Agilent Technologies

Chemical Analysis Group

Agilent 6890 Gas Chromatograph

Maintaining a μ-ECD detector

Document A15698

Maintaining a μ-ECD detector

μ-ECD bake-out (thermal cleaning)

If your μ -ECD baseline is noisy or the display frequency is too high (i.e., ≥1000), you should perform a thermal cleaning (also called a "bake-out") of the detector. Before performing a bake-out, verify that the carrier supply gas and flow system are leak- and contaminant-free.

Caution Detector disassembly and/or cleaning procedures other than thermal should be performed only by personnel trained and licensed appropriately to handle radioactive materials. Trace amounts of radioactive ^{63}Ni may be removed during these other procedures, causing possible hazardous exposure to β- and x-radiation (bremsstrahlung).

WARNING To prevent possible hazardous contamination of the area with radioactive material, the detector exhaust vent must always be connected to a fume hood, or otherwise vented in compliance with the latest revision of Title 10, CFR, Part 20, or with state regulations with which the Nuclear Regulatory Commission has entered into an agreement (USA only). For other countries, consult with the appropriate agency for equivalent requirements.

1. Record the μ-ECD "Output" value from GC display. If the number is equal to or greater than 1000, you should continue with this procedure.
2. Remove the column from the detector.
3. Cap the bottom of the make-up gas adapter with a blank column ferrule and column nut.
4. Set the makeup gas flow rate to 60 ml/min. Set the detector temperature between 350 and 375°C.
5. Set the oven temperature to 250°C.
6. Allow thermal cleaning to continue for several hours, and then cool the system to normal operating temperatures.

It is good practice to monitor the progress of the thermal cleaning by plotting the µ-ECD signal. Over time, the signal baseline signal should change as shown in Figure 341-13.

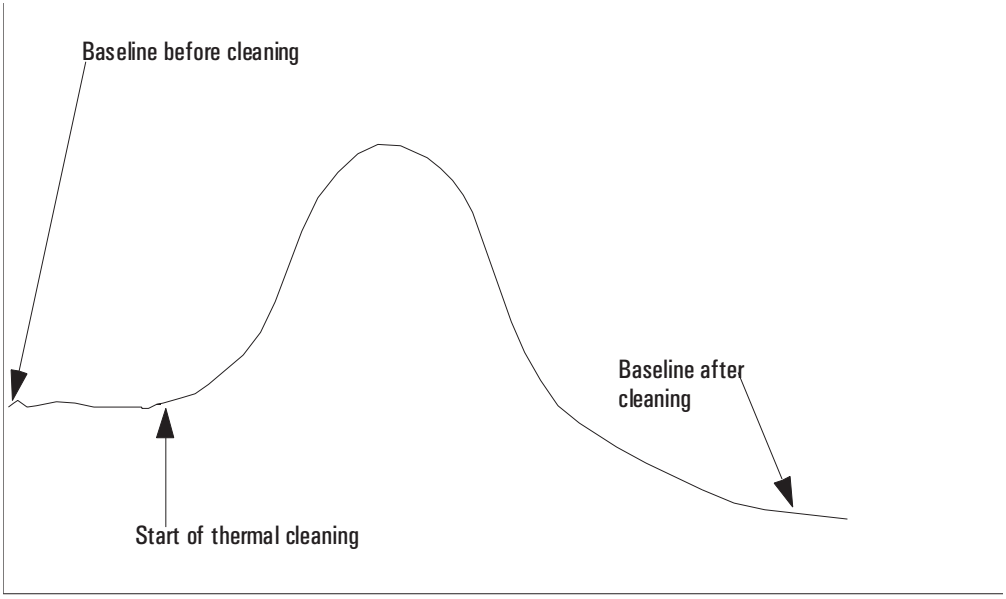

Figure 341-13 Time

7. Check the ECD "output" value from the GC display. It should be lower than the first reading.

Performing a radioactivity leak test (wipe test)

Micro-cell ECD's must be tested for radioactive leakage at least every six months. Records of tests and results must be maintained for possible inspection by the Nuclear Regulatory Commission and/or responsible state agency. More frequent tests may be conducted when necessary.

The procedure used is the wipe test. A Wipe Test Kit (Part no. 18713-60050) is supplied with each new µ-ECD. Refer to the information card supplied in the Wipe Test Kit for instructions on performing the wipe test.