



How Much Sensitivity Is Needed in a Leak Detector?

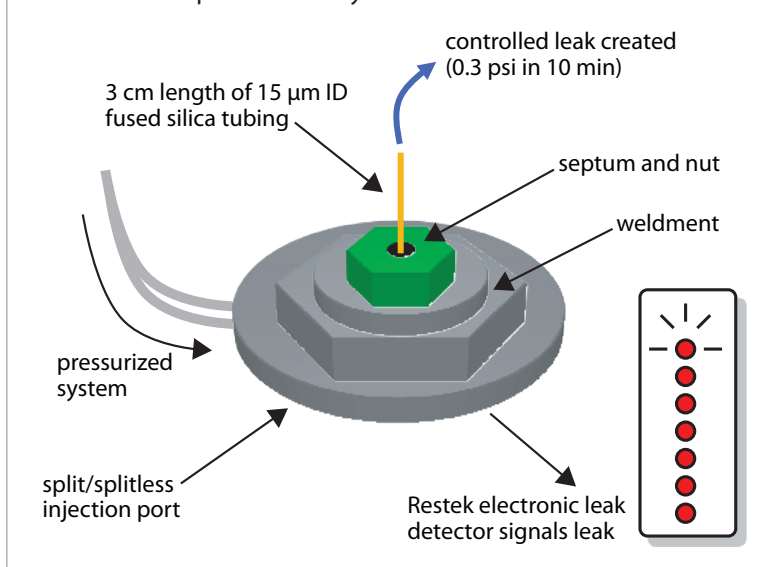
- Protect your data and instrument; detect leaks below instrument pressure decay test levels.
- Save now, save later—costs less than other units and reduces column replacement and maintenance expenses.
- Easily locates difficult-to-find leaks.

Leaks in gas chromatographic (GC) instruments can cause a host of analytical problems, including shifting retention times, poor peak shapes, and elevated baselines. Leaks can also lead to avoidable expenses due to wasted gas and shortened column lifetimes. Most important, leaks can undermine analytical data and even lead to inconclusive or erroneous results. Electronic leak detectors can help prevent all of these issues, but high-sensitivity models can be a significant expense that may not be worth the investment. So how much sensitivity is actually required in a handheld leak detector in order to protect valuable equipment and data?

Often, electronic leak detectors are advertised using leak-rate values in units of atm cc/sec, which are not clearly related to whether or not the leak is actually detrimental. One way to determine if a leak detector can identify an analytically significant leak is to perform a pressure decay test with a measured and controllable leak. Many instrument manufacturers provide instructions for performing a pressure decay test to determine if a leak exists in the injection port. Typically, this involves sealing all exit points for the injection port and pressurizing the system. Once the inlet is pressurized, the carrier gas flow is turned off and the pressure decay rate is monitored. For example, according to Agilent instructions, a drop of more than 0.5 psi in 10 minutes indicates a chromatographically significant leak.

To determine if the Restek electronic leak detector would be sensitive enough to find a leak at this chromatographically significant level, we created a controlled leak and monitored the inlet pressure. A pinhole leak was made by puncturing the septum with a length of fused silica tubing. This leak was then measured by watching the pressure decay rate and could be tuned by varying the length or ID of the tubing. Using a 3 cm long piece of 15 μm ID tubing, a leak was created that caused the pressure to decay 0.3 psi in 10 minutes—a level that would have passed Agilent's leak check protocol. A Restek electronic leak detector was then used to detect the leak in the injection port. The leak detector easily found the leak, demonstrating that this relatively inexpensive unit is sensitive enough to detect leaks that would pass some instrument manufacturer test protocols (Figure 1).

Figure 1: The Restek electronic leak detector is sensitive enough to identify a controlled low-level leak which would have passed the instrument pressure decay test.



Electronic leak detectors are indispensable tools for ensuring a leak-free system since they are easy to use and do not require taking the instrument off-line. Restek's electronic leak detector is sensitive enough to find leaks that can damage columns and is a fraction of the cost of other handheld units, making it a very cost-effective option. A Restek electronic leak detector easily pays for itself by protecting expensive columns and irreplaceable samples.



Restek Electronic Leak Detector

New and improved! Prevent small leaks from causing big problems with a Restek leak detector.

- Detects a broad range of gases and indicates leak severity with both an LED display and audible tone.
- No more waiting for a full charge—can be operated during charging or used up to 12 hours between charges.
- Charging kit includes both universal AC power adaptor and USB charging cable so you can charge anywhere, anytime.
- Pinpoint very small gas leaks quickly and accurately before they cause damage and downtime.
- Compact, handheld unit is easy to operate and convenient to use anywhere you need to check for leaks.

Features & benefits include:

- Detects a broad range of gases.
- Audible tone and LED display indicate the severity of a leak.
- Can be operated during charging or used up to 12 hours between charges.
- Ergonomic, handheld design.
- Rugged side grips for added durability.
- Handy probe storage for cleanliness and convenience.
- Automatic shutoff.
- A convenient carrying and storage case.
- Easy-to-clean probe assembly.
- A universal AC power adaptor (U.S., UK, Europe, Australia, Japan).
- USB charging cable.

Backed by a one-year warranty, the Restek leak detector is the industry standard for performance and affordability in handheld leak detectors.



Leak Detector Specifications

Detectable Gases: Helium, nitrogen, argon, carbon dioxide, hydrogen*

Battery: Rechargeable nickel-metal hydride (NiMH) internal battery pack (12 hours normal operation)

Ambient Temperature: 50–98.6 °F (10–37 °C)

Humidity Range: 0–97%

Warranty: One year

Certifications: CE (EU, Korea, Japan, Australia)

Compliance: WEEE, CEC, China RoHS 2

Indoor Use Only

Limits of Detection

These gases can be detected with the Restek electronic leak detector at the following leak rates:

Minimum Detectable Gas Limits and Indicating LED Color:

Helium, 1.0×10^{-5} , red LED

Hydrogen*, 1.0×10^{-5} , red LED

Nitrogen, 1.4×10^{-3} , yellow LED

Argon, 1.0×10^{-4} , yellow LED

Carbon dioxide, 1.0×10^{-4} , yellow LED

Gas detection limits measured in atm cc/sec.

| Description | Certification | qty. | cat.# |
|---|---|------|-------|
| Leak Detector (includes: carrying case, universal AC power adaptor [U.S., UK, Europe, Australia, Japan], 6-ft USB charging cable) | CE (EU, Korea, Japan, Australia), WEEE, CEC, China RoHS 2 | ea. | 28500 |
| Charging Kit (includes: 6-ft USB charging cable and universal AC power adaptor [U.S., UK, Europe, Australia, Japan]) | | kit | 28502 |
| 6-ft USB charging cable | | ea. | 28501 |
| Small Probe Adaptor for Leak Detector | | ea. | 22658 |
| Dynamic Duo Combo Pack (Restek Leak Detector and ProFLOW 6000 Flowmeter) | | kit | 22654 |
| Soft-Sided Storage Case for Leak Detector or ProFLOW 6000 Flowmeter | | ea. | 22657 |