



## ARTICLE

### Detection ranges

The detection range describes the scale in which gases normally occur. These ranges will be separated into:

#### % LEL (Lower Explosion Level)

The Lower Explosion Level (LEL) is reached, when the ratio of the concentration of air and combustible gas create an explosive gas mixture. The smallest gas concentration creating an explosive gas mixture in combination with air is called 100 % LEL.

Too much	100 % combustible gas - 0% air
Explosion hazard	100 % UEL (Upper Explosion Level) 100 % LEL (Lower Explosion Level)
Too low	0% combustible gas - 100% air

#### % UEL (Upper Explosion Level)

Mixtures of combustible gases, vapours or dusts in combination with oxygen or air are explosive within a certain mixing ratio. That is why there is an Upper Explosion Level (UEL) and a Lower Explosion Level (LEL) for explosive mixtures. By mistake the explosion limit was former called ignite limit. The explosion limits depend on temperature and pressure.

#### % Vol.

The detection range % Vol. is only used for gases that occur in high concentrations. The applications are normally limited for the measurement of oxygen (up to 25 % Vol.) and some few toxic gases, e.g. carbon dioxide (CO<sub>2</sub>)

#### ppm (parts per million)

This detection range indicates, how much parts of a measured gas occur in a million parts. 10000 ppm = 1 % Vol.

The detection in ppm is used for low gas concentrations, e.g. AGW monitoring of toxic gases (TOX).

#### TLV (Treshold Limit Value)

This value shows the maximal acceptable concentration of a substance, gas, vapour or steam within in air that may occur at the workplace without expecting health defects.

Your contact: GfG Marketing, Carsten Schmidt  
carsten.schmidt@gfg-mbh.com 02 31 / 564 00 27