Carbon dioxide

Where is it found?

Carbon dioxide (CO_2) is a result of normal cell function when it is breathed out of the body. Besides, it is an essential element in photosynthesis, the process by which plants make food and energy. Levels of atmospheric CO_2 have increased since the Industrial Revolution.

The primary causes are deforestation and the burning of fossil fuels such as coal, for electricity, heat production and for transportation (cars, ships, planes, etc.). It could also be formed, as a secondary pollutant, by CO oxidation.

Why is it harmful?

CO_2 is the fourth most abundant gas in the Earth's atmosphere being the main greenhouse gas. It is an odourless, colourless, and non-toxic gas although its emission is an environmental global problem, being the main gas pollutant contributing to the climate change.

Besides, it is a contributor to acid rain, and ocean acidification and could displace oxygen (O_2) and nitrogen (N_2). CO_2 is removed from the atmosphere when it is absorbed by plants and algae as part of the biological carbon cycle.

CO_2 cartridge

The CO_2 cartridge has a built-in non-dispersive infrared sensor (NDIR) ideal for measuring typical atmospheric concentrations for climate change applications (300-400 ppm) as well as high concentrations from industrial processes (until 5,000 ppm).

The cartridge includes an automatic baseline correction (ABC) algorithm to background levels to maintain long-term stability.

Type	NDIR
Unit of measurement	mg/m³, ppm
Measurement range (1)	0 - 5,000 ppm
Resolution (2)	0,01 ppm
Operating temp. range (3)	-20 to 50ºC
Operating RH range (4)	0 to 90 %RH
Recommended RH range (4)	15 to 95 %RH
Operating life (5)	> 4 years
Guarantee range (6)	-

Limit of Detection (LOD) (7)	-
Repeatability (8)	-
Response time (9)	< 30 sec
Typical accuracy (11) (12)	± 20 ppm
Typical precision R^2 (10)	> 0.8
Typical slope (10)	0.6 - 1.66
Typical intercept (a) (10)	-170 ppm ≤ a ≤ 170 ppm
DQO - Typical U(exp) (13)	-
Typical Intra-model variability (14)	< 0.5 ppm

* See notes on page 24