P4—It gives excellent electrochemical performance with good reversibility.

Reference Electrode

C2130809D5— Silver to silver chloride (60/40 ratio) highly conductive reference electrode.

Dielectric Layer

D2070423P5—A protective layer for the electrode track. Resistant to attack from THF, Acetone, DMF, DMAC and MEK

Dimensions

Substrate

Valox, 18 x 25 x 0.5 mm

Electrode

Pitch of individual electrodes 3.8 mm

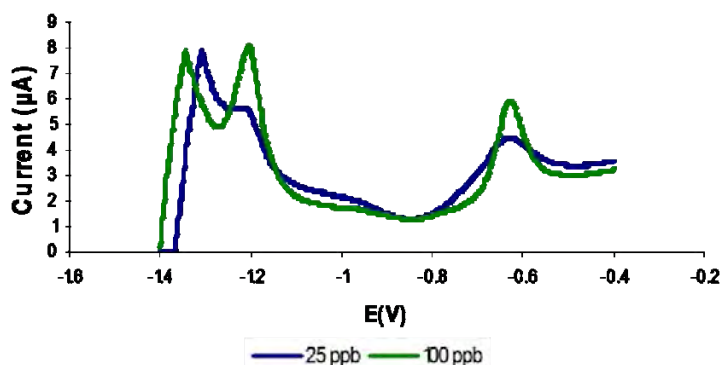
Working area—diameter 3 mm

HANDLING

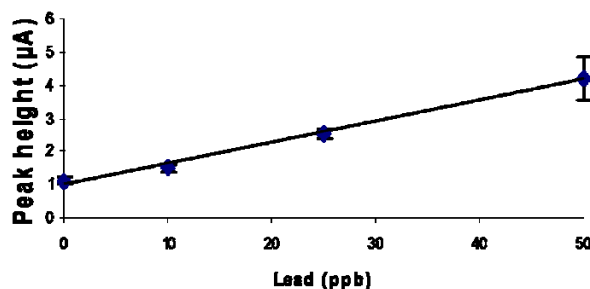
Keep product in packaging, away from high humidity and direct sunlight. Always wear gloves when handling and avoid contact with the working area of the electrode.

ELECTROCHEMICAL BEHAVIOUR

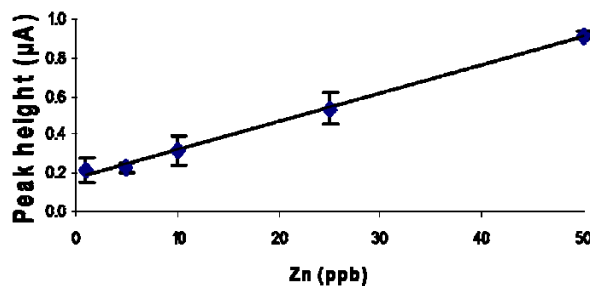
Square wave voltammetry with deposition potential of –1.4 volts for 180 seconds were found to give best results for lead and zinc. Sweep potential can range from –1.4V to 0.4V. Further optimisation required for additional heavy metals.



Square wave voltammograms obtained with 25 and 100 ppb of Pb (II) and Zn (II) in acetate buffer 0.1 M, pH 4.5. ($E_{dep} = -1.4$ V, $t_{dep} = 180$ s)



Calibration curve obtained with 80 µL of Pb (II) solutions ranged from 1 to 50 ppb ($r^2 = 0.994$). In all cases n = 3.



Calibration curve obtained with 80 µL of Zn (II) solutions ranged from 1 to 50 ppb ($r^2 = 0.996$). In all cases n = 3.

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All values reported here are results of experiments conducted in our laboratories and are intended to illustrate the products performance. They are not intended to represent the products specifications

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