



Different Calibration Gas Values and Regulator Flow Rates

Did you know that most calibration gas mixtures have different gas values because different gas detector manufacturers use specific values that are different for each gas? A customer purchasing new gas detectors will often ask if they can use the same calibration gas that they had been using for the gas detectors they are replacing or phasing out, but often the gas used for the old units, even if by the same maker, may not match the gas required for the new units. Two gas detectors by different manufacturers can be by comparison identical regarding sensors and features, but the calibration gas used for each can be completely different for each component.

Let's compare calibration gas for two standard four gas models. The term 'standard four gas' means each unit has an Oxygen, LEL, Carbon Monoxide, and Hydrogen Sulfide sensor. According to market sources, 75% of all multi-gas detectors sold in the market today are of this configuration. So, for the comparison of two standard four gas meters, Unit 'A' uses a calibration gas mixture of: 18% Oxygen, 50% LEL Methane, 50ppm Carbon Monoxide, and 25ppm Hydrogen Sulfide, but Unit 'B' uses a calibration gas mixture of: 15% Oxygen, 25% LEL Pentane, 100ppm Carbon Monoxide, and 20ppm Hydrogen Sulfide. As this comparison shows, even though the two units have the identical sensor configuration, each requires a different set of gas concentration values. It is most important that a gas detector be calibrated with the correct gas values for which it is set up. If a gas detector is not calibrated with the correct gas values, the sensors will not respond accurately and this creates a potentially dangerous situation for the personnel using the gas detector.

It should also be known that the regulators used to release the gas from the cylinders have specific flow rates that need to match the requirement set by the gas detector manufacturer. These flow rates are measured in liters per minute (lpm) and will differ from part number to part number. Furthermore, a regulator can be manual flow or automatic demand flow. Manual flow means the regulator has a valve on the side of it that is manually turned one way to release the flow of gas and turned the opposite way to shut off the flow of gas. Please note, a manual flow regulator is almost 'never' used with a docking station (a.k.a., automatic calibration station). Docking stations almost always require an automatic demand flow regulator. An automatic demand flow regulator has no manual ON/OFF valve, so these regulators must have a pump, either in or on the gas detector, or in a docking station.

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