



## BIOGON<sup>®</sup> food grade gases. BIOGON<sup>®</sup> C (E 290). Carbon dioxide, CO<sub>2</sub>.



### Application

The food industry uses carbon dioxide gas for a great many different purposes. These include the addition of carbon dioxide during the packaging of food in order to improve the product's shelf-life, since carbon dioxide prevents or delays the growth of bacteria. Carbonic acid is formed when carbon dioxide is dissolved in water. Carbonic acid is formed when carbon dioxide is dissolved in water and is used, among other things, to produce bubbles and foam in beer and soft drinks. The gas cylinders containing food grade gases are green and easy to recognise. The colour code on the neck of the cylinder differentiates the various gases. Our food grade gases comply with all EU requirements and are traceable.

### Product specification

#### BIOGON<sup>®</sup> C (E 290). Carbon dioxide CO<sub>2</sub>

Product name	Purities	Impurities		Odour, taste	Cylinder type	Content	Material number*
	vol %	unit	ppm				
	CO <sub>2</sub>	H <sub>2</sub> O	O <sub>2</sub>				
BIOGON <sup>®</sup> C	≥ 99,9	≤ 20	≤ 30	none	5 l	3,75 kg	101740
BIOGON <sup>®</sup> C	≥ 99,9	≤ 20	≤ 30	none	13,4 l	10 kg	101739
BIOGON <sup>®</sup> C	≥ 99,9	≤ 20	≤ 30	none	20 l	15 kg	100311
BIOGON <sup>®</sup> C	≥ 99,9	≤ 20	≤ 30	none	40 l	30 kg	100318
BIOGON <sup>®</sup> C	≥ 99,9	≤ 20	≤ 30	none	12x50 l	450 kg	108535

\*Differs between countries, see local language version.

All BIOGON<sup>®</sup> products comply with the requirements in European food legislation. This includes, among others, the European regulation (EC) no. 852/2004, regulation (EC) no. 178/2002, regulation (EC) no. 1333/2008 and regulation (EC) 231/2012. The gases in the BIOGON<sup>®</sup> product group do not contain any allergens. No genetically modified organisms (GMO) are used in the manufacturing process for BIOGON<sup>®</sup>.

### Characteristics and origin

Liquid carbon dioxide is a colourless liquid that is heavier than water. In gaseous form it is colourless with an acrid, pungent odour and taste. Nitrogen is not flammable, nor does it support combustion. Carbon dioxide is not flammable, nor does it support combustion; it is, on the other hand, formed during the decomposition/combustion of organic and certain inorganic materials. Atmospheric air contains around 0,04% carbon dioxide, and exhaled air contains around 4 vol. %. In gaseous form, carbon dioxide is around 1,4 times heavier than ordinary air. At atmospheric pressure, carbon dioxide in its solid form (dry ice) with a temperature of -78°C will not melt like ordinary water-ice, but instead will evaporate and become gaseous carbon dioxide (when a substance converts directly from its solid form to its gaseous form it is called sublimation). Carbon dioxide reacts strongly with strong alkalis, especially at high temperatures. Carbon dioxide is extracted as a by-product of various processes such as the production of fertiliser, ethanol, biodiesel and from natural sources. For carbon dioxide that is used with food products, the gas goes through a comprehensive purification process in order to ensure that the gas meets the purity requirements imposed by the authorities. Carbon dioxide must be kept at a pressure greater than 5,2 bar in order to remain in liquid form.

<b>Physical data</b>	Gas type and symbol	Carbon dioxide, CO <sub>2</sub>		
	Boiling point	-78,5 °C		
	Heat of vaporisation, 1 bar	348 kJ/kg		
	Heat capacity (15 °C)	0,81 kJ/kg K		
	Conversion factors	1 Nm <sup>3</sup>	= 1,530 l	= 1,808 kg
		1 l	= 0,652 Nm <sup>3</sup>	= 1,181 kg
		1 kg	= 0,553 Nm <sup>3</sup>	= 0,847 l
	Critical values	Critical temperature	31,04 °C	
		Critical pressure	73,82 bar	
		Critical density	0,468 kg/l	

1 Nm<sup>3</sup> = 1 m<sup>3</sup> at a temperature of 15 °C and a pressure of 1 atm (technical pressure). Litre capacity is used for gas in liquid form.

**Safety** Our goal is to maintain a high level of safety and protection, both for employees and the environment. Please read our safety data sheets (available at our web sites) before you use the product.

**Delivery form** Compressed gas in cylinders/bundles.