

# Hydrogen sulfide

## Where is it found?

Most of this gas present in the atmosphere has natural origin by the organic matter decomposition. Anthropically, it occurs in processes in which sulphur compounds and organic matter are involved at high temperatures. Some industrial activities that emit this gas are paper pulp manufacturing, oil refining, water treatment plants and the viscose manufacturing textile industry.

## Why is it harmful?

Hydrogen Sulfide (H<sub>2</sub>S) affects mainly to the respiratory system with the first symptoms being nose, throat and eyes irritation. This compound begins to be detected by human smell at concentrations much lower than those that can have harmful effects on health. Short-term exposures of high concentrations can cause headache, dizziness and vomiting.

## H<sub>2</sub>S cartridge

(A) K-H2S-A-01 / (B) K-H2S-B-01

The Hydrogen Sulfide cartridge has a built-in electrochemical sensor very sensitive to its specific pollutant allowing the sensor to detect any change in H<sub>2</sub>S concentrations. This cartridge responds and detects **Methyl Mercaptan (CH<sub>3</sub>S)**. To cover different applications, there are 2 measurement ranges: **Type A**: detect low ppb concentrations in real environments. Although Kunak algorithm corrects well the temperature variations, it is not recommended to use this cartridge to detect levels below 10 ppb.

**Type B**: a higher range version that can measure up to 20 ppm, decreasing the accuracy at low concentrations.



## Technical specifications

Type	Electrochemical	Limit of Detection (LOD) <sup>(7)</sup>	2 ppb <sup>(A)</sup> 0.01 ppm <sup>(B)</sup>
Unit of measurement	µg/m <sup>3</sup> , ppb <sup>(A)</sup> mg/m <sup>3</sup> , ppm <sup>(B)</sup>	Repeatability <sup>(8)</sup>	4 ppb <sup>(A)</sup> 0.01 ppm <sup>(B)</sup>
Measurement range <sup>(1)</sup>	0 - 2,000 ppb <sup>(A)</sup> 0 - 20 ppm <sup>(B)</sup>	Response time <sup>(9)</sup>	< 60 sec
Resolution <sup>(2)</sup>	1 ppb <sup>(A)</sup> 0.01 ppm <sup>(B)</sup>	Typical accuracy (MAE) <sup>(10)</sup>	± 10 ppb <sup>(A)</sup> ± 0.05 ppm <sup>(B)</sup>
Operating temperature range <sup>(3)</sup>	-30 to 50 °C	Typical precision R <sup>2</sup> <sup>(10)</sup>	> 0.8
Operating RH range <sup>(4)</sup>	0 to 99 %RH	Typical slope <sup>(10)</sup>	0.78 - 1.29
Recommended RH range <sup>(4)</sup>	15 to 90 %RH	Typical intercept (a) <sup>(10)</sup>	-2 ppb ≤ a ≤ +2 ppb <sup>(A)</sup> -0.02 ppm ≤ a ≤ +0.02 ppm <sup>(B)</sup>
Operating life <sup>(5)</sup>	> 24 months	Typical Intra-model variability <sup>(12)</sup>	< 2 ppb <sup>(A)</sup> < 0.02 ppm <sup>(B)</sup>
Guarantee range <sup>(6)</sup>	100 ppm		

\* See notes on page 28