



The lower explosive limit (LEL) or lower flammable limit (LFL) of a combustible gas is defined as the smallest amount of the gas that will support a self-propagating flame when mixed with air (or oxygen) and ignited. In gas-detection systems, the amount of gas present is specified in terms of % LEL: 0% LEL being a combustible gas-free atmosphere and 100% LEL being an atmosphere in which the gas is at its lower flammable limit. The relationship between % LEL and % by volume differs from gas to gas. Typical settings for the alarm circuit are 20% for the low alarm, 40% for the high alarm and 60% for the high-high alarm.

The LEL of a gas is affected by the temperature and pressure: as the temperature increases, the LEL decreases and hence the explosion hazard increases; the relationship between LEL and pressure is fairly complex, but at approximately one atmosphere a pressure increase usually lowers the LEL. The LEL of a gas is not significantly affected by the humidity fluctuations normally encountered in the operation of a gas-detecting system.