



Agilent Technologies

Innovating the HP Way

Flat or Unresponsive Baseline Problems

Applies to 5972A MSD

Possible cases of the problem:

There are several possible causes of a non-responsive or dead baseline. Typically when the baseline goes dead during the run (especially if it seems to stop during a peak eluting) the most common cause is a blown filament in the Mass Specs source. Even though a blown filament is one of the most common problems to cause a flat or unresponsive baseline, there still exist the possibility of other hardware or electronics problems.

WHAT TO DO:

- 1) Go into manual tune and perform a spectrum scan:

NOTE: If the spectrum scan is successful, then the Mass Spec is most likely okay and the problem may be sample introduction related, i.e. Auto-sampler or syringe. The cause may also be a clogged or possibly broken column, column flow or lack thereof, or column installation. These are but a few problems that can cause a dead or flat baseline that do not involve direct problems with the Mass Spec.

- 2) If hardware or electronic problems exist, most will generate and display an error. The following errors could appear:

- a) NO EMISSION CURRENT
- b) EXCESSIVE SIGNAL LEVEL
- c) EXCESSIVE SOURCE PRESSURE

This document is believed to be accurate and up-to-date. However, Agilent Technologies, Inc. cannot assume responsibility for the use of this material. The information contained herein is intended for use by informed individuals who can and must determine its fitness for their purpose.

d) DIFFICULTY OF MASS FILTER ELECTRONICS

NOTE: This is just a few of the errors that could appear, if your error does not appear in this list refer to your hardware manual or call Agilent Technologies technical support for clarification of your particular error.

If you're getting the error...

No Emission Current

Typically this error indicates a blown filament. 5972A's have 2 filaments in the source. If the Mass Spec has blown a filament, the user can change to the alternate filament through the Mass Spec software, by selecting [MANUAL TUNE] then [ADJUST PARAMS] followed by, [EDIT MS PARAMS]. Once in this screen you can proceed to the FILAMENT SELECT BOX, which could have either FILAMENT 1 or 2 selected. Select the alternate filament, then attempt a Spectrum scan or Profile scan from this screen by using the buttons at the bottom of the screen labeled, "[Scan] or [Prof]", respectively.

If it performs the scan successfully, then exit this screen, but before exiting [MANUAL TUNE], select [FILE], then [SAVE TUNE VALUES]. The box that pops up should already have, "ATUNE.U", selected, press [OKAY] to save to tune file or select the appropriate tune file in use then press [OKAY] to save.

If the error still persists then it's suggested to do the filament test as outlined in the hardware manual or follow the vent procedure, remove the analyzer, then visually or with a volt/ohm meter, check the continuity of the filaments. If the filaments appear to be bad, replace them, pump the system down, and allow an appropriate time for the system to pump down, then attempt a spectrum scan. If the error does not occur, the problem is corrected.

If the problem still exist then Agilent Technologies TECHNICAL SUPPORT OR ONSITE SERVICE IS RECOMMENDED!!!

EXCESSIVE SIGNAL LEVEL

This error typically is a result of too high ELECTRON MULTIPLIER VOLTAGE or a Saturated Signal level. It can also result from a sample that is too concentrated, too much sample/solvent injected, an electronics problem, or by cleaning the source and performing an Autotune or acquisition without first lowering the Multiplier voltage..

If the problem occurred after the source was cleaned, it could be as a result of the high multiplier voltage required by the dirty source, which could lead to an excessive signal level when the Mass Spec is initially tuned or scanned after the clean source is installed. To correct this problem, lower the Multiplier voltage to approximately 1000 volts in [MANUAL TUNE] and save this value to, [TUNE PARAMETERS], in the ATUNE.U tune file. Then re-tune the Mass Spec. If the Mass Spec passes the tune, more than likely the MS is okay.

If problem still exists during the analytical run, make a blank run (no injection) to determine if the MS will complete the run without generating the error. If the Mass Spec will complete the blank run, the error could be the result of too much or a too highly concentrated sample or by a solvent delay time that's not sufficiently long enough to allow the solvent peak to elute before the MS filament is turned on.

Also don't forget to check the vacuum manifold pressure, as read from the gauge controller (if available) or from the [VACUUM DIAG] screen in the ChemStation software. If the error is generated under all of the above conditions reset the Electron Multiplier voltage to zero in, " [MANUAL TUNE] ", then save to [TUNE PARAMETERS] in the Atune.U file.

Retry performing a scan or start a blank run, if the error still exists, then Agilent Technologies TECHNICAL SUPPORT OR ONSITE SERVICE IS RECOMMENDED!!!

DIFFICULTY IN MASS FILTER ELECTRONICS.

Difficulty in Mass Filter Electronics simply means that for some reason the Mass Spec has lost control of the MASS FILTER, otherwise known as the QUADS or QUADROPOLES. This can be the result of a mechanical problem, (quad or quad contacts), or an electronics problem. or even possibly improper vacuum.

Verify that vacuum is good in the vacuum manifold.

Following the vent procedure, vent the MS and remove the analyzer and place it on the counter top just as if you were going to perform a source cleaning. Locate the quad contacts in the middle of the radiator, (square box that the houses the quad). The quad contacts are the two brown button-looking objects that has a single wire coming from the center and attached to a pin on the top plate of the analyzer. The quad contacts can be removed by disconnecting the wire connections from the pins on the top plate and unscrewing the quad contacts from the radiator. After removing the Quad contacts, they can be cleaned with a Que tip and methanol. Make sure that any lent from the Que tip is removed, " without touching with your fingers). Replace the quad contacts by screwing them into the radiator, then reconnect the single wire from each quad contact to the appropriate pins on the top plate.

Examine visually the condition of the quad as best you can before replacing the analyzer into the vacuum manifold. Pump system down and allow enough time for the system to pump down properly, then execute a scan or tune to determine if the problem has been corrected.

If problem still occurs the possibility of a hardware or electronics problem exists and Agilent Technologies TECHNICAL SUPPORT OR ONSITE SERVICE IS RECOMMENDED.