TRAINING PROGRAM

Quality Assurance Of Chemical Measurements

Introduction:

Very often there are quality issues in the laboratory, which affect the standards that are intended and mean that quality can be in doubt for our clients. During various stages of processing we need to use quality tools to maintain confidence in the products. The analysis of each stage means that total confidence can also be achieved. This course is designed specifically for Laboratory technicians and those involved with quality control during the chemical process utilizing the most accurate tools and terms of measure for control. It contains full explanations in an easy to understand format and regular discussions to reinforce learning throughout.

Who Should Attend?

Laboratory Managers, Analytical Chemists, Medical Scientists, Lab Technicians, Chemical Engineers, Laboratory Supervisors, Research and Development Scientists, Microbiologists, Laboratory Analysts, Food Technologists, Safety Engineers, Quality Assurance/Control Managers/Auditors, Instrumentation Engineers, Chemical Engineers & Industry Personnel, Chemists, and Technicians and those involved with Laboratory quality systems and controls

Course Objectives:

By the end of this course delegates will be able to:

- Introduction to quality assurance in the laboratory
- How principles of measurement are understood and utilized
- Principles of chemical measurement
- The principles of quality assurance involved and used to their maximum
- Accurate measurement and recording of analysis
- Results of sampling of each step of chemical processes using quality tools

Course Outline:

- Introduction to quality assurance in the laboratory
- Principles of measurement
- Principles of chemical measurement
- Principles of quality assurance
- Good laboratory and good measurements practices
- Distinction between GLPS, GMPS, and SOPS
- The quality control system
- Chemical analysis as a system
- Principles of sampling
- Quality assurance of sampling
- Precision, bias, and accuracy

- Sources of error
- Errors of rounding
- Influence of uncertainty on decision
- Statistical control
- Statistical techniques
- Distributions
- Statistics of measurements
- Estimation of standard deviation
- Pooling estimates of standards deviations
- Confidence limits for an estimate of a standard deviation
- Confidence interval for a mean
- Statistical tolerance intervals
- Pooling means to obtain a grand average
- Outliers
- Statistics of control charts
- Control limits
- Use of random number tables
- Precision
- Sensitivity
- Limit of detection
- Selectivity
- Importance of an SOP
- Standardization of methods

- Principles of calibration
- Linear relationships
- Test for linearity
- Blank correction
- Statistical treatment of the blank
- Control charts
- Control samples
- Evaluation samples
- Reference materials
- Traceability
- Quality audits
- Validation
- Reporting analytical data