

## Bismuth Oxide Screen-Printed Carbon Electrodes

Ref. 110BI



These disposable **Screen-Printed Carbon Electrodes** (SPCEs) modified with **Bismuth (III) Oxide ( $\text{Bi}_2\text{O}_3$ )** have been developed for working with microvolumes and for decentralized assays.

Among other applications, Bismuth (III) Oxide SPCEs are designed for the environmental friendly **determination of heavy metals** at ppb levels, avoiding mercury based electrodes.

*Ceramic substrate:* L33 x W10 x H0.5 mm

*Electric contacts:* Silver

The electrochemical cell consists of:

*Working electrode:* Bismuth (III) Oxide / Carbon (4 mm diameter)

*Auxiliary electrode:* Carbon

*Reference electrode:* Silver

**Bismuth (III) Oxide** SPCEs are commercialised in 50 units pack. They should be stored at room temperature, protected from light in a dry place.

### Recommended conditions of use

In order to obtain the best results in heavy metal detection, as described above, the bismuth oxide electrochemical reduction to bismuth is recommended before you start working with it.

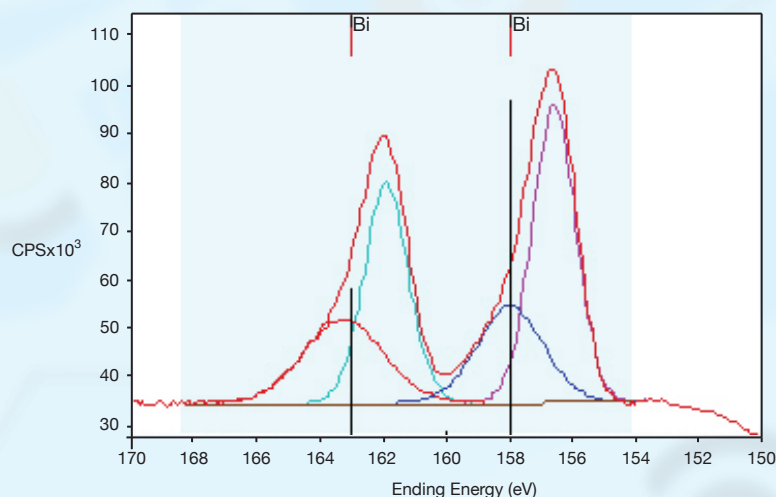
The pre-treatment conditions are described below:

Supporting electrolyte: KOH 0.1 M  
Reduction time: 600 s  
Reduction potential: -1.2 V

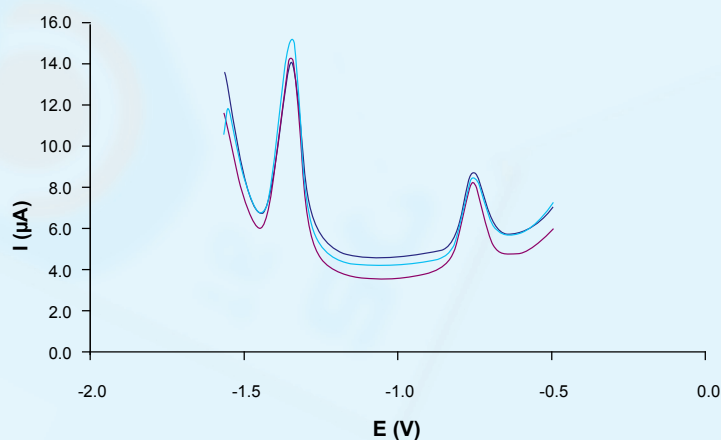
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### XPS spectra of bismuth oxide film after electrochemical reduction



### Electrochemical behaviour of Bismuth (III) Oxide SPCEs



Square wave voltammograms of 100 ppb Pb(II) and 500 ppb Zn(II) in 0.2 M acetate buffer solution, pH 4.6  
( $E_{dep} = -1.6$  V,  $t_{dep} = 600$  s.)

Also, specific **connectors** that act as an interface between the screen-printed electrode and any potentiostat (ref. DSC, CAC) and other accessories are available at [DropSens](http://DropSens.com).

#### Related products



BI10



DSC



CAC



FLWCL



STAT400



STAT8000

Full Catalogue



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