

# Agilent Technologies Electron Capture Detectors (ECDs)

## ECD Management in EMEA and IDO Countries

## Notices

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## Safety Notices

### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

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### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

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## 2 Technical Information

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## Important Information for General License Holders - Please Read

### **REFERENCE: ECD Control**

Dear Agilent Customer,

We wish to bring an issue to your attention that a number of our customer and regulatory agencies have shared with us relative to the Regulatory requirements for controlling Electron Capture Detectors (ECDs). As you are probably aware, the ownership and locations of ECDs frequently change as a result of internal equipment, lab personnel, and company transfers. As a result of these changes, the awareness of the responsibilities associated with ECD control and monitoring is sometimes lost, and an Radiation Safety Officer (RSO) or lab manager may potentially be faced with being unable to provide ownership records when confronted by regulatory inspectors.

Your local Regulatory Agency and Agilent Technologies have a great interest in your being able to prevent any possible conflict and embarrassment to you or your company. Because of this concern, we strongly urge you and your company's RSO to consider incorporating the suggestions on the following page into your radiation safety program. These suggestions may greatly assist you in building a good relationship with your local Regulatory Agency.

Sincerely yours,

Agilent Technologies

## Introduction

This publication describes proper installation, operation and maintenance of Agilent ECDs. It also discusses the regulations that govern their use and the safety precautions that must be observed to help avoid radiological hazards.

**NOTE**

The material contained in this booklet concerning "regulations" is accurate as of the date of writing. However, regulations may change. It is the user's responsibility to maintain compliance according to the latest regulations.

---

Though following the safety precautions and many of the requirements in this booklet is a good practice, it is your responsibility to comply with your local regulations.

## Definitions

**Agency:** This applies to your local organization that regulates the use of radioactive materials in your country, state, and so forth.

Customer should contact their local "Agency" to determine the applicable regulations.

**ECD:** Electronic Capture Dectector

**GC:** Gas chromatograph

**Radioactive Wipe Test:** This is also known as wipe test or leak test, a test that is required on all Agilent ECDs. The wipe test is performed by wiping the outside of the ECD with either filter paper or a cotton swab. The wipe test is then analyzed by a liquid scintillation counter to determine the activity of the wipe. Refer to ["Radioactive Wipe Tests"](#) on page 51 for additional information.

**Regulations:** As used in this booklet, this refers to the regulations imposed by the "Agency" of your respective Country

## Description of the ECD

The ECD can be purchased as an option with the instrument, in which case it is installed in your GC at the factory, or as an add-on accessory to be installed by you or by Agilent Technologies.

The ECD consists of the detector cell, the thermal insulation that surrounds it, mounting hardware, the ECD cover and associated overheat protection circuitry, if appropriate. The two halves of the ECD body are joined by tamper-proof screws that require a special tool for removal. This tool is not provided with the ECD.

## Properties of an ECD

The radiation source used in the ECD is  $^{63}\text{Ni}$ . This material is plated onto an inner surface of the cell body. It is a solid at temperatures used in chromatography. Some of its properties are listed here.

- Half life: 101.1 years
- Emission: 65.87 keV maximum, beta radiation
- Melting point: 1453 °C
- Nominal dimensions of the active part of the ECD:
  - Inside diameter: 1.2 cm
  - Height: 1 cm
- Nominal dimensions of the active part of the microcell ECD ( $\mu\text{ECD}$ ):
  - Inside diameters : 6 mm
  - Height: 4.2 mm
- Refer to the characteristics of the sealed source for the individual model number.

## Regulatory Requirements

In general, the following are the regulatory requirements relating to the possession and use of ECDs. However, it is your responsibility to ensure compliance with your current local nuclear "Agency" requirements.

- 1 You must not remove the metal tag attached by wire to the ECD.
- 2 You must comply with the instructions provided in this booklet and any other manuals or instructions provided that pertain to ECDs.
- 3 If there is any evidence of damage to the ECD, you must stop using it immediately and notify your local "Agency."
- 4 You must periodically perform, or have performed, a radioactive leak test.
- 5 If the results of the radioactive leak test indicate radioactivity leakage of 0.005 microcuries (185 Bq) or greater, you must stop using the ECD immediately and notify your local "Agency."
- 6 You must maintain records containing the date the ECD was received, dates it was transferred to some other person (including return to the factory for repair and so forth) and the results of the radioactivity leak tests. These records are subject to inspection by your local "Agency."
- 7 You may ship the ECD back to Agilent Technologies in accordance with European regulation (see [Chapter 3](#) for instructions).
- 8 You may not modify the ECD cell by cutting, drilling, opening, welding or any other destructive or damaging operation under any circumstances.
- 9 Corrosive chemicals must not be introduced to the ECD.
- 10 Disassembly of the ECD is prohibited.

## Safety precautions to follow when handling ECDs

- 1 Never eat, drink or smoke when handling ECDs.
- 2 Always wear safety glasses and gloves when working with or near open ECDs.
- 3 When handling ECDs, wear protective clothing such as laboratory jackets, safety glasses, and gloves, and follow good laboratory practices. In addition, wash hands thoroughly with a mild non-abrasive cleaner after handling ECDs.



- 4 Cap the inlet and outlet fittings when the ECD is not in use.
- 5 Connect the ECD exhaust vent to a fume hood or vent to the outside in some other acceptable manner whenever the ECD is in use.

## ECD warnings

Although beta particles at this energy level have little penetrating power (the surface layer of the skin or a few sheets of paper will stop most of them), they may be hazardous if the isotope is ingested or inhaled. For this reason, the cell must be handled with care, radioactive leak tests must be performed at intervals required by your local Nuclear Agency, the inlet and outlet fittings must be capped when the ECD is not in use, corrosive chemicals must not be introduced into the detector, and the detector must be properly vented outside the laboratory environment.

### WARNING

Materials that may react with the  $^{63}\text{Ni}$  source, either to form volatile products or to cause physical degradation of the plated film, must be avoided. These materials include oxidizing compounds, acids, wet halogens, wet nitric acid, ammonium hydroxide, hydrogen sulfide, PCPs and carbon monoxide. This list is not exhaustive but indicates the kinds of compounds that may cause damage to  $^{63}\text{Ni}$  detectors.

---

### WARNING

In the extremely unlikely event that both the oven and the ECD heated zone should go into thermal runaway (maximum, uncontrolled heating in excess of 400 °C) at the same time and that the ECD remains exposed to this condition for more than 12 hours, the following must be done:-

- After turning off the main power and allowing the instrument to cool, cap the ECD inlet and exhaust vent openings. Wear disposable plastic gloves and observe normal safety precautions.
- Return the cell to Agilent Technologies following instructions included in this booklet (see [Chapter 3](#)).

It is unlikely, even in this very unusual situation, that radioactive material will escape from the cell. However, permanent damage to the  $^{63}\text{Ni}$  plating within the cell is possible and, therefore, the cell must be returned for exchange.

---

## 1 Technical Information

**WARNING**

Do not use solvents to clean the ECD.

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**WARNING**

You may not open the ECD cell unless authorized to do so by your local nuclear regulatory agency. Do not disturb the four socket-head bolts. These hold the cell halves together. Removing or disturbing them could create a safety hazard.

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## Capping your ECD

**WARNING**

Overheating or chemical damage could cause radioactive particles to drop from the inlet fitting.

---

The ECD inlet fitting must be capped whenever a column is not attached. In addition, the metal vent tube exiting from the side of the ECD must be capped whenever the vent line is disconnected. If the ECD is not going to be used or will be stored, see “[Storing your ECD](#)” on page 23.

## Temperature limitations

The maximum detector operating temperature limit is 400 °C (350 °C for 5790, 5880, and 6850 GCs), and the ECD must not be heated above these limits. This limit is built into the GCs' temperature control systems. If a malfunction should occur and the temperature of the ECD should rise to 425 °C, the instrument's main thermal control systems will turn off all the thermal zones.

For the 5970 and the 5880 GCs, if the temperature should rise above 350 °C, whether due to an incorrect setpoint entry or because of an instrument malfunction, a safety circuit will turn the heater power off at 370 +/- 10 °C.

**WARNING**

If the ECD heater(s) should be deactivated, a hardware problem may exist in the instrument. Consult the instrument manual for information on diagnosing and correcting the problem.

---

## Maintenance

Customer maintenance of the ECD is limited to installation, radioactivity leak testing, thermal cleaning and removal of the ECD. We recommend that the ECD be returned to the factory for a thorough inspection on a periodic basis (suggested 5 years intervals).

One of the easiest ways to monitor the proper operation of the ECD is to monitor the signal baseline. See your GC operators documentation for specific information.

Leaks can adversely affect the performance of you ECD. It is important to locate and fix any gas leaks. Complete instructions for performing leak tests can be found in the maintenance and troubleshooting documentation provided with your instrument.

Instructions for removal of the ECD can be found in this manual.

## Thermal cleaning

### WARNING

Do not introduce any liquid solvent into the ECD cell.

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The ECD effluent must be vented properly during the thermal cleaning process.

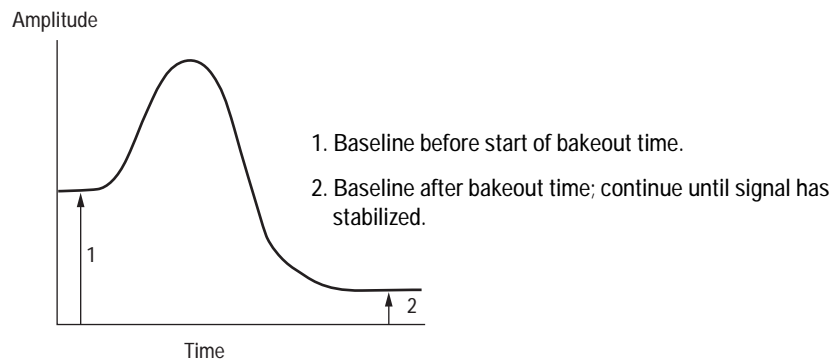
To vent the ECD, remove any existing column between the injection port and the ECD and do either of the following:

- Install an empty (unpacked), clean glass/metal large bore column to maintain gas flow into and through the ECD. Set the oven temperature to 250 °C and the carrier flow to 30 to 90 mL/min. Raise the ECD temperature above your normal operating temperature but less than the maximum operating temperature allowed for your ECD. (For the 5880A GC, the maximum ECD temperature is 370 °C; for 5890, 6890, and 7890A GC instruments, the maximum temperature is 400 °C).

Or

- Remove the column and cap the detector inlet. Use makeup gas to maintain a flow of 30 to 90 mL/min.

Maintain this bake-out condition for several (3 to 24) hours or until the ECD baseline has stabilized. The total time necessary will depend on the type and degree of contamination as well as the normal operating temperatures versus the bake-out temperature. Baking the ECD at higher temperature (above the normal operating temperature) and at higher purge flow rates will shorten the time necessary. It is good practice to monitor the ECD signal/baseline during the bakeout to help determine the time necessary. A typical baseline trace might look similar to Figure 1.



**Figure 1** Typical baseline trace

Cleaning the ECD thermally will most likely change its response characteristics, so you will probably be required to recalibrate your ECD depending on the actual method.

## Installation

ECDs ordered as an option to an Agilent GC are installed at the factory. If the ECD is purchased as an add-on accessory, the ECD will be shipped with detailed installation instructions.

### **WARNING**

(5880 GCs only) To prevent possible creation of a hazardous situation, the instruction must be followed exactly. Pay special attention to those sections concerning the overheat protection board and the thermal measurement board.

---

The instructions include a procedure for verifying correct operation of the overheat protection circuitry. If this circuitry does not function correctly, turn the instrument off, notify your local Agilent service organization immediately and do not attempt to use the instrument.

When installing an ECD, always remember to vent the detector in accordance with the procedure specified in “[Venting your ECD](#)” on page 22 and remember to install all labels as instructed.

## Venting your ECD

The instrument in which the ECD is mounted must be placed where the ECD effluent can be vented. The ECD shall not be vented into the laboratory environment. A vent line to a fume hood is a convenient way to accomplish this. This precaution is taken to avoid radioactive contamination of the laboratory if an abnormal condition should occur.

Agilent Technologies recommends a vent line running to a fume hood. The inside diameter should be 6 mm (1/4 inch) or greater to prevent back pressure which might cause noise in the ECD signal. With a line of this diameter, the length of the tubing is not critical.

## Storing your ECD

Depending on the needs of the laboratory, it may be good proactive practice to have an extra ECD on site to provide rapid turnaround for a contaminated ECD. This would be particularly true in laboratories with a very high workload or sample through put where instrument operation must be maintained. This "spare ECD cell" operation is quite possible with the Agilent design, but some precautions may be necessary for trouble-free operation when the spare ECD is put into service.

Due to the extremely chemically active atmosphere inside the ECD, it is advisable to keep air and moisture out of the cell. The carrier gas flow does this when the detector is in use, but storage for an extended period will result in an ECD that does not perform as desired when restored to service. This may be due to the formation of corrosive compounds (such as nitric acid) from the ionized components of air inside the cell. To our knowledge this has not been proven, but such components would likely be quite detrimental to the ECD if they were present. To prevent this occurrence, we suggest providing a slow purge gas through an ECD in storage or purging the ECD well and sealing an inert gas inside to prevent air (oxygen and water) from diffusing into the active area of the cell. Nitrogen by itself is not a problem but, in combination with oxygen, very corrosive components could be formed. An inert gas, such as argon or helium, would probably be best for this purge gas.

**NOTE**

The periodical wipe tests for leakage of radioactive material (see ["Radioactive Wipe Tests"](#) on page 51) must continue during periods of inactivity or storage.

---

## Removing Your ECD

You will need to remove the ECD if you wish to reposition it on the GC or return it to Agilent Technologies. The ECD consists of two parts: the ECD cell and the heated block. **Under no conditions is the ECD cell to be disassembled.**

Begin by turning the heated zone off and allowing the instrument to cool to room temperature. When the ECD has cooled, turn all gas flows off, remove the column to which the detector is connected and turn the main instrument power off. Disconnect the main power cord from the wall receptacle.

The instructions for removing the ECD from your chromatograph vary with the GC model. Determine which model ECD you have and follow the appropriate instructions. When removing the ECD, wear disposable gloves and wash your hands thoroughly with mild soap and water after handling the ECD. If you are returning the ECD to Agilent Technologies, refer to the instructions for "How to dispose of an end of usage ECD" for your country. If you should encounter any problems or complications when removing your ECD, call your local Agilent customer engineer or the Agilent Response Center.

### Instructions for removing G1533A (6890) and G2397A ECDs (6890, 7890A GC)

#### Safety

#### WARNING

All versions of ECD cells contain radioactive material. Exposure to radioactive material is hazardous to human health. Under no circumstances should an ECD cell be disassembled. ECDs must be returned to a licensed facility. Agilent will accept only ECDs manufactured by either Hewlett Packard or Agilent Technologies, Inc.

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#### CAUTION

Always allow time for the oven and heated zones to cool before turning off the gas supplies. Failure to allow cooling may damage the ECD.

---



**WARNING**

Before proceeding, turn off the oven and any heated zones and let them cool down. When they have cooled, turn off any detector gases at their supply, then turn off the main power switch and unplug the power cord.

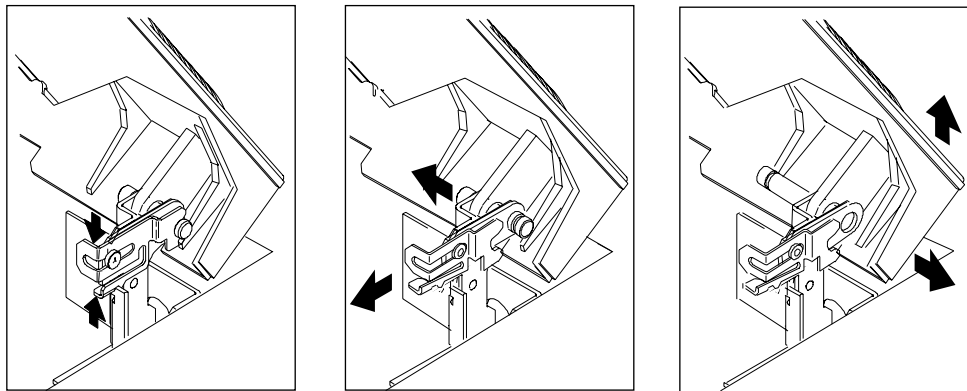
**CAUTION**

Make sure you are properly grounded with an ESD strap before continuing.

### Removing the new style detector cover (6890, 7890A)

Raise the GC's detector cover to the vertical position and lift off of instrument.

### Removing the old style detector cover (6890)



The top cover protects the detectors, valve box and valve assembly

- 1 Tilt the front cover up.
- 2 Squeeze the clip on the right hinge, pull the clip toward you and pivot it up.

## 1 Technical Information

- 3 Push the metal pin behind the clip to the left.
- 4 Slide the detector cover to the right and lift it off.
- 5 To replace the top cover:
  - a Slide the plastic post on the left side of the cover into the hole on the injection port fan cover.
  - b Line up the hole in the tab on the right side of the cover with the metal pin and push the pin to the right through the hole.
  - c Pivot the clip back down and snap it back over the metal pin.

### Removing the right side cover

- 1 Fully loosen the two captive screws (Torx T-20) in the top of the cover.
- 2 Slide the side cover slightly to the rear of the GC and lift the cover out of the slot in the bottom of the chassis.

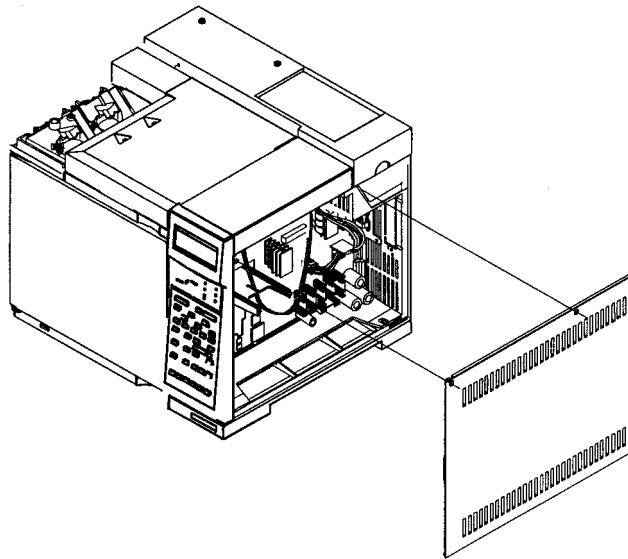


Figure 2 Right side cover removal (6890 GC shown, 7890A GC similar)

## Removing the electronics cover

The electronics cover is located on the right top side of the GC.

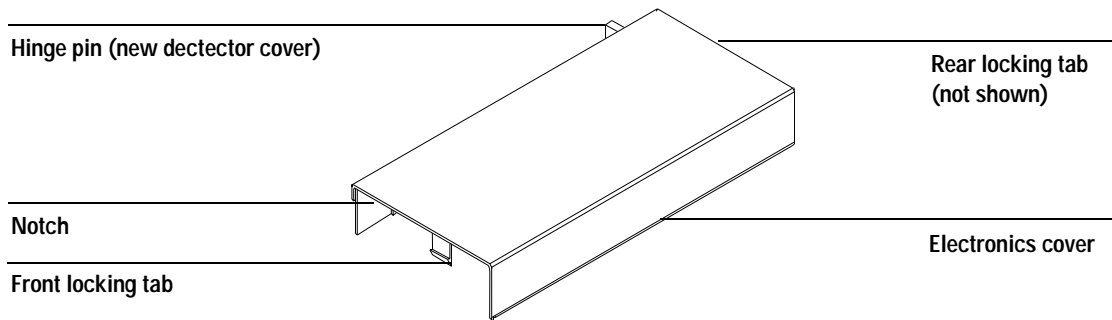
### WARNING

The electronics cover shields the high voltage components on the main board. Turn off the main power switch and unplug the power cord before removing this cover.

### CAUTION

Be sure to wear an ESD strap grounded to the GC chassis while performing this procedure.

### 6890 GC cover removal



- 1 Remove the GC right side cover.
- 2 Reach under the electronics cover and press the rear locking tab toward the front of the instrument.
- 3 While pressing the tab, lift up the back of the electronics cover and slide the cover back, up and out of the instrument.
- 4 To reinstall the cover, make sure that the notched edge of the cover faces the front left side of the instrument and snap it back into place.

## 1 Technical Information

### 7890A GC cover removal

- 1 Remove the screw from the front left side of the top electronics cover.
- 2 Lift the electronics cover up from the front edge and let it rest on its rear hinge in the raised position.

### Disconnecting the cables

- 1 Disconnect the heater/sensor leads from the connector on the right side of the GC.
- 2 Disconnect the ribbon cable from the detector board.

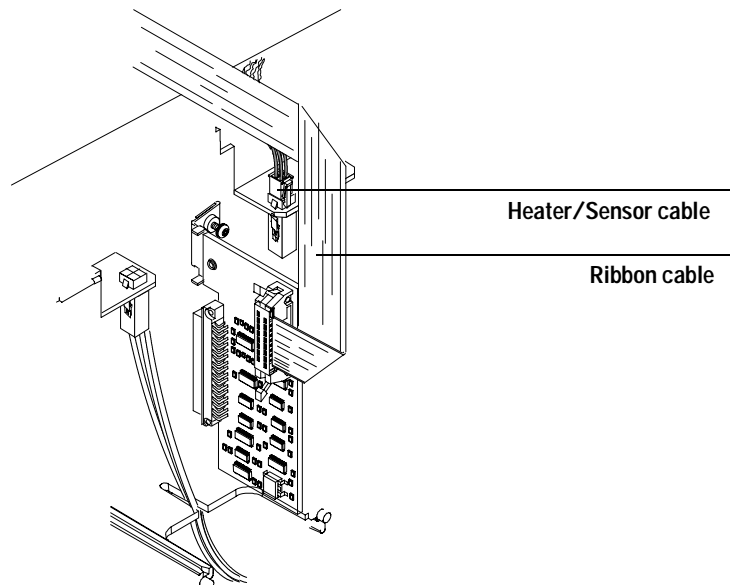
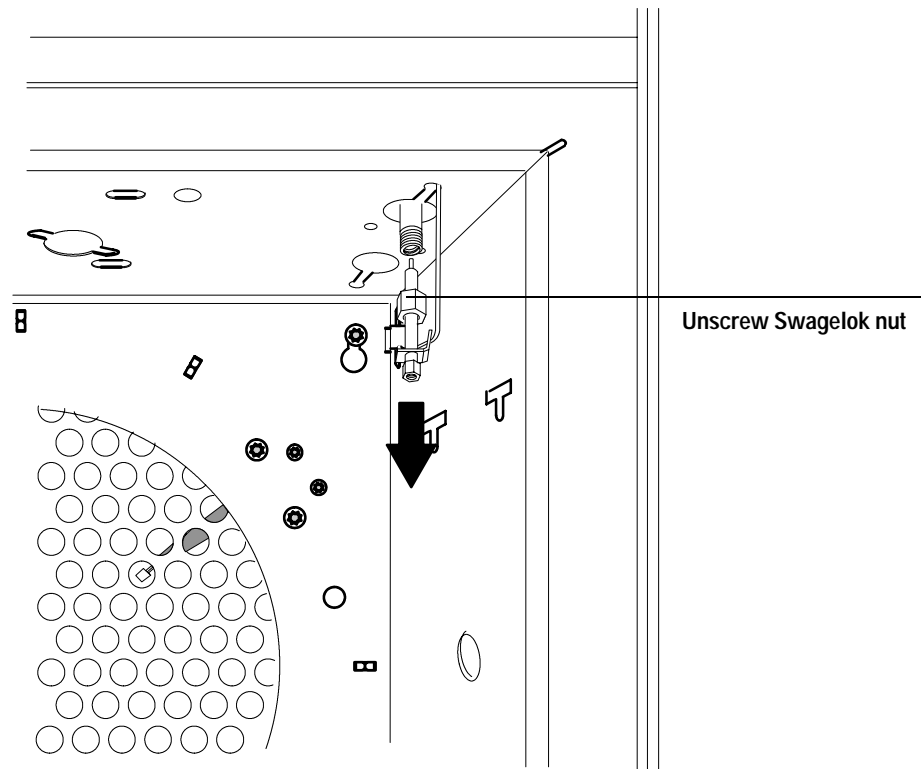


Figure 3 Disconnect the cables (6890 GC shown, 7890A GC similar)

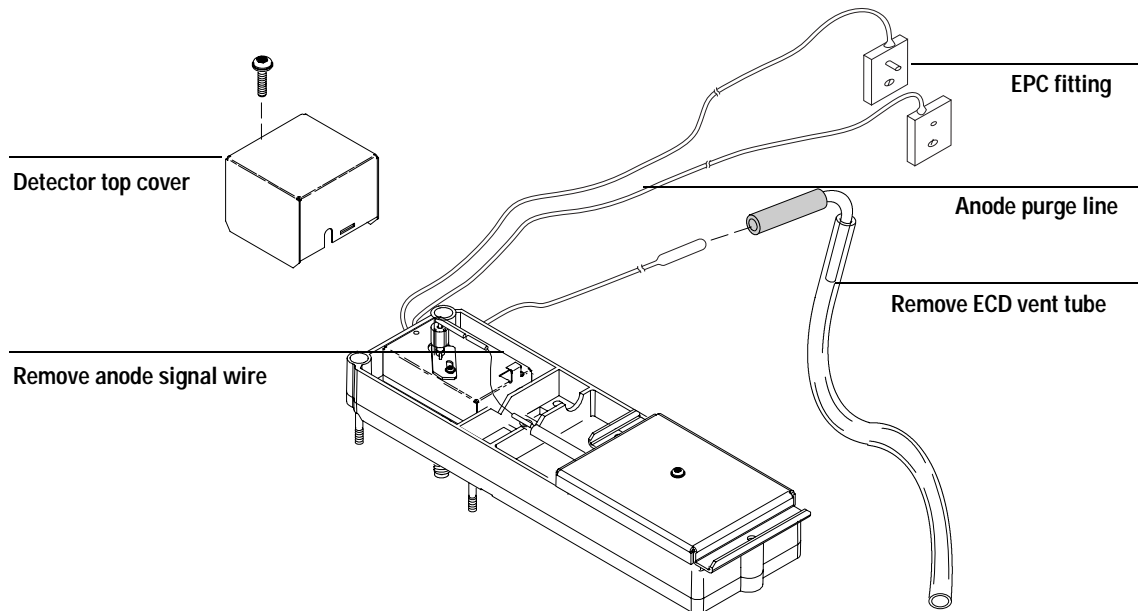
## Removing the makeup gas adapter

- 1 Inside the oven, remove the insulation cup and disconnect the column from the makeup gas adapter.
- 2 Use a 9/16-inch wrench to loosen the 1/4-inch Swagelok nut on the makeup gas adapter from the bottom of the detector. Slide the makeup gas adapter out of the bottom of the detector.

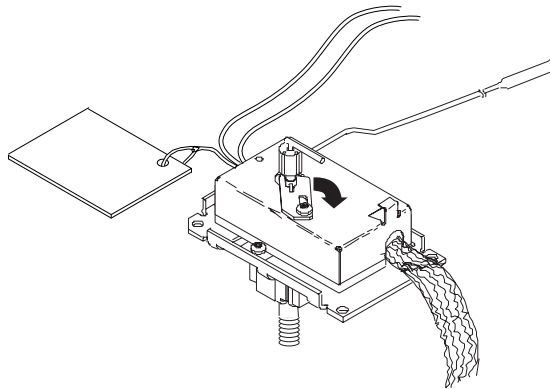


## Removing the ECD

- 1 Disconnect the ECD vent tube at the rubber sleeve.
- 2 Disconnect the anode purge line at the pneumatics manifold by removing the T-10 Torx screw and separating the gang fitting pieces.  
or  
Use a 5/16-inch wrench to disconnect the 1/16-inch Swagelok union on the anode purge line.
- 3 Remove the one Torx T-20 screw securing the ECD detector top cover to the detector pallet and remove the cover.
- 4 Disconnect the anode signal wire from the detector.
- 5 Fully loosen the four Torx T-20 screws on the detector pallet, lift the pallet and turn on its right side.
- 6 Thread the heater/sensor leads out of the detector pallet and remove the rest of the detector from the pallet.
- 7 For shipping or storage purposes, cap the inlet, anode purge and exhaust vent tubing.



- 8 The ECD detector is now properly disassembled for return to Agilent. Call the Technical Support number identified at the front of the booklet for further directions.



## Instructions for removing G1223A and G1224A ECDs (5890)

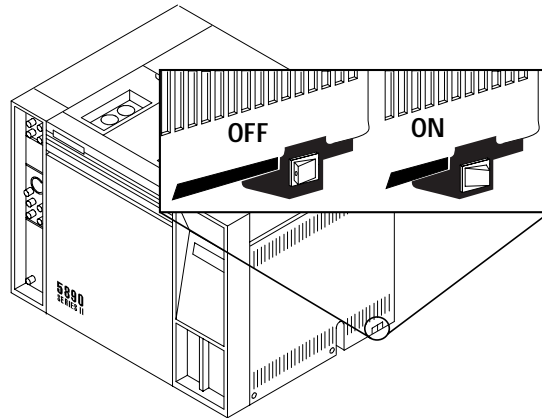
**WARNING**

Hazardous voltages are present in the instrument when the power cord is connected. Avoid a potentially dangerous shock hazard by disconnecting the power cord before working on the instrument.

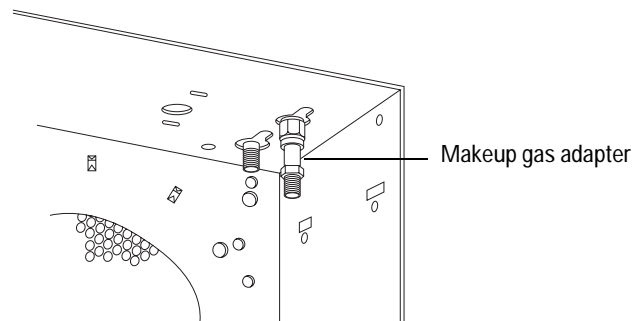
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## 1 Technical Information

- 1 Set the main power line switch to the off position.



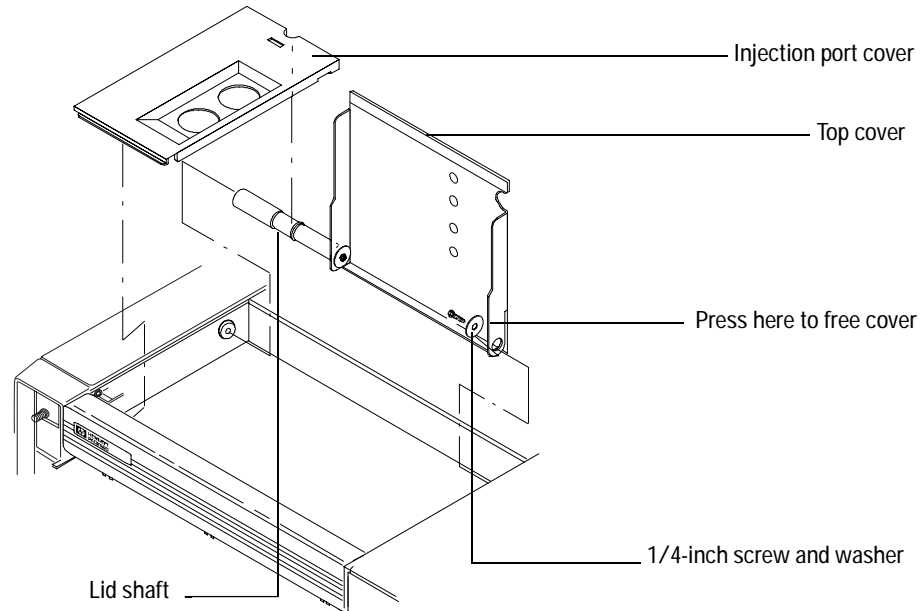
- 2 Disconnect the power cable from its receptacle.
- 3 Allow time for the oven and heated zone to cool.
- 4 When the heated zones are cool, turn off all gas supplies.
- 5 Inside the column oven, at the bottom of the detector to be removed, remove the column and hardware associated with the detector (liner, column/liner nuts, ferrules, makeup gas adapter, and so forth).



- 6 Remove the injection port cover by grasping its back edge and lifting it upward.
- 7 Lift the hinged top cover at its front edge, exposing the detector area.
- 8 Remove the 1/4-inch screw and washer securing the cover at its right side hinge point.



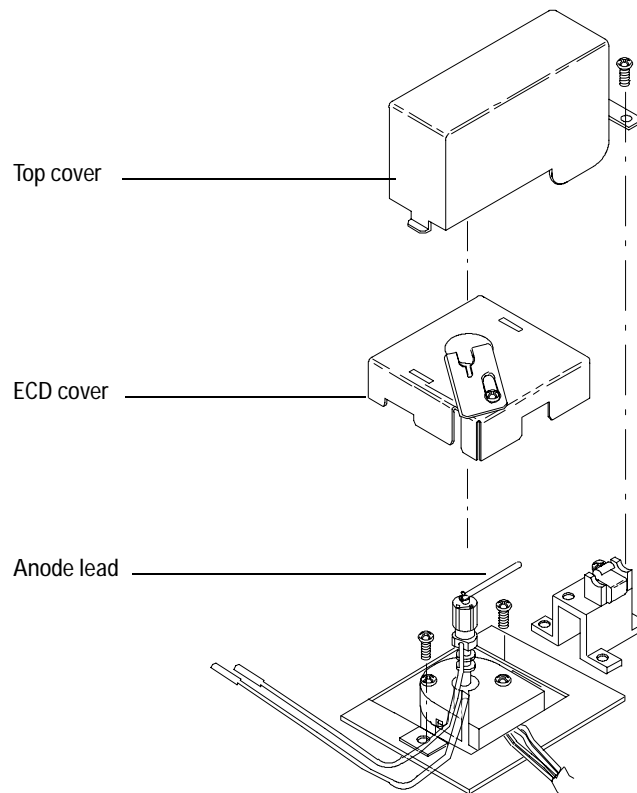
- 9 Remove the screw securing the ground strap to the hinged top cover.



- 10 With the lower right side of the cover pushed in, lift the right side of the cover and slide it to the right to remove the top cover and lid shaft as a unit.
- 11 Using a Pozidriv screwdriver, remove the screw securing the detector top cover to the thermal strap.
- 12 Remove the ECD top cover.
- 13 Disconnect any tubing attached to the ECD purge and vent tubes.
- 14 Disconnect the cell anode lead from the PCB interconnect.
- 15 Loosen the locking screw on the ECD cover.

## 1 Technical Information

**16** Slide the locking tab on the ECD cover back, freeing the cover from the anode shaft of the cell.



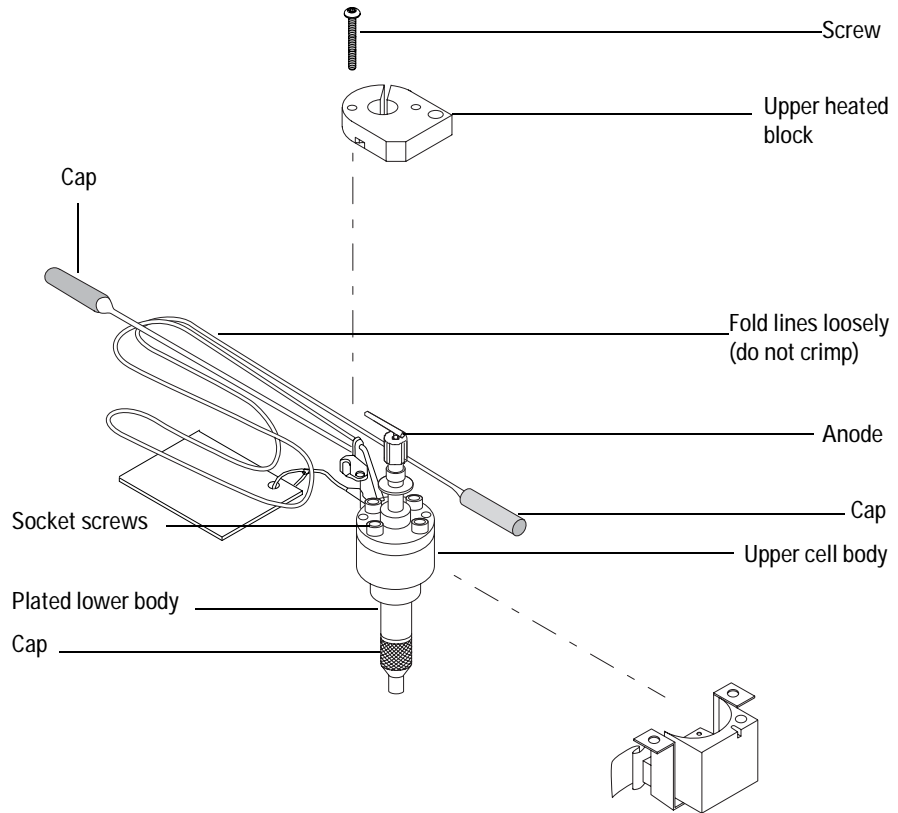
**17** Carefully slide the ECD cover over the anode shaft and anode and remove it from the ECD.

**18** Cap the base of the ECD (inside the column oven) to avoid damage or contamination of the ECD.

**19** Remove the two Pozidriv screws securing the upper and lower heated blocks to the cell.

**20** Remove the upper heated block from the cell.

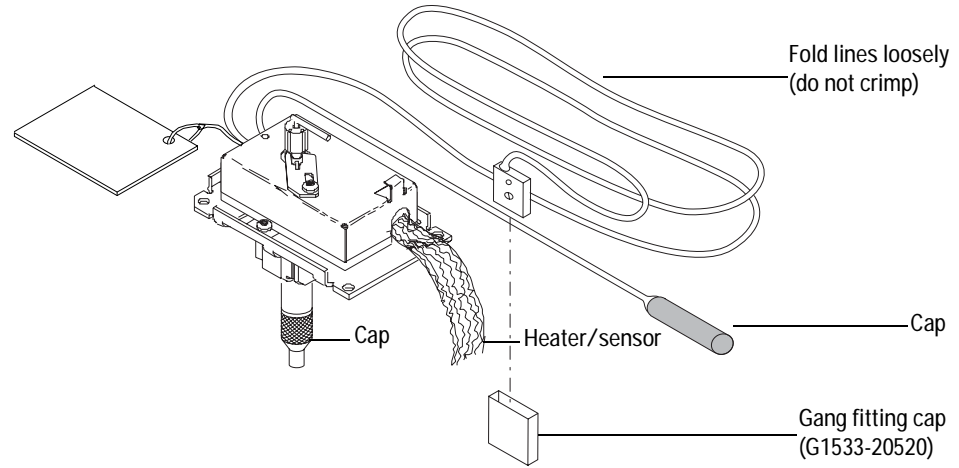
21 Disengage the cell from the lower block.



22 For shipping or storage, cap the inlet, purge, and exhaust vent tubing.

## 1 Technical Information

23 The ECD detector is now properly disassembled for return to Agilent.

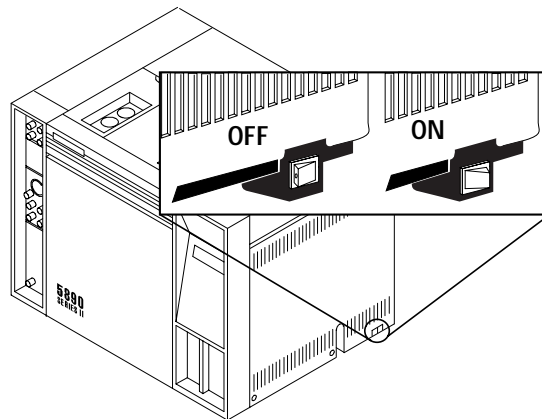


## Instructions for removing 19233 and 19235 ECDs (5890 GC)

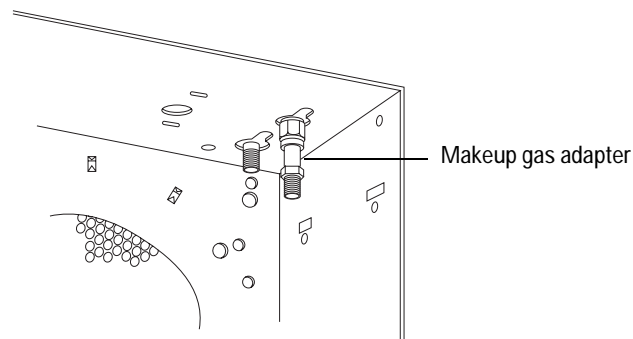
**WARNING**

Hazardous voltages are present in the instrument when the power cord is connected. Avoid a potentially dangerous shock hazard by disconnecting the power cord before working on the instrument.

- 1 Set the main power line switch to the off position.

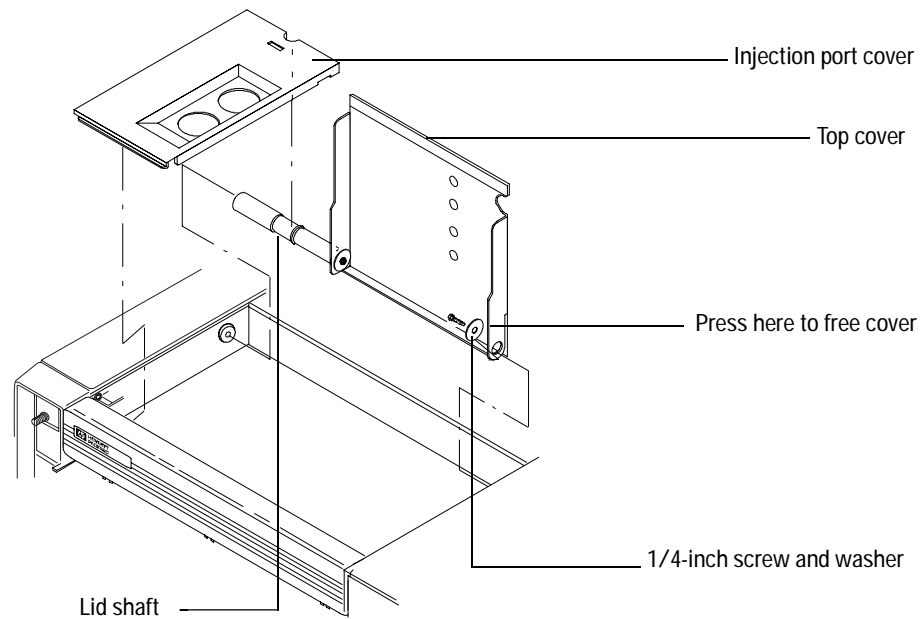


- 2 Disconnect the power cable from its receptacle.
- 3 Allow time for the oven and heated zones to cool.
- 4 When the heated zones are cool, turn off all gas supplies.

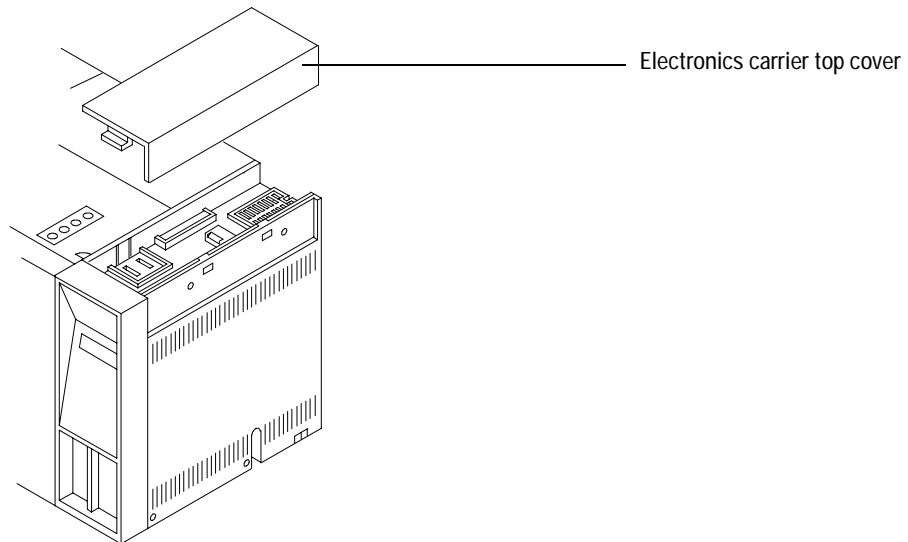


## 1 Technical Information

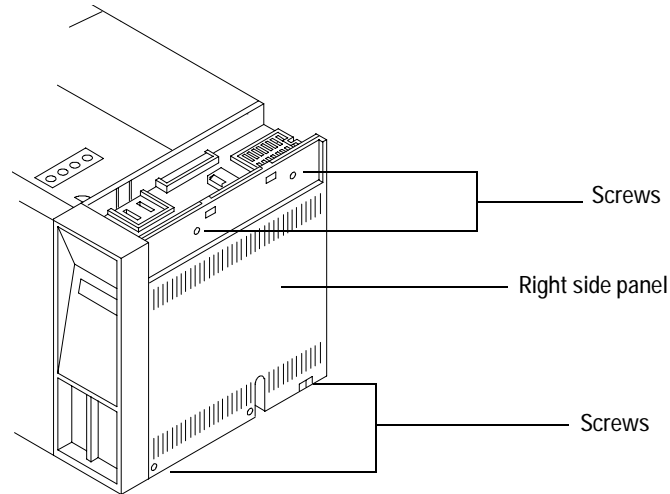
- 5 Inside the column oven, at the bottom of the ECD to be removed, remove the column and hardware associated with the detector(s) (liner, column/liner nuts, ferrules, makeup gas adapter, and so forth).
- 6 Remove the injection port cover by grasping its back edge and lifting it upward.
- 7 Lift the hinged top cover at its front edge, exposing the detector area.
- 8 Remove the 1/4-inch screw and washer securing the cover at its right-side hinge point.
- 9 Remove the screw securing the ground strap to the hinged top cover.



**10** With the lower right side of the cover pushed in, lift the right side of the cover and slide it to the right to remove the top cover and lid shaft as a unit.



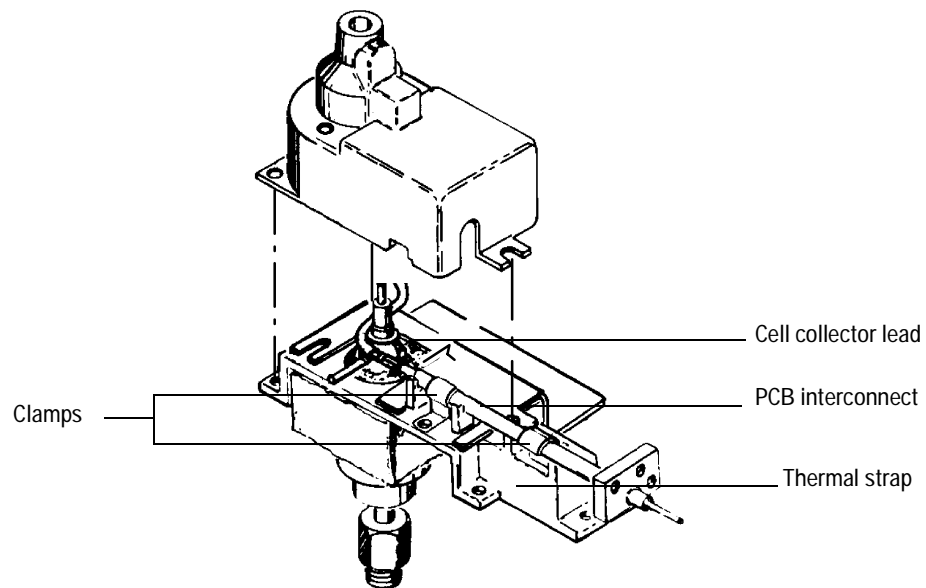
**11** Remove the electronics carrier top cover by grasping it at the rear and lifting upward until its catch releases, then pulling it toward the rear of the instrument.



**12** Remove the right side panel by removing four screws, two each along its upper and lower edges.

## 1 Technical Information

- 13 Using a Pozidriv screwdriver, remove the three screws securing the ECD cover to the thermal strap.
- 14 Remove the ECD cover.
- 15 Disconnect any tubing attached to the vent exhaust tube.
- 16 Disconnect the cell collector lead from the PCB interconnect.
- 17 Loosen the screws securing the clamps that hold the interconnect in place.



### CAUTION

The following steps require protection against ESD (electrostatic discharge).

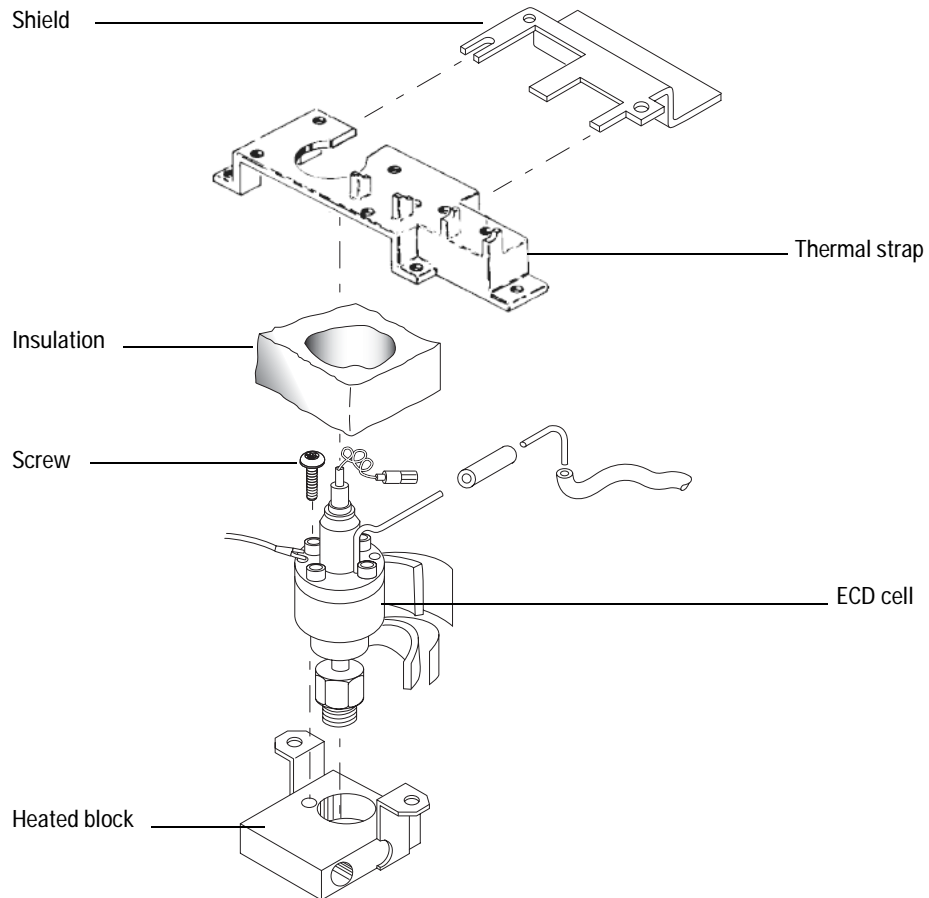
Use a grounded wrist strap [part no. 9300-0969 (large) or 9300-0970 (small)] connected to a suitable ground. Failure to heed this caution may result in damage to the instrument.

### CAUTION

When storing or between handling of PCBs (printed circuit boards), always place them in static-control envelopes or enclosures.



**18** Remove the ECD's PCB from the right side of the instrument by grasping it in the center area along its outer edge and pulling it straight out. (This will draw the interconnect out of the ECD clamps on the thermal strap).



**19** Remove the five screws securing the thermal strap and shield to the instrument.

**20** Remove the shield from the thermal strap by working it over the collector lead and exhaust vent tube carefully. Depending on the ECDs location, it may be necessary to bend the shield to remove and install it. Avoid excessive bending as this will fatigue the metal shield, shortening its life.

**21** Remove the thermal strap, working it carefully over the collector lead and exhaust vent tube.

## 1 Technical Information

- 22 Cap the base of the ECD (inside the column oven) to avoid damage or contamination of the ECD.
- 23 Remove the insulation around the ECD cell to expose the two Pozidriv screws that secure the cell to the heated block. Remove the screws.
- 24 Remove the ECD cell from the heated block.
- 25 For shipping or storage purposes, cap the inlet, purge, and exhaust vent tubing.

### Instruction for removing 19303 and 19312 ECDs (5880 GC)

(For illustrations and more detailed instructions, see your service manual).

- 1 Remove the top cover of the instrument over the ECD area.
  - a If the instrument has an automatic sampler installed, the top cover is in two parts. Only the left part must be removed. If the sampler is a 7671, remove all sample vials from the tray. If it is a 7672 sampler, remove the sample cassette. Rotate the sampler to the right until it rests on the right top edge of the mainframe. The sampler is heavy, so use care to avoid injury or damage to the sampler. Do not hold it by the door. Remove the two screws at the rear of the left part of the top cover and slide it back and off the instrument.
  - b If there is no sampler, the top cover is in one piece. Remove the two screw at the rear, raise the rear of the cover and slide it back and off the instrument.
- 2 Remove the two screws at the top of the right side instrument cover. Tilt the cover out, and lift it free of the tabs at the bottom.
- 3 Locate the printed circuit board for the detector you are going to remove. These are the small boards at the upper left as you look into the right side of the mainframe. They are in the same order as the detector locations on the top of the oven. ECD boards are labelled NICKEL 63 ELECTRON CAPTURE near the outer edge.
- 4 Use the plastic board puller tabs at the top and bottom to pull the board free of its connector. It is not necessary to remove the board, just pull it out about 25 mm (1 inch)
- 5 Remove the two screws that hold the ECD cover and lift the cover off.

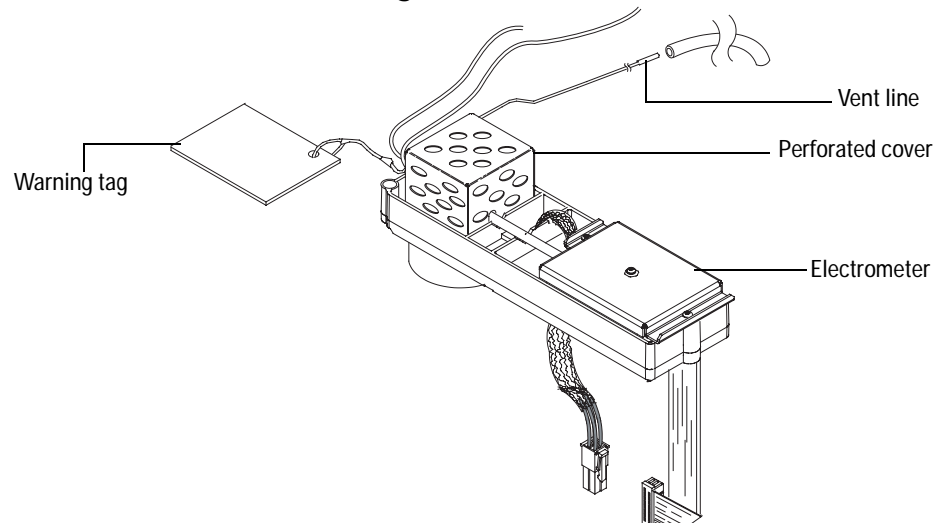
- 6 Note the bare wire that comes out of the top of the ECD cell. It connects to an L-shaped bracket that is held in place by a single screw. Remove the screw and straighten the wire so that the bracket is above the cell. Use care to avoid breaking the wire, particularly at the point where it attaches to the cell.
- 7 Now remove the single screw that holds the insulation cover. Lift the cover up and over the L-shaped bracket until it is free of the ECD. You may have to compress the spring on the L-shaped bracket to allow it to pass through the insulation cover.
- 8 Disconnect the tubing and elbow connect to the ECD vent. This is the tube that extends to the left from the cell body.
- 9 Remove the two Pozidriv screws that hold the cell to the mounting block.
- 10 Remove the threaded plug from the inlet fitting (if present) and check that no column is installed. Grasp the upper part of the cell and pull it straight up. It should come free with only moderate force. If it is “frozen,” contact your local Agilent Sales Office. Do not attempt to force the cell loose.
- 11 Thoroughly wash your hands using a mild nonabrasive soap and water.

**WARNING**

Do not disturb the four socket-head bolts. These hold the cell halves together; removing or disturbing them could create a safety hazard.

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## Instructions for maintaining a microcell ECD on a 6850 GC



### Replacing the $\mu$ ECD capillary column adapter liner

To replace the  $\mu$ ECD capillary column adapter liner:

- 1 Remove the adapter cap.
- 2 Check the liner. Replace it if it is broken and reinstall the cap. The indentation must be at the cap end of the adapter (See [Figure 4](#)).

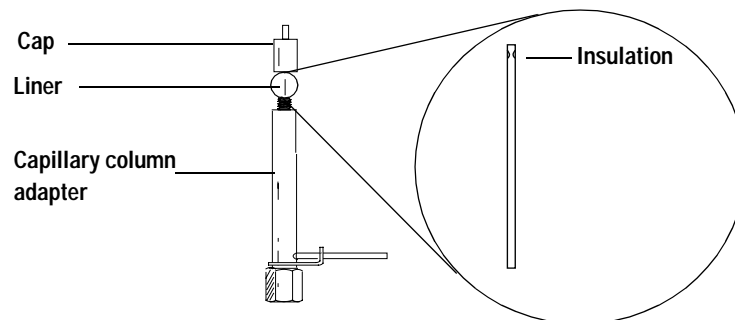


Figure 4 The  $\mu$ ECD adapter

### Correction performance problems

Performance problems, such as an output reading that is too high or too low or unsatisfactory chromatographic results (for example, a noisy baseline), can be caused by leaks or deposits in the detector or other part of the chromatographic system. To determine the location of the problem, you need to perform a series of tests.

Before testing the detector, consider the nature of the problem. If you have recently made a change to the GC system and now see an elevated output level, there is a good chance that the change has either introduced contaminants or caused a leak in the system. For example, if you recently switched gas supplies, the new gas may contain impurities. Or if you recently installed a new column, there could be a leak at the detector fitting.

If the output value or noise level has been increasing gradually, the cause is probably a slow build-up of deposits. The detector may contain contaminants from column bleed or a trap may be saturated. If the change has been gradual and if you have not modified the GC system recently, you can probably start by checking for contamination.

#### NOTE

Contamination in this procedure refers to non radioactive deposits from such things as column bleed or dirty samples!

- 1 Make sure the detector is operating under normal conditions and that at least 2 hours have lapsed since the last run.  
Check the output value. If it differs considerably from the normal output level—either too high or too low—you should continue with this procedure to identify the cause of the abnormal reading.
- 2 Use an electronic leak detector to check for leaks at the inlet and detector and the column fittings. Correct leaks and then check the output level. If it is still abnormal, continue to [step 3](#).
- 3 The detector itself is not a likely source of leaks, so you should leak test the inlet if the output reading is still abnormal. See the maintenance material for your inlet in the GC documentation:
  - Maintaining a split/ splitless inlet
  - Maintaining a purged packed inlet
  - Maintaining a PTV inlet

## 1 Technical Information

- Maintaining a cool on-column inlet

If the inlet is not leaking, go to [step 4](#) to check for leaks in the detector.

If the inlet is leaking, correct the leaks and check the output. If it is still abnormal, the detector also may be leaking. Go to [step 4](#).

### 4 Follow the leak test for the detector later in this document.

If the detector is not leaking, the cause of the problem is contamination. Go to [step 5](#).

If the detector is leaking, correct the leaks, and then recheck the output. If it is still abnormal, go to [step 5](#).

### 5 Check for contamination:

**a** Remove the column and plug the detector connection with the cap (part number 19234-20650) and cap nut (part number 19234-20570).

**b** Run the detector at your normal operating conditions but with only makeup gas flowing through it. Monitor the output. If it is normal for your detector, then the contamination is from another part of the GC system. Go on to [step 6](#).

**c** If the output is abnormal, then the detector is contaminated. Perform a thermal bake out to decontaminate the detector. The procedure is described in “[Thermal cleaning](#)” on page 20.

### 6 One part at a time, check the rest of the GC system for contamination by making the following changes and monitoring the output:

- Replace the column with an empty column and compare the output readings.
- Switch to a different inlet (if possible), and compare the output.
- Switch to a different source of gas and compare the output.
- Replace the traps and compare the output.

## Replacing the $\mu$ ECD flow module

### Tools and materials

- 7/16-inch wrench
- T-20 Torx driver

To remove the flow module:

**WARNING**

Be careful! The oven and/or detector may be hot enough to cause burns.

---

- 1 Load the SERVICE method or reset the detector and oven temperatures to OFF or turn the main power switch off. Let the heated zones cool to room temperature.
- 2 Turn the detector pressure off at the source.
- 3 Turn off the instrument and remove the power cord.
- 4 Turn off all supply gases at their sources.
- 5 Disconnect all gases from the bulkhead connectors on the back of the instrument.
- 6 Remove the lid top cover to expose the flow module.
- 7 Remove the gas fitting from the flow module ([Figure 5](#)).
- 8 Unscrew the manifold block fitting from the flow module.
- 9 Loosen the two screws securing each of the connector covers, and slide the connector covers off.
- 10 Push the two tabs to release the ribbon cable connector and disconnect it.

## 1 Technical Information

11 Loosen the back screw, remove the two front screws, and pull out the flow module from the lid.

### CAUTION

Use electrostatic discharge precautions during this procedure.

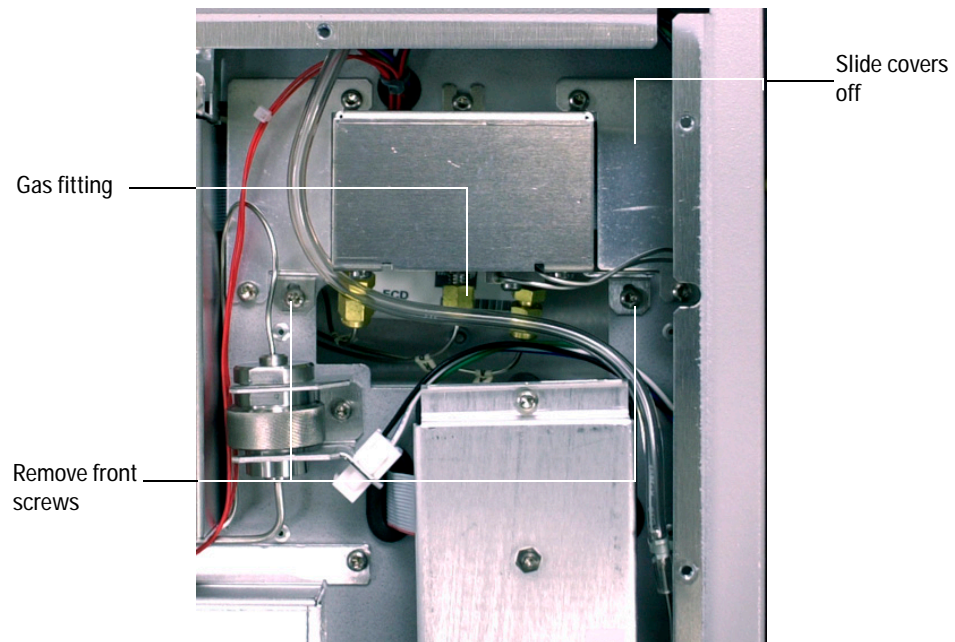


Figure 5 Removing the flow module

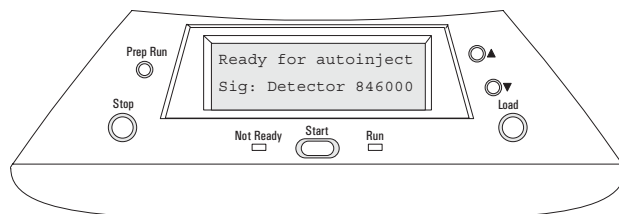
### To install the new $\mu$ ECD flow module

- 1 Place the module in the lid.
- 2 Connect the ribbon cable connector.
- 3 Fasten the flow module to the lid using the three T-20 Torx screws.
- 4 Slide the connector covers into position and tighten the mounting screws.
- 5 Install the manifold block fitting and reconnect the gas fittings.
- 6 Reconnect the supply gases and turn them on. Reconnect the power cord.



- 7 Turn the GC on.
- 8 Load a method that uses the  $\mu$ ECD.
- 9 At first, the displayed signal will be very high-about 840,000. As clean gases purge contaminants from the system, the signal should drop to the baseline level seen before the manifold replacement. As a general guideline:
  - A new  $\mu$ ECD should have a baseline offset < 200 Hz
  - Any  $\mu$ ECD should have a baseline offset < 400 Hz
  - It may take up to 24 hours for a  $\mu$ ECD to stabilize

If a detector shows a baseline > 400 Hz after stabilization, there may be contamination (in the inlet, column, and connections as well as the detector) or a leak anywhere in the system, or the detector may require thermal cleaning, maintenance, or replacement. See the GC service manual for troubleshooting details.



### Checking for gas leaks

The detector is an unlikely leak source. If you suspect that there is a leak in your GC system and have checked the gas plumbing to the GC, the inlet, and the column inlet and detector connections without finding it, follow this procedure to test the detector.

The oven and inlet should be at their normal operating temperatures.

#### Materials needed

- A vent plug (part no. 5060-9055)
- An electronic leak detector capable of detecting your carrier gas

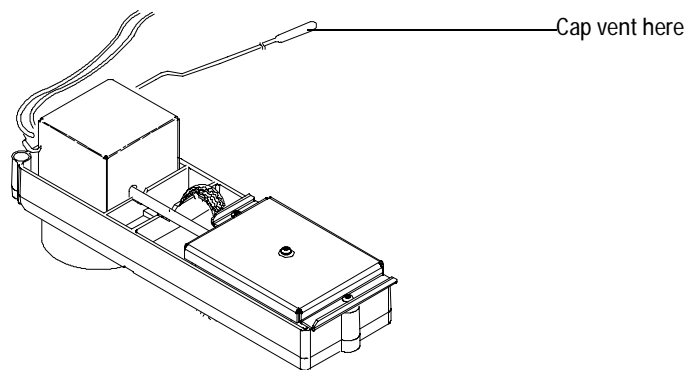
To perform this procedure, you will need a control module or data system.

- 1 Turn off the inlet pressure. Allow some time to purge the system of the gas.
- 2 Turn off the makeup gas flow.

## 1 Technical Information

When there is no flow, the output will be at its maximum, which is approximately 840,000 for both argon/methane and nitrogen.

- 3 Cap the detector exhaust vent with the vent plug.



- 4 Set pressure at the inlet to 15 psi (103 kPa). Monitor the system pressure from the inlet. Allow time for the system to become fully pressurized (at least 1 minute). When the system is fully pressurized turn off the pressure or the gas.

Monitor the pressure for 10 to 15 minutes. If the pressure stays stable or drops only by 0.2 or 0.3 psi/min, you can consider the detector leak-free.

If pressure drops, you have a leak. Continue to [step 5](#).

- 5 Use the electronic leak detector to check for leaks at the column fitting and plugged vent. If you find leaks, tighten the fittings, and repeat the leak test. If the other system components are leak-free, then the detector may be leaking. **The detector cannot be disassembled without special license from the Nuclear Regulatory Commission or Agreement State Licensing Agency (USA only).** Contact your Agilent service representative for more information.

## Radioactive Wipe Tests

In some European Countries, ECD must be periodically tested for leakage of radioactive material at least every 6 months. Customer in Europe should consult their local Nuclear Agency to determine the required frequency of wipe tests. Records of all tests and their results must be maintained for possible inspection by the your local "Agency." Under severe usage conditions, radioactivity leak tests during every column change will provide maximum security.

Although Agilent Technologies performs a wipe test on all ECDs prior to shipment, all future wipe tests are the responsibility of the end user. In addition, customer wipe tests are not performed by Agilent service engineers, are not included in any service contract and are not part of any preventative maintenance carried on by Agilent Technologies.

## Incidents

An incident is any occurrence involving radioactive material that may have caused, or threatens to cause:

- 1 Exposure to dangerous levels of radiation
- 2 Release of dangerous amounts of radioactive materials

### WARNING

**In the absence of radiation measuring equipment, all incidents or significant failure should be reported and the ECD should be taken out of service immediately.**

---

The following criteria are offered to aid in recognition possible incidents and other failures:

- 1 **High wipe** - If the leak (wipe) test results for your ECD exceeds the 0.005 microcuries (185 Bq) limit, a notification of failure must be reported.
- 2 **Temperature runaway** - A failure in the temperature control circuits of the instrument, accompanied by failure of the overheat protection circuits, could cause the heating of the detectors to exceed their limits. This must be reported if it causes failure or damage to the ECD.
- 3 **Physical damage** - If the ECD is involved in a fire, flood or any other event that may cause harm to the ECD, it must be reported.
- 4 **Modification of the ECD** - Changes to the ECD, including drilling, welding, soldering, sawing or other operations not authorized by Agilent Technologies, are prohibited.
- 5 **Breakage of the ECD** - If the inlet fitting or vent tube of the ECD should break off, take the ECD out of service immediately and report this failure to the appropriate Agency.
- 6 **Lost ECD** - If you should lose, misplace, accidentally dispose of an ECD or if an ECD gets lost in shipping, such occurrences must be reported.

This list is not exhaustive. It is intended to illustrate the range of occurrences that could be considered reportable incidents or failures. In dealing with radioactive isotopes, it is advisable to be overly cautious, particularly if you do not have the equipment to make an accurate assessment of the situation. Incidents and failures should also be reported to local Agilent Technologies sales or service representative or local Agilent Distributor.

## Principle of Operation

The radioactive source in this ECD produces high-energy electrons called beta particles. These beta particles collide and interact with the carrier gas molecules causing a multiplication of the number of electrons and a decrease in their energy. Each beta particle produces approximately 100 of these low energy electrons, also known as free electrons.

When a sample molecule comes in contact with the free electrons, a free electron may be captured by a sample molecule to create a negatively charged ion. The voltage across the cell electrodes is pulsed to collect the surviving free electrons, while the heavier ions are relatively unaffected and swept out the vent with the carrier gas flow.

The measured cell current is compared to a reference current. The pulse rate is adjusted to keep the two currents equal. The more free electrons there are, the lower the pulse frequency required to match the reference current. When a component that captures electrons passes through the cell, it causes a decrease in the electron concentration and an increase in the pulse rate. This pulse rate is converted to a voltage and recorded.

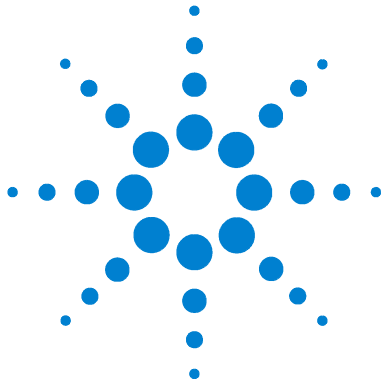
### What types of samples do ECDs detect?

The ECD is used for low-level detection of electron-capturing substances. These include mono- and poly-halogenated compounds, nitro derivatives and anhydrides. The ECD produces little or no response to hydrocarbons, ethers and esters or to aliphatic alcohols, ketones and amines. Hydrocarbons, ethers, and esters, in that order, are the preferred solvents for ECD analysis.

Because of the combination of very high sensitivity and selectivity provided by the ECD, it is widely used for trace level analysis of halogenated-, particularly chlorinated-, components. A major application is the detection and quantitation of pesticide residues, many of which are chlorinated.

## Sensitivity

The response of the ECD depends upon the molecular composition of the analyte and its concentration, your ECD, the cell cleanliness, the column, the inlet and instrument set points (temperature, flow rates, and reference current). It is important to create calibration curves on all compounds and evaluate ECD response on a regular basis. Even with frequent calibration, you can expect the ECD response to change when operating conditions change, for instance, when analyzing dirty samples that contaminate the ECD.



### 3 Regulatory Information in EMEA and IDO Countries

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## Introduction

The EURATOM Regulation states general rules for the protection of the general public and the employees/workers against the danger arising from ionizing radiation. On shipments of radio-active substances between Member states of the EC, it requires suppliers and end-users of such substances to obtain the necessary authorizations in order to keep/use and/or to transport those radioactive substances.

The main European reference legislation is:

- **1493/93/EURATOM Regulation:** shipping regulation among EU member States
- **96/29/EURATOM:** safety regulation for people protection against ionizing radiation

For more details, please refer to the appropriate Country Section.



## Austria

### How to buy an ECD

The LSCA Customer contact center can be reached at:

**Agilent Technologies Österreich GmbH**

Chemische Analysentechnik

Dresdner Str. 81-85

A-1200 Wien

Tel. 01/25 125-6800

Fax 01/25 125-7365

E-mail: [customercare\\_austria@agilent.com](mailto:customercare_austria@agilent.com)

Web: [www.agilent.com/chem/dehome](http://www.agilent.com/chem/dehome)

The customer can directly order an ECD. No pre-requisite is required, because Agilent owns an Austrian type approval. A so-called type approval certificate (Zulassungsschein) has to be delivered with every ECD.

### How to hold an ECD

The requirements on how to hold are described in the type approval certificate (Zulassungsschein) being delivered with every individual ECD.

Any holding and any forwarding of an ECD has to be acknowledged to the fire department and the responsible safety at work authority. When forwarding, the name and address of the destination has to be mentioned and the ECD has to be equipped with all documents referring to it.

Wipe tests have to be performed every 2 years, as detailed in the type approval certificate.

## Name of local Competent Authorities

The competent authorities are de-centralized. The radiation protection department of the safety at work authority in the region of the customer site using the ECD is responsible. The type approval itself has been granted by the ministry of economics and labour (BMWA, Zentrales Arbeitsinspektorat, Wien)

## Licenses

The customer needs no licenses, only an adequate radiation protection organization.

## How to dispose of an "end-of-usage ECD"

The customer can either contact the Agilent sales office who will provide the required documents or contact the radiation protection department of the workplace authority/safety at work authority, who will advise him where he can dispose the old ECD.

## Belgium

### How to buy an ECD

Customer contacts local Agilent Technologies sales office:

**Agilent Technologies Belgium S.A./N.V.**

Life Science and Chemical Analysis

Customer contact center: Tel. +32 2 404 92 22, Fax +32 2 626 46 30

Pegasus Park, De Kleetlaan 12A, bus12

1831 DIEGEM

E-mail: [customercare\\_belgium@agilent.com](mailto:customercare_belgium@agilent.com)

When the order is received, the customer is informed the ECD can only be delivered when the copy of his license is sent to Agilent and customer also receives the information on how to obtain a license at the Belgian agency FANC if he does not have one yet.

### How to hold an ECD

- After the customer provides proof he has a valid license, the ECD can be shipped to customer.
- The customer license specifies the detailed conditions for storage and use of the ECD.
- The customer must have a qualified expert in radio protection or subcontract to a recognized radiation expert body.
- At least once a year an inspection has to be done (including leakage test) by the expert or external radiation expert body.

## Name of local Competent Authorities

**FANC/AFCN** = federal agency for nuclear control

Federaal Agentschap voor Nucleaire Controle/Agence Federale de Controle  
Nucleaire Ravensteinstraat/Rue Ravenstein 36

1000 Brussel/Bruxelles

Tel. +32 2 289 21 11

Fax +32 2 289 21 12

Web: <http://www.fanc.fgov.be/>

## Licenses

Defined in Royal Decree of 20 July 2001.

- Customer must have at least license for use and storage.
- License to import (including the EURATOM authorization) is handled by Agilent, so the customer does not need to have it.
- Customer does not need to have a license to transport on Belgian territory as Agilent is subcontracting this to a recognized/licensed transport-company.
- No export license is needed if returned to the manufacturer or supplier

## How to dispose of an "end-of-usage ECD"

- Option 1: Customer contacts Agilent to take back ECD and ship back to Germany for further disposal. Agilent (with cc to FRE) provides "take-back" certificate to the customer for his license dossier.
- Option 2: Customer contacts the Belgian agency for radio-active waste NIRAS/ONDRAF <http://www.niras.be> who will organize the disposal.

### NOTE

For the customer, option 1 is quicker, less cumbersome, and less expensive

## Bulgaria

### How to buy an ECD

Please contact the Agilent distributor in the Czech Republic:

**TEAM Ltd.**

71-73 Totleben Blvd, 6th Floor  
1606 Sofia, Bulgaria

Tel. +359-2-951-6883  
+359-2-954-9234

Fax +359-2-954-9238

E-mail: [team\\_cag@team-cag.com](mailto:team_cag@team-cag.com)

URL: <http://www.team-cag.com>

### How to hold an ECD

Customers who use or store the ECD need a license, and the license is required to import the ECD into Bulgaria. Please contact the distributor for details about obtaining the license.

### Name of local Competent Authorities

Националният център по радиобиология и радиационна защита НЦРРЗ  
(National Centre of Radiobiology and Radiation Protection NCRRP)

|                              |                         |
|------------------------------|-------------------------|
| 132 "St. Kl. Ohridski" Blvd. | бул. "Кл. Охридски" 132 |
| 1756 Sofia                   | 1756 София              |
| BULGARIA                     |                         |

Tel./тел. +359 2 62 60 36 /7, 8/

Fax/факс +359 2 62 10 59

E-mail: [ncrrp@ncrrp.org](mailto:ncrrp@ncrrp.org)

URL: <http://www.ncrrp.org>

## Licenses

Customers who use or store the ECD need a license, and the license is required to import the ECD into Bulgaria. Please contact the distributor for details about obtaining the license. The distributor takes care of importing the ECD and shipping it to the customer site, including any additional licenses required to do this.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.

## Croatia

### How to buy an ECD

Please contact the Agilent distributor in Croatia:

**DANJAR d.o.o.**  
 Pazinska 10090 Zagreb, Croatia  
 Tel. +385 1 5502222  
 Fax +385 1 5502299  
 E-mail: [info@danjar.hr](mailto:info@danjar.hr)  
 URL: [www.dan-jar.hr](http://www.dan-jar.hr)

### How to hold an ECD

- Before the customer receives and holds the ECD, he must obtain purchase licenses from the competent authority.
- The customer must have qualified expert in radiation protection.
- At least once a year an inspection has to be done by external radiation expert body.

### Name of local Competent Authorities

Državni zavod za zaštitu od zračenja  
 (Radiation Protection State Institute)  
 Frankopanska 11, Zagreb 10 000  
 Tel. +385 1 4881 770  
 Fax +385 1 4881 780

### Licenses

- Customer must obtain purchase license for the ECD from Radiation Protection State Institute.

## 2 Regulatory Information in EMEA and IDO Countries

- The distributor takes care of importing the ECD and shipping it to the customer site, including any additional licenses required to do this.
- When customer receives the ECD, he must fill out registration form in to Radiation Protection State Institute.
- The distributor takes care to obtain report of examination of the radiation source, for exemption of sealed radiation source in accordance with article 4, item 1 (Regulation: NN 84/00, 106/03), done by external radiation expert body.
- Customer must present claim for exemption of radiation source  $^{63}\text{Ni}$ , which is built in gas chromatography instrument, from local competent authority. Please contact the distributor for details about all information.

### How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.



## Cyprus

### How to buy an ECD

Please contact the Agilent distributor in Cyprus:

**Cyprus Biotronics Ltd.**  
34 Zinonos Sozou Street  
Nicosia 1075  
Cyprus

Tel. +357/22/762 205  
Fax +357/22/764 614  
E-mail: [v.varnavas@biotronics.com.cy](mailto:v.varnavas@biotronics.com.cy)

### How to hold an ECD

There are no special requirements for storing the ECD.

### Name of local Competent Authorities

Radiation safety resorts under the ministry of health.

The Director of Medical and Public Health Services  
Ministry of Health  
18 John Kennedy  
1449 Pallouriotissa  
Nicosia, Cyprus  
Tel.: +357 22305339  
Fax : +357 22305345  
E-mail: [healthservices@cytanet.com.cy](mailto:healthservices@cytanet.com.cy)

## Licenses

There are no licensing requirements for importing or using the ECD in Cyprus.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.

## Czech Republic

### How to buy an ECD

Please contact the Agilent distributor in the Czech Republic:

**HPST, s.r.o.**  
Písnická 20  
142 00 Praha 4  
Czech Republic  
Tel. 244 001 231  
Fax 244 001 235  
E-mail: [info@hpst.cz](mailto:info@hpst.cz)  
URL: [www.hpst.cz](http://www.hpst.cz)

### How to hold an ECD

Customers who use the ECD don't need a license, but to store the ECD a license from the SÚJB is required.

### Name of local Competent Authorities

Státní Úrad pro Jadernou Bezpečnost  
(State Office for Nuclear Safety)  
Senovazne namesti 9  
110 00 Praha 1  
Czech Republic  
Tel. +420 221 624 111  
Fax +420 221 624 396  
URL: <http://www.sujb.cz>

## Licenses

No license is required to use the ECD. Upon delivery, customers must report the presence of the ECD on their premises to the SÚJB, and show the ECD's Certificate of Sealed Source, which is included in the shipment papers.

The distributor takes care of importing the ECD and shipping it to the customer site, including any licenses required to do this.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.

## Denmark

### How to buy an ECD

Please contact the local Agilent Technologies sales office:

**Agilent Technologies A/S**

Naerum Hovedgade 8

DK-2850 Naerum

Tel. +45 70 130 020

Fax +45 8 233 2865

E-mail: [customercare\\_denmark@agilent.com](mailto:customercare_denmark@agilent.com)

### How to hold an ECD

- Customer license specifies the detailed conditions for storage and use of the ECD.
- Customer must have a qualified expert in radiation protection.

### Name of local Competent Authorities

Statens Institut for Strålehygiejne

Knapholm 7, 2730 Herlev

Tel. +45 44 54 34 54

Fax +45 44 54 34 50

Web: <http://www.sst.dk/Tilsyn/Straalehygiejne.aspx?lang=da>

## Licenses

- Customer must have at least a license for use and storage.
- License to import is handled by Agilent, so customer does not need to have it.
- No export license needed if returned to manufacturer or supplier.

## How to dispose of an "end-of-usage ECD"

Customer contacts Agilent to take back ECD and ship back to Germany for further disposal.

## Egypt

### How to buy an ECD

Please contact the Agilent distributor in Egypt:

**AGITECH Arabian Group for Integrated Technologies**

Talaat NAZEER

54 Abd El-Monem Riyad St.,

Mohandseen

12411 Giza

Cairo, Egypt

Tel. +20 2 345 0353

Fax +20 2 345 4408

E-mail: [talaat-nazeer@agitech.com.eg](mailto:talaat-nazeer@agitech.com.eg)

URL: [www.agitech.com.eg](http://www.agitech.com.eg)

### How to hold an ECD

Please contact the Agilent distributor in Egypt to find out about special requirements for storing the ECD.

### Name of local Competent Authorities

Egyptian Atomic Energy Authority (AEA)

101 Kasr El Eini St

11516 Maglis El-Shaab

Cairo, Egypt

Tel. 2740321

Fax 2740338

URL: <http://www.frcu.eun.eg/www/homepage/aea/aea.htm>

## Licenses

The customer should contact the AEA to inquire about the necessity and procedure to obtain a license to use the ECD. Any technical information they ask for can be obtained through the distributor.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.



## Estonia

### How to buy an ECD

Please contact the Agilent Distributor in Estonia:

**Quantum Eesti AS**

Saekoja 36A

50107 Tartu

Tel. +372-7-301-321

Fax +372-7-304-310

E-mail: [quantum@quantum.ee](mailto:quantum@quantum.ee)

### How to hold an ECD

Contact your local Sales Distributor.

### Name of local Competent Authorities

Contact your local Sales Distributor.

### Licenses

Contact your local Sales Distributor.

### How to dispose of an "end-of-usage ECD"

Contact your local Sales Distributor.

## Finland

### How to buy an ECD

Please contact the local Agilent Technologies sales office:

**Agilent Technologies Finland Oy**

Linnoitustie 2B, 02600 Espoo

Tel. +358 1080 2220

Fax +358 9 8171 0221

E-mail: [customercare\\_finland@agilent.com](mailto:customercare_finland@agilent.com)

### How to hold an ECD

Customer does not need a safety license to operate equipment containing an Agilent ECD. See Licenses below.

### Name of local Competent Authorities

STUK - Radiation and Nuclear Safety Authority

Laippatie 4, 00880 Helsinki, Finland

Tel. +358 9 759 881

Fax +358 9 759 88 500

Web: <http://www.stuk.fi/>

## Licenses

- Agilent ECD's has been exempted from the safety license requirement in accordance with section 17 of the Radiation Act (592/1991).
- License to import (including the EURATOM authorization) is handled by Agilent, so the customer does not need to have it.
- No export license is needed if returned to manufacturer or supplier.

## How to dispose of an "end-of-usage ECD"

- Option 1: Customer contacts Agilent to take back ECD and ship back to Germany for further disposal.
- Option 2: Customer contacts the Finnish agency for radioactive waste that will organize the disposal.

## France

### Comment acheter un ECD

Vous pouvez joindre le service commercial d'Agilent à l'adresse suivante :

Agilent Technologies France  
Division Analyse Chimique et Sciences de la Vie  
1, rue Galvani  
91745 Massy Cedex  
Tél. +33(0)1 64 53 50 00  
Fax +33 (0)1 64 53 50 01  
Centre d'Appel N° Azur: 0810 446 446  
E-mail: [customercare\\_france@agilent.com](mailto:customercare_france@agilent.com)  
Web: <http://www.chem.agilent.com/scripts/cHome.asp?country=FR>

A chaque achat d'un détecteur à capture d'électrons, contenant une source radioactive scellée de Nickel 63, le client doit remplir une demande de fourniture, formulaire Cerfa fourni par l'IRSN à tout titulaire d'une autorisation d'usage et de détention de sources radioactives. Une fois le document rempli, le client doit le retourner à la PCR\* Agilent France, afin que cette dernière complète également une partie du document et le signe. Le formulaire est ensuite adressé à l'IRSN/UES pour l'obtention d'un visa favorable. Une fois le formulaire visé par l'IRSN, ce dernier est envoyé au client qui doit prévenir impérativement la PCR Agilent. Tant que la PCR n'est pas en possession de la copie de la demande de fourniture visée favorablement par l'IRSN, elle ne débloquera pas la livraison du matériel chez le client.

### Comment détenir un ECD

Le client doit être titulaire d'une autorisation d'usage et de détention de sources radioactives scellées. Cette autorisation doit être renouvelée tous les cinq ans. Sans cette autorisation, toute demande de fourniture ne pourra être visée favorablement par l'IRSN.

\* PCR : Personne Compétente en Radioprotection.

## Autorisations

Le client doit au minimum disposer d'une autorisation d'usage de sources radioactives, afin de disposer d'ECD dans ses locaux. Les formulaires de demande d'autorisation sont disponibles à l'adresse Internet suivante:

<http://asn.gouv.fr/textes/formulaire.asp>

Le client devra également faire effectuer un contrôle annuel d'étanchéité de ses sources, par un organisme agréé.

## Autorités Compétentes

Gestion des mouvements de sources/Demandes de Fourniture:

**IRSN/UES:** Institut de Radioprotection et de Sûreté Nucléaire/Unité d'Expertise des Sources.

BP 17

92262 Fontenay-aux-Roses Cedex

Tél. 01.58.37.88.88

Fax. 01.58.35.95.36

Délivrance des autorisations (détention, usage, distribution ...):

**ASN** (Autorité de Sûreté Nucléaire)

10, Route du Panorama

BP 83

92266 Fontenay aux Roses Cedex

Tél. 01.43.19.70.05

Fax. 01.43.19.71.40

## Mise au rebut

La division Sciences de la Vie et Analyse Chimique Agilent Technologies France s'engage á reprendre les sources radioactives Agilent et HP. Le client doit contacter le centre d'appels au numéro Azur : 0810 446 446 ou par email: [customercare\\_france@agilent.com](mailto:customercare_france@agilent.com) pour faire une demande d'enlèvement. Tout enlèvement d'ECD chez le client s'effectuera par un transporteur agréé et le PCR fera parvenir une attestation de reprise au client, copie à l'IRSN. La division Science de la Vie et Analyse Chimique France s'engage également à récupérer chez ses clients les sources de plus de dix ans, telles qu'exigées par la loi française.

*Pour toute information complémentaire sur la gestion des sources ECD, veuillez consulter le " fascicule à destination des utilisateurs de détecteurs à capture d'électrons (ECD) sur chromatographes Agilent Technologies " référence 5989-4601FRFR.*

## Germany

### How to buy an ECD

The LSCA Customer contact center can be reached at

**Agilent Technologies Sales & Services GmbH & Co.KG**  
Life Sciences & Chemical Analysis  
Hewlett-Packard-Str. 8  
D-76337 Waldbronn  
Tel. 0800-603 1000  
Fax +49 69 953 07 919  
E-mail: [customercare\\_germany@agilent.com](mailto:customercare_germany@agilent.com)  
Web: [www.agilent.com/chem/dehome](http://www.agilent.com/chem/dehome)

When a customer orders an ECD, he is informed that Agilent is only allowed to ship an ECD after having received a copy of his valid and adequate handling permission (Umgangsgenehmigung) according to § 7 of the German radiation protection regulation (Strahlenschutzverordnung).

### How to hold an ECD

The requirements on how to hold are described in the handling permission the customer received from his local authority and in the German radiation protection regulation.

### Name of local Competent Authorities

The competent authorities are de-centralized. The radiation protection department of the safety at work authority in the region the customer site using the ECD is located at is responsible. Example: for Böblingen, this authority is located in Stuttgart; for Waldbronn, this authority is located in Karlsruhe.

## Licenses

The customer needs a license when he wants order, receive, store, use, or send ECD's. The requirements are listed in the license documents the customer receives from the responsible authority and in the regulations that apply. The customer also needs to establish an adequate radiation protection organization.

## How to dispose of an "end-of-usage ECD"

The customer can either contact the Agilent sales office, which will provide the required documents or contact the radiation protection department of the safety at work authority, which will advise him where he can dispose the old ECD. The German handling permissions list's the official disposal agency.



## Greece

### How to buy an ECD

Please contact the Agilent distributor in Greece:

**Hellamco**  
Marathonos 7& Makedonias  
152 33 Chalandri  
Athens  
Greece  
PO Box 65074  
Psychiko, Athens, GR-154 10

Tel. +30 210 6895260  
Fax +30 210 6801672  
E-mail: [info@hellamco.gr](mailto:info@hellamco.gr)

**Hellamco**  
Μαραθώνος 7& Μακεδονίας  
152 33 Χαλάνδρι  
Αθήνα

### How to hold an ECD

It is forbidden by law for either distributors or end users to store radioactive sources. End users can buy a radioactive source only for use, not storage.

## Name of local Competent Authorities

Radiation safety resorts under the ministry of development. Please contact:

|                                       |                                      |
|---------------------------------------|--------------------------------------|
| Ministry of Development               | Ελληνική Επιτροπή Ατομικής Ενέργειας |
| Greek Atomic Energy Commission        | Πατριάρχου Γρηγορίου & Νεαπόλεως     |
| Patriarchou Grigoriou & Neapoleos str | 153 10 Αγία Παρασκευή, Αττικής       |
| 153 10 Agia Paraskevi, Attikis        | Ταχ. Δ/ση: Τ.Θ. 600 92               |
| Postal Address: P.O. Box 600 92       | 153 10 Αγία Παρασκευή, Αττικής       |
| 153 10 Agia Paraskevi, Attikis        | Ελλάς                                |
| Greece                                |                                      |

Tel. +301 6506803

Fax: +301 6506748

E-mail: [ptritak@eeae.nrcps.ariadne-t.gr](mailto:ptritak@eeae.nrcps.ariadne-t.gr)

Web: <http://143.233.238.6/index.html>

## Licenses

It is the responsibility of the customer to obtain a license to use the ECD.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.

## Hungary

### How to buy an ECD

Please contact the Agilent distributor in Hungary:

**Kromat Kft.**

Sirály u. 3.

Budapest, Hungary H-1124

Tel. +36 1 463 0777

Fax +36 1 206 2939

### How to hold an ECD

Please contact the HAEA to find out about requirements for holding the ECD.

### Name of local Competent Authorities

Országos Atomenergia Hivatal  
(Hungarian Atomic Energy Authority)  
Fényes Adolf utca 4.,  
Budapest, Hungary, H-1036

Tel. +36 1 436 4800

Fax +36 1 436 4843

E-mail: [szerkeszto@haea.gov.hu](mailto:szerkeszto@haea.gov.hu)

URL: <http://www.haea.gov.hu>

### Licenses

Please contact the HAEA to find out about licenses required to use the ECD.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.

## Ireland

### How to buy an ECD

The customer contacts local Agilent Technologies sales office:

**Agilent Technologies Ireland Ltd**

Life Science and Chemical Analysis LSCA

Customer Contact Center: Tel. 353 (0)1 605 8324

Silverstone House; Ballymoss Road; Dublin, DUBL 18

E-mail: [customercare\\_ireland@agilent.com](mailto:customercare_ireland@agilent.com)

When the order is received, the customer is informed that the ECD can only be delivered when the copy of his license to use is sent to Agilent.

### How to hold an ECD

- After customer provides proof of authorised euratom shipment form, the ECD can be shipped to the customer.
- Customer license specifies the detailed conditions for storage and use of the ECD.
- Customer must have a qualified expert in radiation-protection officer.

### Name of local Competent Authority

Radiological Protection Institute of Ireland

3, Clonskeagh Square, Clonskeagh Road, Dunlin 14

Web: <http://www.rpii.ie/>

Tel. +353 1 269 7766

Fax +353 1 269 7437

## Licenses

- The customer obtains the first license by completing the form from RPII website and returning it to a competent authority. License is renewed yearly after request from RPII.
- A schedule two amendment form from the RPII web site should be used whenever an ECD is added to customer site or taken away for disposal.

## How to dispose of an "end-of-usage ECD"

- Customer contacts Agilent to take back ECD and ship back to Germany for further disposal.
- Agilent arranges decommissioning at customer site and for collection by TwoWay logistics.

## Israel

### How to buy an ECD

Please contact the Agilent Distributor in Israel:

**ELDAN Electronic Instrument Ltd.**

6 Hashiloch st.  
Kiryat Matalon  
Petach Tikva , 49170  
ISRAEL

Tel. +972-3-937-1122

Fax +972-3-937-1121

E-mail: [osnat@eldan.biz](mailto:osnat@eldan.biz)

URL: <http://www.eldan.biz>

### How to hold an ECD

Please contact the Agilent distributor in Israel.

### Name of local Competent Authorities

Ministry of the Environment  
Radiation Safety Division  
Tel-Aviv  
URL: <http://www.environment.gov.il>

### Licenses

Customers who use or store the ECD require a license. A license is required to import the ECD into Israel. Please contact distributor for details about obtaining the license.

## 2 Regulatory Information in EMEA and IDO Countries

Distributor takes care of importing the ECD and shipping it to the customer site, including any additional licenses required to do this.

### **How to dispose of an "end-of-usage ECD"**

Please return the ECD to the distributor, who will dispose of it in an appropriate way.



## Italy

### How to buy an ECD

Customer contacts local Agilent Technologies Sales Office:

**Agilent Technologies Italia S.p.A.**

Life Science and Chemical Analysis LSCA

Customer Contact Center : Tel. 800 012 575

Via P.Gobetti 2/C

20063 Cernusco s/N (MI)

E-mail: [customercare\\_italy@agilent.com](mailto:customercare_italy@agilent.com)

After the order request is being received and entered, Agilent will send customer (as required by law) an Informative Note called "**Nota Informativa per i Rivelatori a Cattura di Elettroni (E.C.D.)**".

Customer must read instructions included in the "Nota Informativa".

### How to hold an ECD

- Before customer receives and holds the ECD, he must first send a "Declaration of detention" to some local Entities (as described in the "Nota Informativa")
- Before using the ECD, customer is obliged to name an external Radio Safety Officer (RSO). RSO has to establish the exposure degree of operators and classify the site where the ECD is being installed. Consequently, RSO has to establish the periodical tests/checks of ECD and operators, if applied.

### Name of Competent Authorities

#### Central Component Authorities

- Ministero Attività Produttive - Direzione Generale e Risorse Minerarie
- APAT (Agenzia Protezione Ambiente Territorialmente Competente)

## 2 Regulatory Information in EMEA and IDO Countries

### Local Component Authorities

- Azienda Sanitaria Locale, territorialmente competente
- Direzione Provinciale del Lavoro, territorialmente competente
- Vigili del Fuoco di zona
- ARPA (Agenzia Regionale Protezione Ambiente territorialmente competente)

### Licenses

Based on local regulation:

- whoever sells radioactive sources must have a license issued by above Competent Authority
- whoever imports/exports radioactive sources must have an EURATOM import/export Authorization

Agilent Technologies has these licenses, so the customer does not have to ask for any kind of Authorization.

### How to dispose of an "end-of-usage ECD"

In case of a definitive disposal of an ECD, customer must contact an Authorized Company for ECD disposal. It is advisable to contact company NUCLECO (Rome) through National carrier MIT NUCLEARE (more details are explained in the Nota Informativa that is normally being sent to customer).

## Latvia

### How to buy an ECD

Please contact the Agilent Distributor in Latvia:

**Quantum Latvia Ltd**

Balta str 3/9

1055 Riga

Tel. +371 74 72 926

Fax +371 74 72 939

E-mail: [quantum@quantum.lv](mailto:quantum@quantum.lv)

### How to hold an ECD

Contact your local Sales Distributor.

### Name of local Competent Authorities

Contact your local Sales Distributor.

### Licenses

Contact your local Sales Distributor.

### How to dispose of an "end-of-usage ECD"

Contact your local Sales Distributor.

## Lithuania

### How to buy an ECD

Please contact the Agilent Distributor in Lithuania:

**Lokmis JSC**  
Naugarduko 68B  
2006 Vilnius  
Tel. +370-5-215-1895  
E-mail: [andriusb@lokmis.lt](mailto:andriusb@lokmis.lt)

### How to hold an ECD

Contact your local Sales Distributor.

### Name of local Competent Authorities

Contact your local Sales Distributor.

### Licenses

Contact your local Sales Distributor.

### How to dispose of an "end-of-usage ECD"

Contact your local Sales Distributor.

## Luxembourg

### How to buy an ECD

Customer contacts local Agilent Technologies sales office:

**Agilent Technologies Belgium S.A./N.V.**

Life Science and Chemical Analysis

Customer contact center: Tel. +32 2 404 92 22, Fax +32 2 626 46 30

Pegasus Park , De Kleetlaan 12A, bus12

1831 DIEGEM

E-mail: [customer\\_belgium@agilent.com](mailto:customer_belgium@agilent.com)

When the order is received the customer is informed that the ECD can only be delivered when the copy of his license to use is sent to Agilent and customer also receives the information how to obtain a license at the competent authority "Direction de la Sante", if he does not have one yet.

### How to hold an ECD

- After the customer provides proof he has a valid license, the ECD can be shipped to customer.
- The customer license specifies the detailed conditions for storage and use of the ECD.
- The customer must have a qualified expert in radio protection or subcontract to a recognized radiation expert body.
- Periodic inspection has to be done (including leakage test) and in case of suspicion of damage/leakage.

## Name of local Competent Authorities

Ministry of health  
Direction de la sante, division de la radioprotection  
Allee Marconi, Villa Louvigny  
2120 Luxembourg  
Tel. +352 487 1  
Fax +352 467 962  
Web: <http://www.ms.etat.lu/>

## Licenses

- Defined in Reglment grand-ducal of 14 december 2000
- Customer must have at least license for use and storage.
- License to import (including EURATOM authorization) is also needed.
- Customer does not need to have own license to transport as Agilent is subcontracting this to recognized/licensed transport-company.
- No export license needed if returned to manufacturer/supplier.

## How to dispose of an "end-of-usage ECD"

- Option 1: Customer contacts Agilent to take back ECD and ship back to Germany for further disposal. Agilent (with cc to FRE) provides "take-back" certificate to customer for his license dossier
- Option 2: Customer contacts the Luxembourg ministry department "division de la radio protection" who will help organize the disposal.

### NOTE

For the customer option 1 seems quicker, less cumbersome, and less expensive.

## The Netherlands

### How to buy an ECD

Customer contacts local Agilent Technologies sales office:

**Agilent Technologies Netherlands B.V.**

Life Science and Chemical Analysis

Customer contact center: Tel. +31 20 547 26 00, Fax +31 20 654 57 48

Startbaan 16

1187 XR AMSTELVEEN

E-mail: [chem\\_Benelux@agilent.com](mailto:chem_Benelux@agilent.com)

When the order is received, the customer is informed that the ECD can only be delivered when the copy of his license to use is sent to Agilent and customer also receives the information how to obtain a license at the Dutch ministry of labour/department labour inspection, if he does not have one yet.

### How to hold an ECD

- After the customer provides proof he has a valid license, the ECD can be shipped to the customer.
- The customer license specifies the detailed conditions for storage and use of the ECD.
- The customer must have a qualified expert in radio-protection, other users must be trained on minimum rules on radiation protection.
- At least once a year an inspection has to be done (including wipe test).

## Name of local Competent Authorities

SenterNovem Den Haag  
Team Stralingsbescherming  
Juliana van Stolberglaan 3  
Postbus 93144  
2509 AC DEN HAAG  
Telefoon: (070) 373 50 00  
Fax: (070) 373 51 00  
Web: <http://www.senternovem.nl/senternovem/>

## Licenses

Defined in Decree on radiation protection dd. 16 July 2001, and Decree on transport & import of radioactive material dd. 6 Dec 2000.

- Customer must have at least license for use and storage.
- License to import (including the EURATOM authorization) is handled by Agilent, so customer does not need to have it.
- No export license needed if returned to manufacturer or supplier.

## How to dispose of an "end-of-usage ECD"

- Option 1: Customer contacts Agilent to take back ECD and ship back to Germany for further disposal. Agilent (with cc to FRE) provides "take-back" certificate to customer for his license dossier.
- Option 2: Customer contacts the Dutch agency for radio-active waste COVRA <http://www.covra-nv.nl/> who will organize the disposal.

### NOTE

For the customer option 1 seems quicker, less cumbersome, and less expensive.



## Norway

### How to buy an ECD

Please contact the Agilent distributor in Norway:

Matriks AS  
Forskningsparken  
Gaustadalleen 21  
0349 Oslo  
Tel. +47 815 32 560  
Fax +47 22 95 85 60  
E-mail: [post@matriks.no](mailto:post@matriks.no)  
URL: [www.matriks.no](http://www.matriks.no)

### How to hold an ECD

- The customer license specifies the detailed conditions for storage and use of the ECD.
- Customers must have a qualified expert in radiation protection.

### Name of local Competent Authorities

Norwegian Radiation Protection Authority  
Grini næringspark 13,  
N-1332 Østerås  
Tel. +47 6716 2500  
Fax +47 6714 7407  
Web: <http://www.nrpa.no/>

## Licenses

- The customer must have a license for use and storage.
- The license to import is handled by the distributor, so customer does not need to have it.

## How to dispose of an "end-of-usage ECD"

The customer contacts the Norwegian scheme for radioactive waste, IFE, that will organize the disposal.

## Poland

### How to buy an ECD

Please contact the Agilent distributor in the Slovak Republic:

**Perlan Technologies Polska SP. Z o.o.**

ul. Pulawska 303

02-785 Warszawa

Tel. +48 22 549 14 00

Fax +48 22 549 14 01

E-mail: [klient@perlan.com.pl](mailto:klient@perlan.com.pl)

URL: [www.perlan.com.pl](http://www.perlan.com.pl)

### How to hold an ECD

Customers who store the ECD need to obtain a license from the PAA to store the ECD.

### Name of local Competent Authorities

Panstwowa Agencja Atomistyki PAA

(Polish National Atomic Agency)

Krucza 36

00-522 Warsaw

Poland

Tel. +48 22 628 27 22

+48 22 695 98 00

Fax +48 22 629 01 64

URL: [www.paa.gov.pl/indexang.htm](http://www.paa.gov.pl/indexang.htm)

## Licenses

It is the responsibility of the end-user to obtain a license to use and manage the ECD from the PAA.

The distributor takes care of importing the ECD and shipping it to the customer site, including any licenses required to do this.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.

## Portugal

### How to buy an ECD

Please contact the Agilent Distributor in Portugal:

**SOQUIMICA**

R. Coronel Santos Pedroso n° 15

1500-207 Lisboa - PORTUGAL

Tel. 00351 217165160

Fax 00351 217165169

URL: <http://www.soquimica.pt/html/soquimica2.html>

### How to hold an ECD

Contact your local Sales Distributor.

### Name of local Competent Authorities

Direccao Geral da Saude

Ministerio da Saude

Alameda D. Afonso Henriques 45

1056 Lisboa - PORTUGAL

Tel. (351.1) 847 55 15

Fax (351.1) 847 66 39 or 847 64 55

Telex: 64237

### Licenses

Contact your local Sales Distributor.

## How to dispose of an "end-of-usage ECD"

Contact your local Sales Distributor.

## Romania

### How to buy an ECD

Please contact the Agilent distributor in Romania:

Agilrom Scientific S.R.L.  
Aleea St. O. Iosif 4, bl.M54 sc.1, et.7 ap.79 Sector 3  
031034 Bucuresti  
Tel. +40 21 327 3648  
Fax +40 21 327 3688  
E-mail: [hiresinfo@mail.dntis.ro](mailto:hiresinfo@mail.dntis.ro)  
URL: [www.agilrom.ro](http://www.agilrom.ro)

### How to hold an ECD

It is the responsibility of the customer to obtain the license required to use or store the ECD. Please contact CNCAN for details about obtaining the license.

### Name of local Competent Authorities

Comisia Nationala pentru Controlul Activitatilor Nucleare CNCAN  
(National Commission for Nuclear Activities Control CNCAN)  
Str. Libertatii, Nr. 14, Sector 5  
Bucuresti  
Tel. +40 21 410 0572  
Fax +40 21 411 1436  
E-mail: [office@cncan.ro](mailto:office@cncan.ro)  
URL: [www.cncan.ro](http://www.cncan.ro)

## Licenses

Customers who use or store the ECD need a license. Please contact CNCAN for details about obtaining the license. The distributor takes care of importing the ECD and shipping it to the customer site, including any additional licenses required.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor, who will dispose of it in an appropriate way.



## Russia

### How to buy an ECD

Customer contacts local Agilent Technologies office or Interlab (Agilent Technologies, Russia external authorised distributor):

**OOO Agilent Technologies**

Kosmodamianskaya nab., 52

Building 1

Moscow 113054 Russia

Tel. +7 095 797 3900

Fax +7 095 797 3901

Interlab

Tel. +7 095 973 2033/973 2034

### How to hold an ECD

- Customer must have a Ministry of Economics and Trade Development license.
- Customer must have a qualified expert in radio protection or subcontract to a recognized radiation expert body.
- Periodic inspection has to be done (including leakage test).

### Name of local Competent Authorities

Ministry of Economics and Trade Development

1-st Tverskaya-Yamskaya Str. , 125993, GSP-3, Moscow, A-47, Russia

Tel. +7 (095) 200-0353

Fax +7 (095) 251-6965

Web: <http://www.economy.gov.ru>

## Licenses

It is the responsibility of the end-user to obtain a license from the Ministry of Economics and Trade Development to use and manage the ECD.

## How to dispose of an "end-of-usage ECD"

- Customer can contact the distributor (Interlab) who helps to organize the disposal through designated companies (3rd party having all required licenses allowing to import/export/scarp radioactive materials).

Customer directly contacts designated companies who will help to organize the disposal.

## Saudi Arabia

### How to buy an ECD

Please contact the Agilent Distributor in Saudi Arabia:

**GULFBIO ANALYTICAL CORP.**

Near Caterpillar Round About

Al Gussais, Industrial Area III

Dubai

United Arab Emirates

PO Box 28832

Tel. +971 4 26 71 888

Fax +971 4 26 70 990

E-mail: [sales@gulfbioanalytical.com](mailto:sales@gulfbioanalytical.com)

### How to hold an ECD

Contact your local Sales Distributor.

### Name of local Competent Authorities

Contact your local Sales Distributor.

### Licenses

Contact your local Sales Distributor.

### How to dispose of an "end-of-usage ECD"

Contact your local Sales Distributor.

## Slovak Republic

### How to buy an ECD

Please contact the Agilent distributor in the Slovak Republic:

Hermes LabSystems, s. r. o.  
Polianky 5  
Bratislava, SLOVAK REPUBLIC 84404  
Tel. +421 7 64 364 051  
Fax +421 7 64 286 263  
E-mail: [hermes.plus@hermes-plus.sk](mailto:hermes.plus@hermes-plus.sk)

### How to hold an ECD

A customer who stores the ECD needs to obtain a license from the ÚJD to store the ECD.

### Name of local Competent Authorities

Úrad Jadrového Dozoru  
(Nuclear Regulatory Authority of the Slovak Republic)  
Bajkalská 27  
P.O.BOX 24  
820 07 Bratislava 27  
Slovak Republic

Department of Inspection activities and International Co-operation  
Tel. +421 2 58 221 140  
Fax +421 2 58 221 166  
E-mail: [info@ujd.gov.sk](mailto:info@ujd.gov.sk)  
URL: [www.ujd.gov.sk](http://www.ujd.gov.sk)

## Licenses

It is the responsibility of the end-user to obtain a license to use and manage the ECD from the ÚJD. The distributor takes care of importing the ECD and shipping it to the customer site, including any licenses required to do this.

## How to dispose of an "end-of-usage ECD"

Please return the ECD to the distributor who will dispose of it in an appropriate way.

## Slovenia

### How to buy an ECD

Please contact the Agilent distributor in the Slovenia:

CHEMASS d.o.o.  
Baznikova 40  
1000-Sl Ljubljana  
Tel. +386-1-427 7560  
Fax +386-1-427 7560  
E-mail: [info@chemass.si](mailto:info@chemass.si)  
URL: <http://www.chemass.si>

### How to hold an ECD

Customers require a license from URSJV for using the ECD. The ECD should be registered by URSJV.

### Name of local Competent Authorities

Uprava Republike Slovenije za Jedrsko Varnost URSJV  
(Slovenian Nuclear Safety Administration)  
Železna cesta 16, P.P. 5759  
1001 Ljubljana  
Tel. +386-1-472 11 00  
Fax +386-1-472 11 97 /8 /9  
E-mail: [snsa@gov.si](mailto:snsa@gov.si)  
URL: [www.gov.si/ursjv/](http://www.gov.si/ursjv/)

## Licenses

It is the responsibility of the end user to obtain a license from the URSJV to own, use and manage the ECD.

The distributor takes care of importing the ECD and shipping it to the customer site, if all licenses are available.

## How to dispose of an "end-of-usage ECD"

It is the responsibility of the end user to return the ECD to Agilent Technologies Germany, or to dispose of it in an appropriate way.

## Spain

### How to buy an ECD

Customer contacts Agilent Technologies Sale Office:

**Agilent Technologies Spain S.L.**  
Life Science and Chemical Analysis LSCA  
Centro de Atencion al Cliente : Tel. 901 11 68 90  
Crta. de la Coruña Km. 18,4  
28230 Las Rozas, Madrid  
E-mail: [customercare\\_spain@agilent.com](mailto:customercare_spain@agilent.com)

### How to hold an ECD

- Agilent Spain provides customer with a valid homologation certificate. This document includes all information about technical characteristic of ECD.
- When it has elapsed one year at customer site, it is necessary to reach the local Radioactive Accredited Entity to make a hermeticity test in the points indicated by the manufacturer.

### Name of local Competent Authorities

Ministerio De Economia  
Direccion General De Politica Energetica Y Minas  
Sudireccion General De Energia Nuclear  
Paseo De La Castellana, 160  
28071, Madrid - SPAIN  
Tel. +34-1-349-40-00  
Fax +34-1-457-80-66



## Licenses

Prior to selling an ECD, Agilent Spain is committed to getting the Homologation from Spanish Authority for a specific ECD model and an authorization to move the specific ECD model from and to Spain and the other european countries which supplies them ECDs or GCs with ECDs inside. The customer does not have to do anything in terms of license or permits.

## How to dispose of an "end-of-usage ECD"

When the lifetime of the product is reached, it is necessary that customer contact Agilent Spain Sales Office for removal of product, or with the National Company of Radioactive Wastes.

## Sweden

### How to buy an ECD

Please contact the local Agilent Technologies sales office:

**Agilent Technologies Sweden AB**

Kronborgsgränd 23

164 94 Kista

Tel. 08 506 489 50

Fax 08 5199 2243

E-mail: [customercare\\_sweden@agilent.com](mailto:customercare_sweden@agilent.com)

When the order is received, the customer is informed that an ECD can only be delivered when a copy of the license to use is sent to Agilent.

After the customer has provided proof of a valid license, the ECD can be shipped to the customer.

### How to hold an ECD

- The customer's license specifies the detailed conditions for storage and use of the ECD.
- The customer must have a qualified expert in radiation protection.
- At least once a year an inspection has to be done including a wipe test.

### Name of local Competent Authorities

SSI - Swedish Radiation Protection Authority

S-171 16 Stockholm, Sweden

Tel. +46 8 729 7100

Fax +46 8 729 7108

Web: <http://www.ssi.se>

## Licenses

- Customer must have a license for use and storage.
- License to import (including the EURATOM authorization) is handled by Agilent, so customer does not need to have it..
- No export license needed if returned to manufacturer or supplier

## How to dispose of an "end-of-usage ECD"

- Option 1: Customer contacts Agilent to take back the ECD and ship back to Germany for further disposal.
- Option 2: Customer contacts the Swedish agency for radioactive waste that will organize the disposal.

## Switzerland

### How to buy an ECD

The LSCA Customer contact center can be reached at:

**Agilent Technologies (Schweiz) AG**

Life Sciences & Chemical Analysis

Lautengartenstrasse 6

CH-4052 Basel

Tel. 0848 80 35 60

Fax 061 286 55 22

E-mail: [customercare\\_switzerland@agilent.com](mailto:customercare_switzerland@agilent.com)

Web: [www.agilent.com/chem/dehome](http://www.agilent.com/chem/dehome)

The ECDs have a type approval named "Zulassung BAG-2004/2". The customer can directly order the ECD without prerequisite.

### How to hold an ECD

The requirements on how to hold are described in the type approval. Agilent is obliged to provide a copy of this type approval to the customer and to inform him to only use the ECD as intended by Agilent. This type approval does not cover shipment requirements.

### Name of local Competent Authorities

The competent authority is the ministry for health (Bundesamt für Gesundheit, Abteilung Strahlenschutz, 3003 Bern) and is mentioned on the type approval document. The safety at work authority performing technical evaluations is the Swiss accident prevention agency (SUVA).

## Licenses

The customer needs no radiation specific license and no radiation protection organization.

## How to dispose of an "end-of-usage ECD"

The customer can either contact the Agilent sales office, which will provide the required documents, or contact the ministry of health, which will advise him on how to dispose the old ECD.

## Turkey

### How to buy an ECD

Please contact the Agilent Distributor in Turkey:

**Sem Limited**

Cihazlari Paz. San. Ve Tic. Ltd. Sti

Acibadem, Cicekli Sokak

Cicek Apt. No. 7

81010 Kadikoy

Istanbul, Turkey

Tel. +90-216-340 01 09

Fax +90-216-325 16 24

E-mail Ankara : [semlab@superonline.com](mailto:semlab@superonline.com)

General Manager: Mehmet Balci

E-mail: [mbalci@semlab.com.tr](mailto:mbalci@semlab.com.tr)

Customer Engineer responsible for GC-MS: [omer@semlab.com.tr](mailto:omer@semlab.com.tr) (Izmir Office) and [tcakal@semlab.com.tr](mailto:tcakal@semlab.com.tr) (Ankara Office)

### How to hold an ECD

Contact your local sales distributor.

### Name of local Competent Authorities

Contact your local sales distributor.

### Licenses

Contact your local sales distributor.

## How to dispose of an "end-of-usage ECD"

Contact your local sales distributor.

## UK

### How to buy an ECD

Customer contacts local Agilent Technologies sales office:

**Agilent Technologies UK Ltd**

Life Science and Chemical Analysis LSCA

Customer Contact Center: Tel: 0845 712 5292

Lakeside 5500, Cheadle Royal Bus Park; Wilmslow Road;  
Cheadle, CHES SK8 3GR

E-mail: [customercare\\_uk@agilent.com](mailto:customercare_uk@agilent.com)

When the order is received, the customer is informed that the ECD can only be delivered when the copy of his Euratom shipment form authorized by the competent authority is sent to Agilent.

### How to hold an ECD

- After customer provides proof of authorised euratom shipment form, the ECD can be shipped to customer.
- Customer must have a qualified expert in radiation-protection.



## Name of local Competent Authorities

| England and Wales   | Scotland   | Northern Ireland  |
|---|--|---|
| The Environment Agency<br>TFS Service<br>Carrington Lane<br>Sale<br>Lancashire<br>M33 5NL | Scottish Environment Protection Agency<br>Erskine Court<br>The Castle Business Park<br>Stirling<br>FK9 4TR | Department of Industrial Pollutions and Radiological Inspectorate<br>Calvert House<br>23 Castle Place<br>Belfast<br>BT1 1FY |
| Contact - Mr R Bloom  | Contact - Mr A Whittall  | Contact - Mr R. Larmour   |
| Phone 0161 976 2237   | Phone 01786 457700   | Phone 02890254733   |
| Fax 0161 976 4358   | Fax 01786 446885   | E-mail <a href="mailto:robert.larmour@doeni.gov.uk">robert.larmour@doeni.gov.uk</a>   |

## Licenses

Users are recommended to hold a site license obtained from the competent authority, but this is not essential as the Radioactive Substance Act has an exemption for use of radioactive sources below 600 MBq which is above the maximum level of a Ni63 ECD source.

## How to dispose of an "end-of-usage ECD"

- Customer contacts Agilent to take back ECD and ship back to Germany for further disposal.
- Agilent arranges decommissioning at customer site and for collection by Unipart logistics.

## 2 Regulatory Information in EMEA and IDO Countries

[www.agilent.com](http://www.agilent.com)

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