

GC & GC/MS Troubleshooting Quick Reference Guide

This GC & GC/MS guide offers practical advice which will assist users to troubleshoot common problems encountered with old and modern GC & GC/MS instruments and applications.

Typical Scenario

A fault has occurred or a result has been queried. It turns out the issue has been present for sometime, however it has not been noticed straight away (usually due to inadequate QC procedures). In smaller laboratories there are no other instruments configured for the application, so eventually a callout is requested to a service provider. The service provider takes a long time to attend the callout. The reasons being the time it has taken to raise a purchase order and also the lower priority assigned to the callout, if the instrument is not on a service contract.

Meanwhile, parts and consumables are checked/changed and the fault becomes worse. By the time the service engineer visits, the problem has become more urgent and complex. This is more difficult to resolve and results in a series of expensive visits and further instrument downtime.

Troubleshooting Approach

Whilst it is commendable to attempt to fix faults, it should only be done with a good understanding of the technology, instrument software and application. Employee the following approach:

- Use a logical mindset
- Change one parameter at a time
- Record your observations
- Organise a toolkit
- Make sure you have the most common spares available



Gathering Information

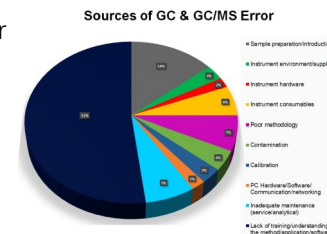
If you are going to troubleshoot the problem yourself, find out the following information:

- When was the instrument last serviced
- When was the application last working
- When was the initial problem observed
- What are the symptoms you have observed since the problem was noticed
- What has changed since the application was last working

Sources of Error

Over 90% of "faults" on modern instruments today are noticed through an analytical result or a chromatogram that is not what is expected. The fault are seldom an issue with the instrument itself and could be due to other sources of error. Typical areas of sources of error are:

- Sample preparation/introduction
- Instrument environment/supplies
- Instrument hardware
- Instrument consumables
- Poor methodology
- Contamination
- Calibration
- PC Hardware/Software/Communication/networking
- Inadequate maintenance (service/analytical)
- Lack of training/understanding of the method/application/software



Many faults can be diagnosed by obtaining some basic details of the current chromatogram and a reference chromatogram. Key chromatogram comparisons that may shed light on the problem are:

- Retention time
- Peak shape
- Signal size
- Baselines and background signal

Conclusion

If these guidelines are utilized you are more likely to diagnose faults from symptoms and also minimize instrument/application downtime.

ChromSolutions Ltd

What we offer at ChromSolutions is our wealth of experience in analytical instrument sales and support (over 110 years distributed through the members of our company). We use this experience and knowledge to remotely troubleshoot issues on mission critical instruments. This provides a faster response, reduce cost and minimizes any instrument/application downtime.

For more information on GC & GC/MS troubleshooting please contact us:

