



Dairy. MAPAX[®]

The consumer is putting the dairy industry under ever-increasing pressure. On the one hand they demand high quality dairy foods with long shelf life; on the other they expect value for money. For food processors this translates into a need for new production processes that satisfy strict food regulations and deliver on these needs.

It's a complex agenda. Microbial growth and rancidity are the primary causes of quality deterioration in dairy products, although the type of breakdown depends on the foodstuff. Hard cheese with its relatively low water content is predisposed to mould growth, whereas cream and soft cheeses with their high water content are susceptible to fermentation and rancidity.

The solution lies in an efficient production process that offers gentle handling and rapid processing. If dairy foods can be preserved before the onset of deterioration, then quality and longevity will be maintained.

The challenge

Hard cheese is susceptible to microbial activity and mould growth. The packaging of value-added cheeses such as grated or sliced cheddar is prone to collapse. Overtime the carbon dioxide in the pack may also taint the cheese. Cultured products such as cottage cheese and yogurt are also at risk of spoil.

The solution

Carbon dioxide is a priority when packaging hard cheese. It significantly reduces – even stops – microbial activity and helps to maintain texture. Concentrations of just 20% are required to inhibit mould growth. Used with nitrogen, it slows the spoil of soft cheese.

Nitrogen can prevent package collapse and bagging grated cheese in a modified atmosphere comprising 50% nitrogen and 50% carbon dioxide will eliminate this problem. In cases where carbon dioxide absorption is causing product to taint, a nitrogen atmosphere is recommended to eliminate this risk.

Modified atmospheres are also proven to preserve the freshness of cultured products such as cottage cheese and yoghurts.



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 dairy products

Product	Gas mixture	Gas volume Product volume	Typical shelf-life		Storage temp.
			Air	MAP	
Hard cheese	80 – 100% CO ₂ + 0 – 10% N ₂	50 – 100 ml 100 g cheese	2 – 3 weeks	4 – 10 weeks	4 – 6°C
Hard cheese (sliced, grated)	40% CO ₂ + 60% N ₂	50 – 100 ml 100 g cheese	2 – 3 weeks	7 weeks	4 – 6°C
Soft cheese	20 – 60% CO ₂ + 40 – 80% N ₂	50 – 100 ml 100 g cheese	8 days	21 days	4 – 6°C
Yogurt	0 – 30% CO ₂ + 70 – 100% N ₂		10 – 14 days	22 – 25 days	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

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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.

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