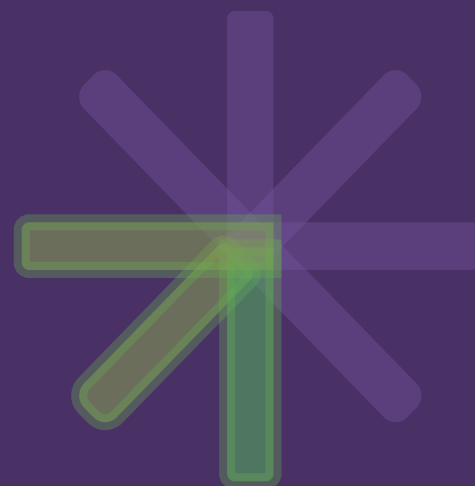

Chromatographic Quality Control Training Course: Calibration Gas, Drift Checks and Analyser Faults

13 – 17 June 2027
Muscat





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Ref: 548_29124 Date: 13 – 17 June 2027 Location: Muscat Fees: 4300 GBP

Programme Summary

Chromatographic quality control is the subject of this one-week training course for laboratory, measurement and analyser managers, ending in a chromatograph fault-response pack for one laboratory. Gas chromatograph results feed custody transfer, plant control and product release, yet drift and faults are often found only after a poor result has been used. The programme builds a method for calibration, drift checking and symptom-based diagnosis that participants apply to their own analysers. Mars Training Centre UK delivers this programme on chromatographic quality control to mixed-organisation cohorts.

The Business Case

An analyser result is trusted until it is shown to be wrong, and by then it may have set a price, released a product or adjusted a plant. Where chromatographic quality control rests on occasional calibration and informal repair, drift, contaminated gas and column ageing stay hidden. Managers who define checks, limits and response times find faults earlier, shorten downtime and defend results when a customer or auditor challenges them.

- Result Reliability: Improves as calibration and drift checks reveal errors before results are released.
- Analyser Downtime: Falls as faults are traced from symptoms to likely causes quickly.
- Dispute and Rework Exposure: Falls as records show how each result was controlled.

Principles and Evidence Base

- ISO 6974: Determining natural gas composition by gas chromatography with defined uncertainty frames the calibration logic of Session 2.
- ISO 10723: Evaluating the performance of on-line natural gas analysis systems guides the analyser checks in Session 4.
- ISO/IEC 17025: Competence requirements for testing laboratories shape the records and review work in Session 4.
- Control charting: Plotting check results against action limits structures the drift work in Session 2.

Intended Participants

- Laboratory managers who are accountable for analytical results.
- Measurement leaders who own gas quality and allocation data.
- Instrument and analyser managers who plan maintenance and repair.
- Quality leaders who audit analytical records and methods.
- Operations managers who rely on analyser readings to run plants.



Typical functions include laboratory, measurement, instrumentation and quality teams in gas processing, refining and petrochemical organisations.

Learning Outcomes

1. Participants will be able to evaluate a chromatograph method setup for its effect on result reliability.
2. Participants will be able to construct a calibration and drift-check plan with action limits.
3. Participants will be able to diagnose analyser faults from baseline, peak and retention symptoms.
4. Participants will be able to prioritise maintenance actions from fault history.
5. Participants will be able to design a data review step that stops doubtful results.
6. Participants will be able to justify a fault-response plan to laboratory management.

Programme Structure

Day 1: Chromatographic Quality Control and Method Setup

Which setup choices decide whether a chromatograph can give a reliable result?

- Column and Detector Selection Guide
- Carrier Gas and Flow Settings Sheet
- Sample Handling Checklist
- Method Parameter Register
- Peak Identification Table

Day 2: Calibration Gas and Drift Checks

How are calibration and drift checks set so that errors show early?

- Calibration Gas Verification Sheet
- Response Factor Trend Chart
- Retention Time Drift Log
- Control Chart With Action Limits
- Measurement Uncertainty Budget

Day 3: Analyser Faults and Symptom-Based Diagnosis

Which symptom points to which fault, and what is checked first?

- Symptom to Cause Matrix
- Baseline Noise Decision Tree
- Peak Shape Fault Guide
- Leak and Contamination Check
- Ghost Peak Trace Sheet



Day 4: Process Analysers, Maintenance and Data Review

How are maintenance and data review organised so that faults do not return?

- Preventive Maintenance Schedule
- Spares and Consumables List
- Process Analyser Validation Record
- Data Review Sign-Off Sheet
- Fault History Pareto Chart

Day 5: Applying the Tools to One Laboratory

Do the setup, calibration and diagnosis tools make one response plan?

- Applying the Session 1 Method Parameter Register
- Using the Session 2 Control Chart With Action Limits
- Testing the Session 3 Symptom to Cause Matrix
- Checking the Session 4 Preventive Maintenance Schedule
- Completing the Fault-Response Pack

Methodology

The programme uses a structured exercise method built on anonymised chromatograms, calibration records, control charts and fault logs from natural gas, refinery and petrochemical laboratories. Participants work in peer groups on shared traces, trace each fault to a likely cause and receive written facilitator feedback. Each exercise set uses a common template so reasoning can be compared across the group.

- Suggested activity: Reading a drifting retention time trend and naming the first three checks.
- Suggested activity: Matching five baseline traces to their probable causes.
- Suggested activity: Reviewing a calibration record and deciding whether results should be released.

Capstone Output

Each participant completes a chromatograph fault-response pack for one laboratory. It holds a method parameter register, a calibration and drift-check plan, a symptom to cause matrix, a preventive maintenance schedule and a data review sheet. The pack is used at work to brief analysts, set check frequencies and guide first response when results look wrong.

Frequently Asked Questions

Is chromatographic quality control suitable for managers who are not analysts?

Yes. Chromatographic quality control assumes some laboratory, measurement or plant experience and builds checking and diagnosis skills step by step, without hands-on instrument operation.



Which standards does chromatographic quality control rest on?

Chromatographic quality control rests on ISO 6974, ISO 10723 and ISO/IEC 17025, together with control charting of check results.

How is the pack from chromatographic quality control used at work?

You use the fault-response pack to brief analysts, set calibration and check frequencies and guide first response when a result looks wrong.

How does chromatographic quality control differ from general laboratory management training?

Chromatographic quality control centres on calibration, drift and fault diagnosis of chromatographs, while general laboratory management training centres on staffing, scheduling and budgets.