

## Use of Multigas Detectors

Standard Operating Procedures (SOP) for the use of Personal Multi-Gas Detectors in the College of Engineering. Version 1.0

### Scope

Hazardous gasses are in use in research facilities in our college. As part of the Emergency Response Plan (ERP) for these research labs, hazardous gas monitors and alarms are to be installed with the ERP indicating appropriate actions based on monitor and alarm levels.

In addition to these in-lab alarms, Faculty / Staff / and Students working in these labs, adjacent labs, or responsible for attending alarms, should be armed with personal multi-gas detectors.

This page lays out the SOP for the use of these detectors.

### Detector Maintenance

If these devices are to protect the health and safety of the individuals carrying them as well as building occupants depending on timely evacuation alarms, they **MUST** be properly maintained.

All personal Multigas detectors are to be tested and calibrated on the following schedule:

- Bump tested every 3 months or as indicated by the manufacturer (whichever is less).
- Calibrated tested every 12 months or as indicated by the manufacturer (whichever is less).

### Detector settings

The following gases are to be monitored with alarms set at the indicated Low and High alarm points:

| Gas                   | Low Alarm | High Alarm |
|-----------------------|-----------|------------|
| O <sub>2</sub>        | 19.5%     | 23%        |
| LEL (H <sub>2</sub> ) | 10%       | 20%        |
| CO                    | 50ppm     | 200ppm     |
| H <sub>2</sub> S      | 9ppm      | 14ppm      |

The alarm points used for hazardous gases are the gases published standard exposure limits as follows:

- The Low Alarm point is set to the gases Permissible Exposure Limit (PEL) (typ. 8hr exposure limit).
- The High Alarm point is set to the gases Short Term Exposure Limit (STEL) (typ. 15 minute exposure limit).

### **In The Event of a Multigas Detector Alarm**

#### **Low Alarm:**

If the low alarm sound in a room or hall not expected to be (or be near) the source, evacuate the building immediately.

- See [Initiating an Alarm](#) on the Building Evacuations Procedures page.
- In this case it is assumed that concentrations at the source are at (or have exceeded) safe levels.

If a low alarm sounds in a research lab considered the source, a building evacuation is not necessary if all the following are in place:

- The laboratory in question has an Emergency Response Plan (ERP) covering the gas in question.
- The researchers present are trained on the ERP and their training is current.
- The researchers are following the ERP diligently.
- 4 Hours of exposure has not been exceeded since the start of the release.

If any of these conditions are not met evacuate the building immediately.

#### **High Alarm:**

If the high alarm sounds evacuate the building immediately.

- See [Initiating an Alarm](#) on the Building Evacuations Procedures page.
- The published Short Term Exposure Limit (STEL) of a hazardous gas is the maximum allowed concentration of a hazardous gas permitted in the building by anyone under any circumstance.
- This applies an upper limit on all ERPs in the building.