



Meat & poultry. MAPAX[®]

Health-conscious, convenience-seeking consumers are putting the food industry under ever increasing pressure. On the one hand the public is concerned about product quality – the source, treatment and freshness of meat, meat products and poultry – on the other, they demand value for money. For food processors this translates into a need for production processes that deliver consistently high quality meats that satisfy strict food regulations, consumer expectation and the need for longer shelf life.

The solution lies in new ways of working – in highly sophisticated, efficient production and packaging processes that guarantee taste, appearance, food safety and value for money.

Meat and meat products

The challenges

The naturally high water and nutrient content in meat and meat products makes them susceptible to bacterial contamination. Food handling and processing is another potential source of spoil.

The de-oxygenation of myoglobin within red meat can also lead to unwanted colour change.

The solution

Strict hygiene, temperature and atmospheric control in processing and pre-packaging minimises the growth of mould and chemical breakdown which causes rancidity and food poisoning.

Carbon dioxide can also inhibit the growth of harmful bacteria such as *Pseudomonas* while a high concentration of oxygen (60 – 80%) in the fresh meat packaging room can help to retain meat's healthy red colouring over time. Indeed, with the right mix of oxygen in the atmosphere, the shelf life of meat in consumer packs can be doubled – it can be extended from 2 – 4 days to 5 – 8 days at 4 °C.

Poultry

The challenges

Poultry is susceptible to microbial growth, evaporation loss, off-odour, discolouration and biochemical deterioration. Unlike red meat, however, it does not undergo irreversible surface discolouration in the presence of oxygen.

The solution

Carbon dioxide is an effective inhibitor of aerobic spoilage bacteria in poultry. Levels of 20% and above can help to retain original taste, texture and significantly extend shelf life provided the headspace volume (almost) equates to the product volume. The right gas mix is proven to lengthen the shelf life of pre-packed poultry to between 16 and 21 days.



The BOC solution: MAPAX®

MAPAX® brings you a full range of tailored solutions to meet the packaging requirements of the food industries. Our BOC specialists will recommend the most suitable gas, equipment and safety products for your process, site and employees.

The MAPAX® gas range has been created to match the special quality requirements of the food industry. They comply with the strict food standards and legislation regarding packaging, storage and distribution. We can provide the traceability and safety guarantees demanded by the law.

Food grade gases

BOC's dedicated field and in-house specialists have in-depth knowledge of the options available to you. We will work with you to develop the right gas mixture for the products being packed.

Gases:

- Oxygen
- Nitrogen
- Carbon Dioxide

Recommended gas mixtures for meat and meat products

Product	Gas mixture	Gas volume Product volume	Typical shelf-life		Storage temp.
			Air	MAP	
Raw red meat	60 – 80% O ₂ + 20 – 40% CO ₂	100 – 200 ml 100 g meat	2 – 4 days	5 – 8 days	2 – 3°C
Raw light poultry	40 – 100% CO ₂ + 0 – 60% N ₂	100 – 200 ml 100 g meat	4 – 7 days	16 – 21 days	2 – 3°C
Raw dark poultry	70% O ₂ + 30% CO ₂	100 – 200 ml 100 g meat	3 – 5 days	7 – 14 days	2 – 3°C
Sausages	20 – 30% CO ₂ + 70 – 80% N ₂	50 – 100 ml 100 g prod	2 – 4 days	2 – 5 weeks	4 – 6°C
Sliced cooked meat	30% CO ₂ + 70% N ₂	50 – 100 ml 100 g prod	2 – 4 days	2 – 5 weeks	4 – 6°C

Technical services

BOC works closely with the food industry to create and develop leading technologies and applications. Our Food Technology Centre in Thame, Oxfordshire welcomes customers for trials and product testing. Across BOC and our parent company The Linde Group, we have dedicated MAP technical specialists in place to support and aid all our customers. They can advise you on a range of topics, including gas mixture selection, achievable shelf life and analysis techniques.

Contact us

BOC
Tel 0800 111 333
Fax 0800 111 555
www.BOCOnline.co.uk

BOC Ireland
Tel 1890 355 255
Fax (0)1 409 1801
www.BOCOnline.ie

BOC has the leading range of products and services for many areas of food processing, including chilling, freezing and MAP. These are supported by a team of dedicated field and in-house specialists as well as our UK Food Technology Centre.

BOC
The Priestley Centre, 10 Priestley Road, The Surrey Research Park, Guildford, Surrey GU2 7XY, United Kingdom
Tel +44 1483 579 857, Fax +44 1483 505 211, www.BOCOnline.co.uk

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