



**EMSL ANALYTICAL, INC.**  
LABORATORY • PRODUCTS • TRAINING

EMSL ANALYTICAL, INC.  
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# Electron Capture Detector (ECD) Leak Test

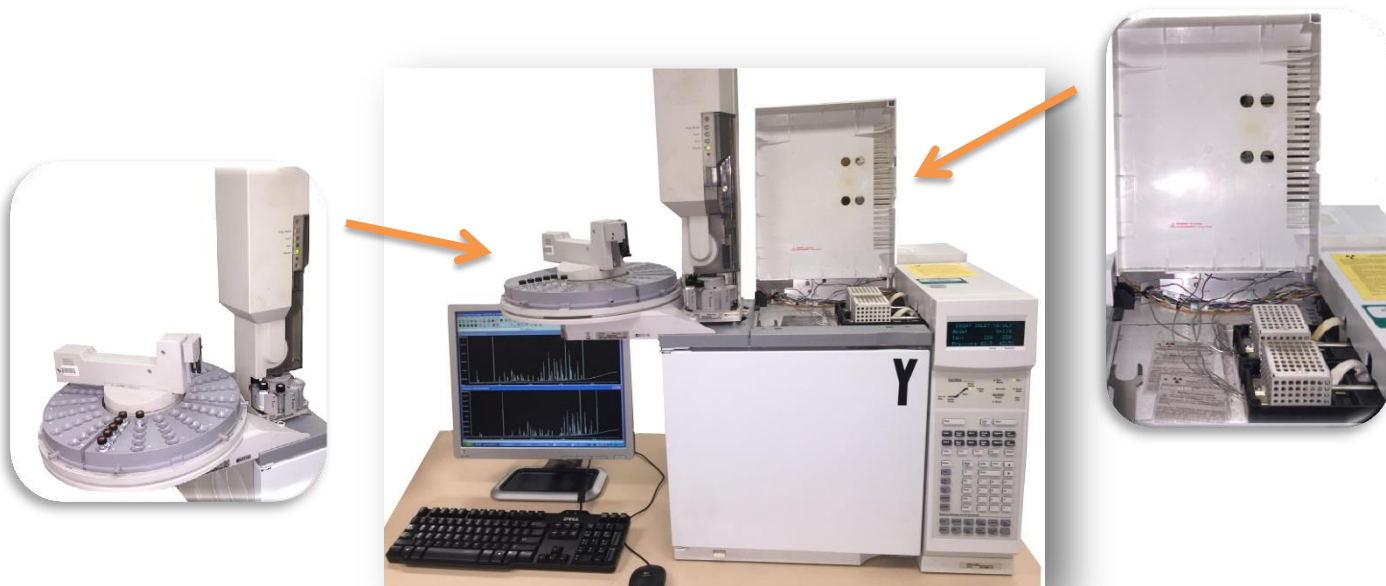
An electron capture detector (ECD) is a widely used device in a gas chromatograph to detect electron-absorbing samples such as halogen compounds. Each ECD usually contains 10-15 millicuries of nickel-63, a sealed radioactive source. The U.S. Nuclear Regulatory Commission (NRC) requires that each licensee who uses a sealed source should have the source tested for leakage every six months. If contamination levels exceed 0.005 microcuries, the leakage should be reported to the NRC. The licensee should keep a record of leak test results in units of microcuries and retain the record for inspection by the NRC for three years after the leak test is performed.

For more information, please refer to "NRC Regulations (10 CFR) § 39.35: Leak testing of sealed sources" here: <http://www.nrc.gov/reading-rm/doc-collections/cfr/part039/part039-0035.html>.

## Target Market

The target market for this specific testing includes other laboratories and/or companies that have any instruments that contain radioactive materials or have the potential to release radioactive particles.

- Gas Chromatography with Electron Capture Detector (GC-ECD) Instrument





## The Leak (Wipe) Test Kit

Each Leak (Wipe) Test Kit contains the following:

Description	Quantity
Rad-Wipe Smears with Information Cards	4 Sets of 3 Samples
Sampling Instructions	1



**Note:** Each kit contains sufficient materials to perform four sets of wipe tests (three per instrument). Extra wipe test kits can be purchased from EMSL Analytical, Inc. by calling 1-800-220-3675.

## Performing the Leak (Wipe) Test

To utilize the Leak (Wipe) Test Kit, please follow the instructions below.

1. Turn off all detector gas flows.
2. Turn off the host Gas Chromatography (GC) and allow the Electron Capture Detector (ECD) to cool to near ambient temperature.
3. Fill out three information cards for each instrument (GC) area.
4. Label three plastic bags as follows & wipe the indicated locations with a piece of filter paper:
  - Sample 1 - Detector Inlet
  - Sample 2 - Detector Housing (both inside entrance and threaded exterior)
  - Sample 3 - Detector Exit (column adapter)

Insert the filter paper into the bag, label and seal the bag.

For detailed instructions, refer to <http://www.agilent.com/cs/library/usermanuals/Public/5950-3586.pdf>.



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# ECD Leak Test Report (Example)

Customer	Detector
<b>Company Name:</b> _____ <b>Address:</b> _____ _____ _____ <b>Phone:</b> _____ <b>Fax:</b> _____ <b>Email:</b> _____	<b>Manufacturer:</b> _____ <b>Model #:</b> _____ <b>Serial #:</b> _____ <b>Ni-63 Activity:</b> _____

Date of Sample Collection: \_\_\_\_\_ Name: \_\_\_\_\_

## Test Results

Position	Ni-63 Activity (µCi)	< 0.005 (µCi) *
Inlet		
House		
Exit		

Analyzed by: \_\_\_\_\_ Date: \_\_\_\_\_

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

\* If an ECD Leak Test exceeds 0.005 micro-Curies (11,100 disintegrations per minute), it needs to be removed from service and returned to the manufacturer for repair, replacement or disposal.



# Please File This Document Carefully

This certificate must be displayed on your instruments. Failure to do so may result in citation, suspension of your license and/or fine.

## Leak Test Certificate

With this document, EMSL Analytical, Inc. certifies that the Electron Capture Detector (ECD) identified below was surveyed on the date of: \_\_\_\_\_

Manufacturer: \_\_\_\_\_  
Model #: \_\_\_\_\_  
Serial #: \_\_\_\_\_  
Ni-63 Activity: \_\_\_\_\_

This ECD is owned by: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The person responsible for this Survey is: \_\_\_\_\_

Radiological Laboratory Manager: \_\_\_\_\_

**Note:** Under the U.S. NRC Regulations (10 CFR) § 39.35, Electron Capture Detectors are required to be leak-tested every six months.