

Sulphur dioxide



Where is it found?

Sulfur Dioxide (SO₂) is invisible and has a nasty smell. It is produced by the combustion of any substance that contains sulfur. The main source of SO₂ in the atmosphere comes from combustion of coal or fossil fuels while small sources are in metallurgy and naturally by volcanic eruptions. Locomotives, ships and other vehicles that burn fuel with a high sulfur content are other emission source. Besides, it can react with other compounds in the atmosphere contributing to particulate matter pollution.

SO₂ cartridge

K-SO2-A-01

The Sulfur Dioxide Cartridge has a built-in electrochemical sensor which presents high cross-sensitivities with O₃ and NO₂. When used together with the NO₂ and O₃ cartridges, the Kunak algorithm is capable of correcting from these cross-sensitivities improving the accuracy of the measurements. However, it is not recommended for outdoors application requiring accurate SO₂ measurements at very low concentrations (<20 ppb).



Why is it harmful?

SO₂ gas is a respiratory tract and eye irritant, affecting very fast to humans (10-15 minutes). Long-exposures affect to the lung defences and aggravate existing cardiovascular disease. It also causes damage in ecosystems and it contributes to acid rain when oxidized to sulfuric acid. This provokes an acidification of ecosystems, injuries and necrosis in vegetation and deterioration of materials.

Technical specifications

Type	Electrochemical	Limit of Detection (LOD) ⁽⁷⁾	3 ppb
Unit of measurement	µg/m ³ , ppb	Repeatability ⁽⁸⁾	5 ppb
Measurement range ⁽¹⁾	0 - 10,000 ppb	Response time ⁽⁹⁾	< 60 sec
Resolution ⁽²⁾	1 ppb	Typical accuracy (MAE) ⁽¹⁰⁾	± 15 ppb
Operating temperature range ⁽³⁾	-30 to 40 °C	Typical precision R ² ⁽¹⁰⁾	> 0.7
Operating RH range ⁽⁴⁾	0 to 99 %RH	Typical slope ⁽¹⁰⁾	0.78 - 1.29
Recommended RH range ⁽⁴⁾	15 to 90 %RH	Typical intercept (a) ⁽¹⁰⁾	-5 ppb ≤ a ≤ +5 ppb
Operating life ⁽⁵⁾	> 24 months	DQO - Typical U(exp) ⁽¹¹⁾	< 25%
Guarantee range ⁽⁶⁾	100 ppm	Typical Intra-model variability ⁽¹²⁾	< 3 ppb

* See notes on page 28