

## Titration

Titration is a key quantitative technique for the determination of a wide range of parameters. Challenges involved in getting the correct result include system calibration, system validation, method validation and personnel training. All these areas will be comprehensively covered in presentations and a series of three workshops. During the course of the seminar delegates will view first hand best practice in titration using automatic titration, titration software, sample changers and electrodes specifically optimised for use in titration. A balance of theory and practical examples will be given covering areas such as modes of titration, speed of titration and non aqueous titration. This technical course will form an integral part of implementing GLP for titration in your laboratory.

This seminar and workshops will deal with these and a host of other issues which can be categorised under the following headings:

- Electrodes for titration
- Instrument Validation
- Calibration
- Care & Maintenance
- Method Validation
- Building titration methods
- Titration Software
- Theory of titration

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

The seminar and workshops will cover how you can put all the issues raised into effect in your own laboratory. A series of case studies and workshops will be presented to illustrate and provide practical examples of all the points raised. The Seminar will be presented by a team of contributor's with extensive experience in all aspects of titration theory and measurement.

### CONTENT

#### ◆ Titration Theory

Method optimisation, Instrument configuration, Method validation, Modes of titration e.g. dynamic and monotonic, Speed of titration.

#### ◆ Validation

Instrument validation, Installation qualification, Operation qualification, Performance qualification, Maintenance Qualification, Burette calibration.

#### ◆ Electrodes for Titration

Choice of electrodes, Electrode care & maintenance, Fault diagnosis, Troubleshooting, Diaphragm, Applications.

#### ◆ Instrumentation

Automatic titration, Titration software, Titration samplechangers, Programming titration methods.

#### ◆ Standardisation of titrant

Stability, Traceability, Certification, Accuracy, Accreditation, Uncertainty of measurement.

#### ◆ Quality of the Analytical Result

Traceability, Accuracy, Uncertainty of Measurement, Calibration, Comparability, Primary Standards, Certified Reference Materials, Quality Control, Sampling Procedure

**For whom**  
QC Personnel  
Quality Analysts  
Chemists  
Lab Supervisors  
Technicians  
Process Engineers  
Managers  
R & D Chemists  
Analytical R & D



## Titration Seminar & Workshop

### Programme

9.10 - 9.30	Introduction
9.30 - 10.00	Quality of the Analytical Result
10.00 - 10.30	Titration Theory
10.30 - 10.45	Coffee
10.45 - 11.15	Standardisation of Titrants
11.15 - 12.00	Workshop 1. Groups A, B & C A- Instrument Validation B- Method Validation C- Software
12.00 - 12.45	Workshop 2. Groups A, B & C to rotate
12.45 - 2.00	Lunch
2.00 - 2.45	Workshop 3. Groups A, B & C to rotate
2.45 - 3.20	Video "Tracing the Chemical Links"
3.20 - 3.30	Conclusion and Questionnaire to be completed