



Monthly Topic: Portable Monitoring - Combustible Gas (LEL)

- Portable combustible gas monitors, commonly referred to as LEL monitors, are instruments used to detect hazardous levels of a combustible gas or vapor in air.
- Combustible gases will burn when mixed with air (or oxygen) and provided with an ignition source. A combustible gas and air mixture can burn over a wide range of concentrations. Each gas mixture will have a specific minimum concentration above which an ignition source will cause an explosion. This is called the LEL (Lower Explosive Limit) and each combustible gas has a different LEL.
- **LFL (Lower Flammability Limit)** is synonymous with LEL.
- **UEL (Upper Explosive Limit)** – the maximum concentration of a gas or vapor that will burn in air.
- Some combustible gases are lighter than air and some are heavier. Make sure the characteristics of the gas are known before attempting to enter an area containing the gas.
- Portable Single-Gas LEL monitors like the [Macurco GS-1](#) will notify the user with audible, visual and vibrating alarms if an elevated level of combustible gas is detected.
- Portable Multi-Gas monitors like the [Macurco MG-1](#) have similar functionality but contain additional sensors for the detection of other gas hazards.
- **Intrinsic Safety** – a protection technique for electrical equipment focusing on reducing the available electrical and thermal energy to a level where it is too low to cause ignition.
 - Introducing a tool into an explosive environment that has the potential to ignite the combustible gas is not recommended. Make certain that your portable gas monitor is listed for intrinsic safety through a Nationally Recognized Testing Laboratory (NRTL) such as UL, CSA or ATEX.



GS-1

Portable Gas Monitors

- [GS-1 Single-Gas LEL](#)
- [MG-1 Multi-Gas Monitor](#)
- [Single-Gas \(CO, H₂S or O₂\)](#)
- [Portable Gas Detection](#)

Macurco Literature

- [Quick Reference Sheet](#)
- [Product Brochure](#)
- [Parking Garage Guide](#)
- [Gas & Product Training](#)

Combustible Gas News

- [Gas Well Leaks into Home](#)
- [Methane Explosion in Mine](#)
- [Apartment Butane Incident](#)
- [Propane Tank in U-Haul](#)

Common Applications

- | | | |
|-----------------------------|--------------------------|---------------|
| ✓ Landfills | ✓ Residential Homes | ✓ Farms |
| ✓ Restaurants | ✓ Hotels & Apartments | ✓ Laundromats |
| ✓ Campers & RV's | ✓ Office Buildings | ✓ Factories |
| ✓ Battery Charging Stations | ✓ Schools & Universities | ✓ Warehouses |

Combustible Gases

- | | | |
|--|---|--|
| ✓ Hydrogen (H ₂) | ✓ Butane (C ₄ H ₁₀) | ✓ Octane (C ₈ H ₁₈) |
| ✓ Methane (CH ₄) | ✓ Pentane (C ₅ H ₁₂) | ✓ Xylene (C ₈ H ₁₀) |
| ✓ Ethane (C ₂ H ₆) | ✓ Hexane (C ₆ H ₁₄) | ✓ Decane (C ₁₀ H ₂₂) |
| ✓ Propane (C ₃ H ₈) | ✓ Heptane (C ₇ H ₁₆) | ✓ Acetylene (C ₂ H ₂) |

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