



# BIOGON® food grade gases.

## BIOGON® O (E 948). Gaseous oxygen, O<sub>2</sub>.



**Application** Within the food industry, oxygen gas is primarily used in MAPAX® packaging of food in a modified atmosphere. This normally consists of one or several of the following gases oxygen, nitrogen and/or carbon dioxide. 1 Nm<sup>3</sup> = 1,148 litres oxygen gas is used during the packaging of fruit and vegetables in order to ensure that the product continues to breathe, which enables the product's freshness to be maintained. Oxygen gas is used in conjunction with the packaging of fresh red meat in order to maintain the meat's red colour. The meat's colour changes from red to brown or grey when there is not a sufficiently high concentration of oxygen gas. This is due to a change in the myoglobin complex that normally binds oxygen. 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® O (E 948). Gaseous oxygen, O<sub>2</sub>.**

Product name	Purities	Impurities		Odour, taste	Cylinder type	Contents	Material number*
	vol %	unit ppm					
	O <sub>2</sub>	H <sub>2</sub> O	CnHm**				
BIOGON® O	≥ 99,5	≤ 20	≤ 100	none	20 l	4,3 m <sup>3</sup>	
BIOGON® O	≥ 99,5	≤ 20	≤ 100	none	50 l	10,7 m <sup>3</sup>	
BIOGON® O	≥ 99,5	≤ 20	≤ 100	none	12x50 l	129 m <sup>3</sup>	

\*Differs between countries, see local language version.

\*\*Calculated as methane.

All BIOGON® 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) no. 231/2012. The gases in the BIOGON® product group do not contain any allergens. No genetically modified organisms (GMO) are used in the manufacturing process for BIOGON® gases.

### Characteristics and origin

Liquid oxygen is a weak blue liquid that is somewhat heavier than water. Gaseous oxygen is a colourless, tasteless and odourless gas. Oxygen in itself is not flammable, although it does support combustion. Atmospheric air contains 20,94 vol. % oxygen, and oxygen is around 1,1 times heavier than air. Oxygen is easily dissolved in both water and alcohol. It is strongly oxidising and reacts powerfully with flammable substances in the event of heat formation, ignition or explosion. Oxygen forms compounds (in the form of oxides) with almost all chemical elements, with the exception of halogens, noble gases and noble metals. The oxidation process is followed by the emission of heat and light, and many reactions require the presence of water or are accelerated by a catalyst. Liquid oxygen is extracted from air via distillation in an air separation system.

<b>Physical data</b>	Type of gas and symbol	Oxygen, O <sub>2</sub>		
	Boiling point	-183 °C		
	Heat of vaporisation, 1 bar	0,92 kJ/kg K		
	Heat capacity (15 °C)	0.81 kJ/kg K		
	Conversion factors	1 Nm <sup>3</sup>	= 1,148 l	= 1,311 kg
		1 l	= 0,871 Nm <sup>3</sup>	= 1,142 kg
		1 kg	= 0,763 Nm <sup>3</sup>	= 0,876 l
Critical values	Critical temperature	-118,6 °C		
	Critical pressure	50,4 bar		
	Critical density	0,436 kg/l		

1 Nm<sup>3</sup> = 1 m<sup>3</sup> at 15 °C, 1 atm (technical atmosphere). The litre designation is used for gas in the liquid phase.

**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.