

# Technical Seminar & Workshop (1 Day)

## For whom

QC Personnel  
Quality Analysts  
Chemists  
Lab Supervisors  
Technicians  
Environmental &  
Process Engineers  
Managers

# Electrochemical Measurement & Validation

Some of the most commonly performed analytical tests in science are those based on electrochemical principles. Such procedures include pH, Conductivity, Redox, Autotitrations and Karl Fischer titrations. **Strict regulations, coupled with major economic implications and increased competitiveness emphasise the requirement for validity and correct result on every test performed.**

Both the seminar and workshop will deal with all of these issues which can be categorised under the following headings:

- ✓ Fitness for purpose
- ✓ Instrument Validation
- ✓ Calibration
- ✓ Care & Maintenance
- ✓ Fault Diagnosis
- ✓ Good Laboratory Practice
- ✓ Traceability
- ✓ Certification
- ✓ Titration
- ✓ Sampling Practice
- ✓ Karl Fischer

Participants will see at first hand the correct procedures to enable valid and accurate measurements to be carried out in a cost effective manner.

The seminar will cover how you can put all the issues raised into effect in your own laboratory. Both the seminars and workshops will be presented by a team of contributors with extensive experience in all aspects of electrochemistry & validation.

## CONTENT

- ◆ **Instrument Validation - Presentation & Workshop**  
(Autotitrator, Volumetric Karl Fisher, pH/Conductivity Meters)  
IQ, OQ, PQ, MQ, GLP and Calibration for all of the above instruments.
- ◆ **Standards - Presentation**  
Criteria for Standard Selection, Measurement Uncertainty, Stability, Accuracy, Specificity, Storage, Fitness for Purpose, Correct Use, Validation, Traceability, Certification.
- ◆ **Titration - Workshop**  
Method Optimisation, Instrument Validation and Configuration, Standards, Titrants, Choice of Electrodes.
- ◆ **Karl Fischer - Presentation & Workshop**  
Theory of KF, Role of pH, Sample handling, Standards, Instruments, Reagent selection, GLP, Choice of Solvent.
- ◆ **pH Measurement - Presentation & Workshop**  
Choosing the Correct System, Reference Systems, Electrodes, Diaphragm, Reference electrolyte, Applications, Fault diagnosis, Care & Maintenance, Troubleshooting
- ◆ **Conductivity- Workshop**  
Correct choice of system including Meter & Sensor, Laboratory Environment, Standards, K value, Maintenance, Temperature, Calibration, System Qualification.
- ◆ **GLP – Presentation**  
Comparability, Sample Management, Quality of the analytical result.



## Electrochemical Measurement and Validation Seminar & Workshop

### Programme

9.00	Introduction
9.20	Quality of the Analytical Result
9.50	Installation Qualification (IQ) Operational Qualification (OQ) Performance Qualification (PQ)
10.20	pH Electrodes Theory & Application
10.50	Coffee
11.10	Karl Fisher Theory
11.30	Workshop 1. Groups A, B, & C to rotate A - Conductivity B – pH Measurement C – Titrations & Karl Fischer
12.30	Lunch
2.00	Workshop 2. Groups A, B & C to rotate
3.00	Coffee
3.15	Standards
3.45	Workshop 3. Groups A, B & C to rotate
4.45	Questions & Answers