Bubble Test

Bubble Test facilitates running tests in multiples; tests are set up using a simple **Bubble Wizard**, a series of **LPR** tests are collected over time giving Corrosion Rate results. Results can be printed at the end in many ways including tables, lines and bar graphs. **Cells** (or Channels) are assigned together into **Groups**, each group has an **Add Inhibitor** button, once pressed, end corrosion rates can be calculated at the end of the test over 3 periods – prior to Add Inhibitor, after 2 hours and after 16 hours, this enables **Percentage Protection** to be calculated.

Setting up a Bubble Test
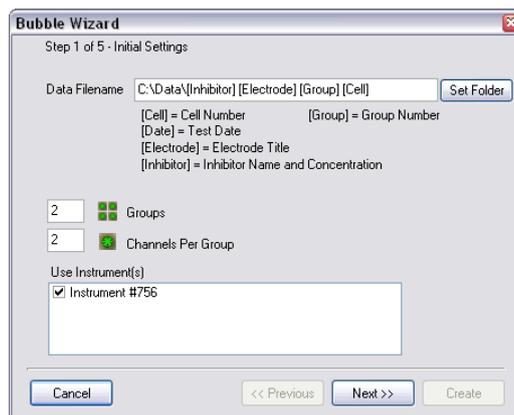
All setting up is done through the Bubble Wizard, clicking on the **Wizard** button displays:

Data Filename, initially data file name is set so each bubble test collected is given a filename relating to the test settings, such as Inhibitor, etc. – **Set Folder** can be used to easily select a data folder. In addition a **[Date]** option can be added to the filename, this can give the test a unique filename.

Use Instrument(s) is only of any use if there are multiple instruments assigned to do Bubble Test work, unchecking an instrument can remove it from the Bubble Test, so for example, it could be used with the Sequencer at the same time.

Bubble Wizard – Step 2

Details of the test can be entered on Step 2, these details are set for an entire group. Clicking on a group number can set individual group details.

It is worth noting that many of the fields are stored in a database for record searching at a later date using **ACM Database Search**.

Bubble Wizard – Step 3

Cell Settings are entered for Step 3, **Show Channel Assignments** displays which cells are assigned to physical channels on instrument(s).

Bubble Wizard – Step 4

As previously mentioned a Bubble Test is made up from a series of LPR tests collected over time, **Record xx Measurements** sets how many LPR tests should be collected, whilst **Time Between Measurements** sets when readings should take place.

There are two choices for LPR measurement, **LPR Sweep** and **LPR Step**, the latter can be used in more unstable systems. A **Tafel Sweep** can also be performed at the end of all LPR measurements, when the Bubble Test has finished. Clicking **Settings** can set the parameters for each of these techniques.

Bubble Wizard – Step 5
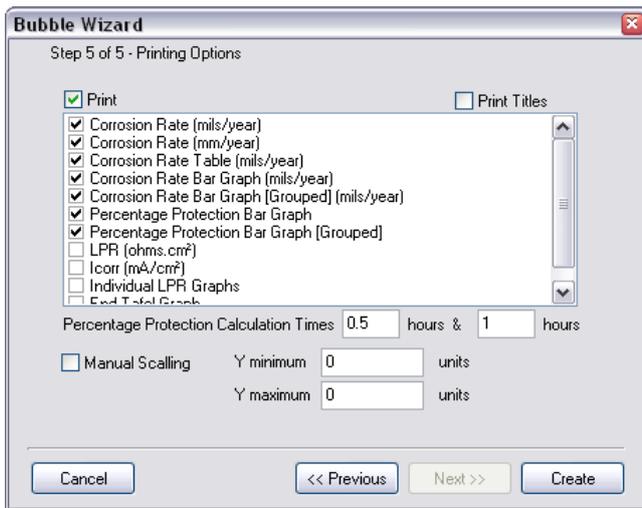
The last step, Step 5 implements printing options, graphs can be printed with, or without titles as set by **Print Titles**.

For printed Tables and Bar Graphs, percentage protection is calculated using two times. Protection times are calculated from when **Add Inhibitor** is pressed (on the data graph), using **Percentage Protection Calculation Times** values.

Manual Scaling, can be used to fix the maximum and minimum values of many of the graph types, however care must be exercised if printing graphs of a dissimilar type, for they will be manually scaled also.

Each group can be initialised, ready to log by pressing **Create**.

Logging Data

To log data on a group it must first be enabled, this can be done from either **Group Control** [Enabled Disabled] or on a group data display Window [En Dis], click on **Enable** to enable a group. At this stage if there is existing data that will be overwritten, this page will display giving overwrite options:
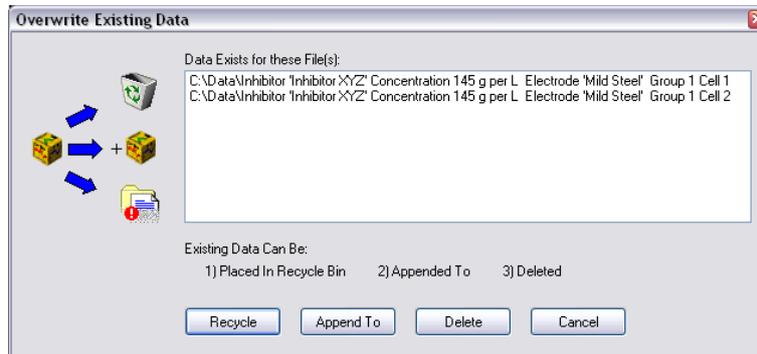
The existing data could be **Recycled** (sent to the recycle bin), or **Appended To** (existing data is kept, new data is added to end), or permanently **Deleted**.

Group Toolbar:

View short term (LPR Step or Sweep) data plots

Event List

Press when inhibitor added to group (for subsequent calculation of 2 & 16 hour corrosion rates)

Lights whilst channel is actively logging

Displays **Group Control**

Enables or Disables logging on a Group
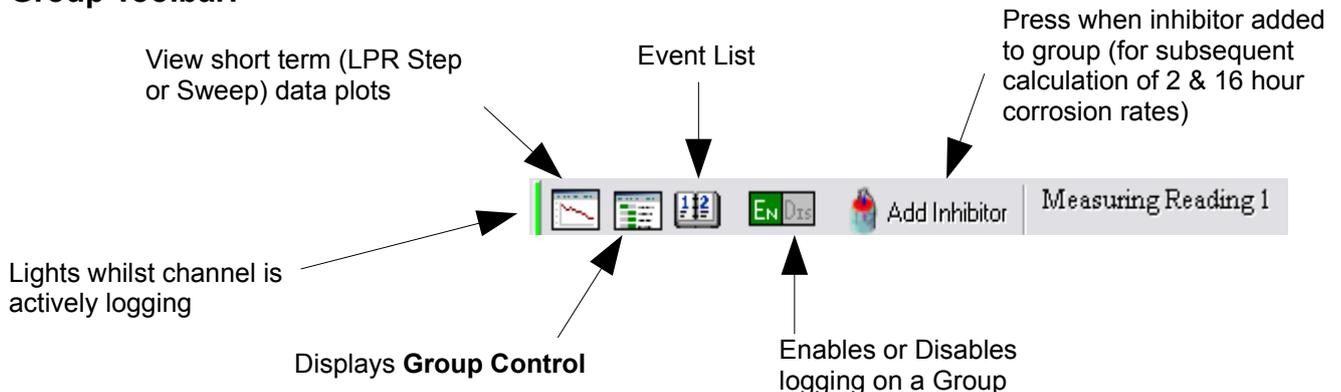
Event List

The event list is used to portray information to the user pertaining to data logging:
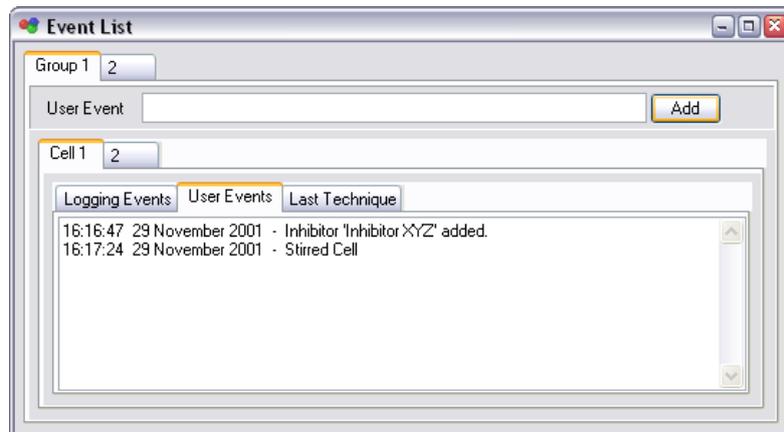
It is split into three sections:

- **Logging Events** – these deal with errors encountered by the instrument, such as lost communication between the instrument and computer, should a fatal error such as this occur, a yellow highlighted message will appear on both the group page and group control indicating the event list should be viewed.

- **User Events** display both inhibitor added (when **Add Inhibitor** was pressed) and events manually added (by typing into **User Event** and clicking **Add**), user events go along with the data and are shown on data graphs.

- **Last Technique** contains useful debugging information should the instrument encounter difficulties, these can be sent to ACM for analysis.