

*Approved by Director: Dr. Guy Vallaro*

- A. Purpose:** To evaluate and verify acceptable instrument performance for arson/chemical analysis.
- B. Scope:** Performing a system autotune and analyzing the performance check sample to determine the suitability of the analytical system. Monitoring environmental conditions to ensure proper performance of the instrumentation
- C. Responsibility:** Arson section chemist or designee
- D. Analytical procedure:** All instruments are password protected to ensure that only authorized personnel can run them. As part of the QA/QC program, the GC/MS shall be checked for system performance according to the following:

1. A system autotune shall be run twice weekly or when deemed necessary by the chemist. The parameters of the autotune must be within the limits established by the manufacturer (Agilent). If the autotune is acceptable, a hard copy is stored in the QC file.
2. If the results are unacceptable, a second autotune is run. If the results are still unacceptable, the instrument is removed from service until the problem is corrected.
3. A multi-component performance check sample comprised of the homologous series C9-C20 n-alkanes shall be run under the appropriate instrumental conditions once/week or when deemed necessary by the chemist. Review the total ion chromatogram for peak shapes, baseline stability and the presence of interfering peaks. If the results are deemed acceptable, a hard copy is stored in the QC file.

For all casework samples, the "instrument in control" checkbox on each worksheet is checked to indicate the last QC run was acceptable.

4. If the results are not acceptable, a second sample is run. If the results are still unacceptable, the GC/MS is removed from service until the problem is corrected.
5. After the problem has been corrected, the instrument in question must be checked and shown to be satisfactory before being returned to service.
6. If environmental conditions are such that optimum performance of the instruments is questioned, testing will be suspended.

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**E. Documentation:**

MS Chemstation User's Guide

Arson analysis method

GC/MS quality control file

SOPFLCH 09

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