

**Technical Note 61**

# **Use and Storage of Hydrogen Controlled Electrodes**

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## 1 Purpose

The purpose of this procedure is to explain the requirements for the handling, storage and use of Hydrogen controlled electrodes used on the Burdekin River Bridge.

## 2 Storage of hydrogen controlled electrodes

There is a requirement for all welding to be undertaken with controlled hydrogen electrodes. A correctly stored controlled hydrogen electrode minimises the following:

- hydrogen induced cracking
- weld metal porosity
- excessive spatter
- reduced risk of lamellar tearing.

There are certain requirements for the storage of controlled hydrogen electrodes:

- All electrodes are supplied in a sealed packet. The electrodes in the sealed packet have been pre-conditioned
- All sealed packets shall be stored in a weatherproof room/shed on a rack clear of the floor and wall
- Once the sealed packet has been opened, the electrodes need to be stored in a hot box at a temperature of 100 to 120 Degrees Celsius.

## 3 Requirements for hydrogen controlled electrodes

The process outlined below is to be followed to ensure that the hydrogen controlled electrodes are stored correctly.

- The boilermaker shall ensure that the hot box is the correct temperature, before a new packet of electrodes are placed inside the hot box.
- The boilermaker shall ensure that the hot box is transported to the job site and is connected to the power supply in the work area.
- The hot box shall be stored in an area close to where the welding is to be undertaken.
- Once all welding is complete, the boilermaker shall ensure the hot box is returned to depot storage shed and is connected to the power supply to ensure the hot box maintains the correct temperature.

If no welding is to be undertaken for a period and there is a risk that the hot box may be turned off. There are two options for the remaining electrodes in the hot box.

### Option 1

Discard of all the electrodes.

### Option 2

Any remaining electrodes will need to be re-conditioned before they can be used. The re-conditioning of hydrogen controlled electrodes involves the placement of the electrodes in an oven at temperature and duration specified on the electrode packet. For example, Ferrocrafter 61 electrodes re-conditioning

is 300 Degrees Celsius for two hours. After re-conditioning, the electrodes are to be stored as outlined above.

Electrodes are only permitted to be reconditioned once and if any electrodes are remaining they shall be discarded.

**Figure 1 – View of a hot box**



**Figure 2 – Incorrectly stored hydrogen controlled electrodes**



