



Bump test basics

You need to know your instruments are reliable

By RICK PEDLEY

Modern day portable gas detectors are quite reliable and accurate. For enhanced worker safety and to be fully compliant there is a little known concept called bump testing. Bump tests are crucial when it comes to protecting your workers from hazardous gases and other air-borne toxins. Bump tests ensure your portable gas monitor is working properly by exposing it to trace amounts of the gas it's designed to detect.

As important as bump tests are to the health and safety of your workers, many professionals lack the proper training to bump test their equipment, leading to unforeseen accidents and injuries.

If you and your team fail to bump test your equipment in the field or before starting each shift, your portable gas monitors may not be as reliable as you might expect. You will run the risk of exposing your workers to hazardous substances, which could result in a range of physical side-effects, including suffocation, respiratory problems, and even death.

If you're unfamiliar with bump tests or unsure of how to perform one, learn more about this crucial process and how it keeps your workers safe.

Why bump testing?

Bump testing is required when using a portable gas monitor in confined spaces. Performing a bump test ensures the equipment sensors are working by briefly exposing them to the target gas, such as carbon monoxide, chlorine, and nitrogen dioxide. Bump tests are performed by attaching a small cylinder of the target gas to the monitor. If the monitor recognizes the gas, it means the device is working properly.

Bump tests are important for several reasons. Portable gas monitors will need to be adjusted or repaired from time to time. While some portable gas monitors claim to be "maintenance-free," that usually means you don't have to worry about replacing the battery or sensors.

However, the sensors on your gas monitor may

stop working as time goes on, especially if they are exposed to dirt, moisture, mud, and other factors that may affect device performance. If one of your employees drops or breaks your gas monitor, it may no longer work properly in the field.

That's why it's important to bump test your gas monitors before each use, considering their ability to detect potential gas leaks can change on a dime. Just because your gas monitor worked yesterday doesn't mean it will work tomorrow or the day after that.

Based on a recent study, around three gas detectors out of every 1,000 fail to respond to bump tests on any given day. Plus, one out of every 100 gas detectors not bump tested before use will fail to respond to an actual gas alarm event every 25 days.

Confined spaces can leave your workers with little access to oxygen. Without vents, windows or doorways, gases and other toxic airborne substances may linger in the air. That's why it's important to use portable gas monitors that have been bump tested when entering or working in confined spaces.

What about calibration?

Bump testing is a quick qualitative test that confirms that a monitor is functional and all alarms respond accordingly to target gas(es). Upon completion, the user is then confident their gas monitor will alarm audibly, flash visually, and vibrate accordingly at preset alarm levels.

On the other hand, a calibration is a quantitative test that checks and adjusts sensor readings for accuracy against a known standard calibration gas. Sensor readings naturally drift due to environmental factors and normal everyday usage. If any deviations are found, the monitor will make any needed adjustments automatically during its calibration process. Bump testing ensures proper function. Calibration ensures accuracy.

Performing a test

There are generally two ways to perform a bump test: manual bump tests and automatic bump tests.

Regardless of which method you choose, you'll need a cylinder of test gas. This can be your standard calibration gas, or a cylinder specifically made for bump testing. This can be a higher concentration with an aerosol style trigger designed for quick bump tests only.

Manual tests

For manual bump tests, you'll need to expose the instrument sensors to a target gas that exceeds its alarm setpoint. The test should be performed in an environment with clean, fresh air. Turn the monitor on if it isn't already. In its normal running state, apply gas for approximately 20 seconds (most sensors will respond well before and alarm immediately). Observe and confirm that all alarms are audible with a buzzer or horn, vibrate, and flashing LED lights function.

Manual bump tests are perfect for those who do not use gas monitors on a consistent basis. Workers can periodically test their devices prior to entering confined spaces.

Automated tests

You can also automate the bump testing process if you have a large team or need to test your monitors daily. You can leave your portable gas monitors in what's known as a docking station when they're not in use. You can then program the docking station to automatically bump test your gas monitors.

Your team can then ensure each monitor has been properly tested when they come in for work the next day. They can get to work as quickly as possible without having to manually bump test their monitors.

As a manager or worker, knowing the ins and outs of bump testing will help you stay safe in the field. Without bump tests, your portable gas monitor may fail unexpectedly in the field. Give yourself more peace of mind and use this guide to bump test your gas detection equipment properly. **ISHN**

Rick Pedley, PK Safety's President and CEO, joined the family business in 1979. PK Safety, a supplier of occupational safety and personal protective equipment and manufacturer of their own new FR line Grit, has been operating since 1947. 800-829-9580, <https://www.pksafety.com/contact-us/>.

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