

## Assembling an Isotech Cell

- This example is for a large Silver Cell
- The Principle is the same for other cells

### Disclaimer

*This information is for guidance only. Other laboratories successfully use other assembly techniques*

*Some of the apparatus shown is not available commercially*



Cell Assembly : Slide:1



## Stage 1

- Preparation
  - Have all the items to hand in a clean area



Cell Assembly : Slide:2



## Stage 1

- Check List
  - The cell, its basket and the insulators and reflectors
  - **Powder Free** Gloves
  - Acetone
  - Clean Tissues



Cell Assembly : Slide:3



## Stage 2

- Check the Cell is sealed
  - Ideally with a spark test



Cell Assembly : Slide:4



## Stage 2

- Check the Cell is sealed
  - Quartz Cells - Ideally with a spark test
    - Look for spark
  - Metal Clad Cells can be checked in hot water
    - Look for bubbles



Cell Assembly : Slide:5



## Stage 3

- Prepare the Cell
- Must be clean
- An Initial Wipe With Acetone on Tissue



Cell Assembly : Slide:6



### Stage 3

- Then repeat
  - Liberal Amount of Acetone
  - Ensure that now there is NO CONTACT between the gloves and the cell
    - *The cell is held in the tissue not directly in the gloves*



Cell Assembly : Slide:7



### Stage 3

- Now Dry The Cell with Tissue
  - A simple stand to hold the cell is very useful
  - It too must be cleaned before the cell is placed in it



Cell Assembly : Slide:8



### Stage 4

- Assembling the Cell
  - Prior to assembly the basket and all the parts need to be fired in the furnace
  - Leave the parts in the furnace for a few hours at a temperature higher than the cell will be used at
  - This will out gas the parts and help prevent devitrification

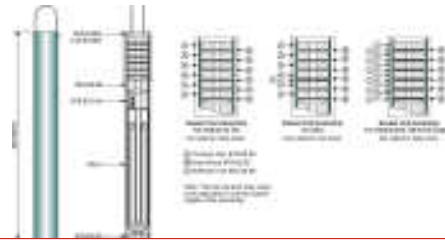


Cell Assembly : Slide:9



### Stage 4

- Assembling the Cell
  - Refer to the assembly drawing for details to suit a particular cell



Cell Assembly : Slide:10



### Stage 4

- Place the Lower Ceramic into the basket



Cell Assembly : Slide:11



### Stage 4

- Place the Lower Ceramic into the basket
- It will readily slide down the cell basket




Cell Assembly : Slide:12



### Stage 4

- Place the Lower Ceramic into the basket
  - Check it is located by viewing from the hole in the bottom of the cell basket



Cell Assembly : Slide:13

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### Stage 4

- Now lie the basket down



Cell Assembly : Slide:14

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### Stage 4

- Hold the cell in tissue
- **VERY SLOWLY** move the cell to the horizontal position



Cell Assembly : Slide:15

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### Stage 4

- Now carefully slide the cell into the basket
- Immerse until the top of the cell is 10mm into the basket





Cell Assembly : Slide:16

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### Stage 4

- Now add the ceramic insulators
  - Gently push them in moving the cell down the tube




Cell Assembly : Slide:17

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### Stage 4

- Now add the ceramic insulators

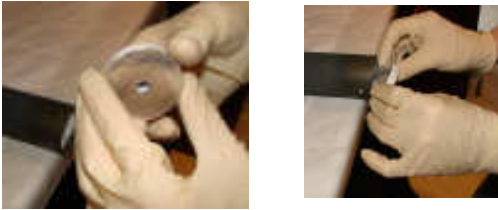


Cell Assembly : Slide:18

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## Stage 4

- Now add the ceramic insulators
  - Keep Adding the pieces in turn



Cell Assembly : Slide:19



## Stage 4

- Continue until the last pair of metal heat shunt and thinner ceramic insulators are added



Cell Assembly : Slide:20



## Stage 4

- Place a finger into the opening at the lower end of the cell basket
- Check all is flat and aligned



Cell Assembly : Slide:21



## Stage 4

- Now push the top insulator down until the cell reaches the bottom of the basket and you feel the cell reach the bottom



Cell Assembly : Slide:22



## Stage 4

- Add the top insulators to reach to a few mm below the holes in the basket
  - You may not need all of the insulators



Cell Assembly : Slide:23



## Stage 4

- Slowly raise the basket to vertical
  - Click to play movie
  - Notice the finger at the bottom of the basket to check all is OK



Cell Assembly : Slide:24



## Stage 4

- Finally Add the Handle
  - Remove handle after placing in a prepared furnace



Cell Assembly : Slide:25

