

## Introduction

Your new conductivity electrode is supplied ready for use. The following data will enable you to acquire accurate, reliable results over an extended period.

## Preparation for use

When unpacking this electrode remove the outer protective sheath, where fitted, prior to use.

## Calibration

The cell constant of this electrode is marked clearly on the cable. Calibration with a conductivity meter is achieved simply by entering this information at the appropriate stage of setting up your instrument. If you use the standard solutions for calibration, please refer to the manufacturer's instructions.

## Resetting cell constant

Materials Required: Potassium Chloride and deionised water.

1. Setting the cell constant of meter to  $K=1$ .
2. Preparing the conductivity standard solution. Example: Cell constant of electrode is  $0.1 \text{ cm}^{-1}$ , using the calibration solution  $84 \mu\text{S/cm}$ . Cell constant is  $1 \text{ cm}^{-1}$ , using the calibration solution  $1413 \mu\text{S/cm}$ . Cell constant is  $10 \text{ cm}^{-1}$ , using the calibration solution  $12.88 \text{mS/cm}$ .
3. Place the standard solution into a water bath set to  $25^\circ\text{C}$ . When the temperature of standard solution has equilibrated, place the electrode in the solution and leave for 5 to 10 minutes.
4. Record the reading and calculate the cell constant using the following formula.

$$K = M/G$$

Where:

$K$  = Cell Constant

$M$  = Value of conductivity standard solution

$G$  = Measured value

## Good measurement practices

- If the sample temperature is, to a large extent, different from ambient, then allow the electrode to soak for a few minutes in the sample solution before recording a reading.
- The electrode should be immersed in a sample to at least 10mm above the breath holes in the stem.
- Whenever possible keep the electrode tip wet.
- Ensure that the cable connectors are kept free of moisture and dirt.

## Storage and maintenance

Storage:

Before storing the electrode, rinse sensor carefully with deionised water.

- Short-term storage: in deionised water.
- Long-term storage: in deionised water or store dry.

**i** After long-term storage, make sure that soak electrode for 30 minutes in deionised water before a measurement and calibration.

Cleaning:

After each use, the electrode tip should be rinsed thoroughly in deionised water. If there is a build-up of solids inside the measurement area of the cell, these should be removed very carefully with a cotton bud soaked in solvent, taking care not to touch the metal parts of the inner cell.

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## Replating internelements

Mounted on the side wall of this type of electrode are two small platinum plates. These plates and their connecting wires should be of uniform matt black colour. It is important to inspect this plated surface for scratches periodically, especially after cleaning, as blemishes will cause erratic measurement results. Blemishes and scratches can be repaired quite easily by carrying out the following procedure:

### Materials Required:

- A small glass beaker
- 25ml of 5% w/v Chloroplatinic Acid doped with one crystal of Lead Acetate
- A small 9 volt battery
- 2 leads fitted with small crocodile clips

### Plating Method:

- Fix leads to Positive and Negative terminals of the 9 volt battery.
- Remove the outer casing of the multipin connector and fit one crocodile slip to pin of the connector and the other crocodiles slip to pin 3.
- Place the electrode into the beaker containing the Chloroplatinic Acid.
- Swap crocodile clips between connector pin numbers 1 and 3 every 15 seconds until the plates are a uniform black colour.

ⓘ Do not leave the electrode in this active plating solution mode for more than 1 minute as this may damage the electrode.