

# Prepared & catered food. MAPAX®

Convenience-seeking shoppers want high quality, attractive 'consumer ready' foods with a long shelf life. Receptive to exotic tastes and quick to try new lines, they are prepared to pay premium prices in exchange for minimal preparation. Pizzas, sandwiches and ready meals fall into this category.

In order to meet this demand, the catering industry must deliver fresh, fine foods of consistent high quality. Producing to order is often employed to satisfy these demands, which could result in a very expensive operation.

The solution lies in new ways of working – in highly sophisticated, efficient production and packaging processes that guarantee the taste, appearance and food safety of these multi-ingredient, added value foods.

## The challenge

Pre-prepared and catered foods present a complex challenge. Their multiple ingredients increase the potential for deterioration. Each bespoke mix carries its own particular risk. If meat is the main ingredient, as in ravioli or lasagne, it spoils in a different way and rate to pasta for example.

The manufacturing process for prepared foods also carries risk of microbial contamination.

Spoil is caused by the growth of micro-organisms and by oxidation. It leads to rancidity, discolouration and loss of taste; food can become stale. A fresh pizza left in the open air at 4 – 6°C will be inedible within a week for example.

Getting the right carbon dioxide/nitrogen balance is another priority. Whilst it will vary according to the moisture content and composition of the different ingredients, the mix can significantly influence the speed of microbial growth, oxidation and enzyme activity.

## The solution

Stringent hygiene is critical throughout the production process. It reduces risk of contamination.

Atmospheric control and temperature also supports the right environment for product quality and extended shelf life. Packaging a product in a modified atmosphere with a low oxygen concentration and high carbon dioxide level will promote longevity. In the case of pizza, an oxygen level of less than 1.5% will achieve this.

As a general rule, the higher the water content, the higher the required carbon dioxide concentration.

Modified Atmosphere Packaging (MAP) can reduce the risks associated with multiple-ingredient foods. Food producers are advised to identify a trusted expert – a supplier with the proven expertise – to recommend the right gas mixtures to sustain freshness and so maintain product quality over time.

## Meeting the needs of the catering industry

### The challenge

Consumers have very high expectation of the catering industry. They demand fresh, appetising foods when and where they want them. Though an inefficient and expensive way to operate, production-to-order is often the supplier's preferred means of meeting this need.

### The solution

Temperature and atmospheric control during the kitchen or factory production process supports a managed and planned production process. It enables caterers to plan ahead – to drive productivity improvement and better control supply chain costs. The ability to plan ahead also makes it easier to organise storage and distribution needs, all the time supporting product quality over longer shelf life.

In a hotel or restaurant kitchen, modified atmosphere packaging enables efficient production. Rather than slicing cheese or meats for the breakfast table on a daily basis, for example, this task can be reduced to once or twice a week. The number of slices stays the same, but you work more efficiently. The same applies when preparing fresh meat cuts for the grill.

Packing sandwiches and chilled food is a profitable option for many caterers. Here too atmospheric control and correct temperature selection are essential to product quality and shelf life.

# 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 dry foods and bakery products

Product	Gas mixture	Gas volume Product volume	Typical shelf-life		Storage temp.
			Air	MAP	
Pizza	30 – 60% CO <sub>2</sub> + 40 – 70% N <sub>2</sub>	50 – 100 ml 100 g prod	1 week	3 weeks	2 – 4°C
Pasta	30 – 60% CO <sub>2</sub> + 40 – 70% N <sub>2</sub>	50 – 100 ml 100 g prod	1 week	3 weeks	2 – 4°C
Sandwiches	30% CO <sub>2</sub> + 70% N <sub>2</sub>	50 – 100 ml 100 g prod	2 days	10 days	2 – 4°C
Ready meals	30 – 60% CO <sub>2</sub> + 40 – 70% N <sub>2</sub>	50 – 100 ml 100 g prod	4 days	21 days	2 – 4°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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