

Freshline™ MAP ***– raw fish and seafood***

Fish is the most perishable of foodstuffs and one in which consumers are most sensitive to potential spoilage. When modified atmosphere packaging (MAP) is used in conjunction with careful temperature control, shelf life can be extended almost threefold. In a marketplace in which the consumer values chilled over frozen fish, MAP produces significant benefits to both the retailer and the customer – resulting in a product which looks good, smells good and tastes good far longer.





Air Products'
Freshline™

Because of its habitat and harvesting, fresh fish can suffer from a wide range of spoilage problems whose effects vary widely depending on the type of fish and storage conditions. Fish products can be subdivided into three major types:

White fish

– such as cod, haddock, plaice, sole, halibut, whiting, skate, swordfish, shark and hake

Low in fat, this product benefits from a high carbon dioxide concentration and the presence of some oxygen. Oxygen prevents the growth of organisms like the anaerobic Clostridium botulinum Type E, and can also prevent colour changes and bleaching.

Retail: 40% CO₂ 30% N₂ 30% O₂. Bulk: 70%CO₂ 30% N₂

Oily fish

– such as herring, mackerel, salmon, trout, sardines and whitebait

High in unsaturated (Omega 3) fatty acids, this product is particularly prone to oxidative rancidity. This problem can be substantially reduced by excluding oxygen and using nitrogen as a filler.

Retail: 40% CO₂ 60% N₂. Bulk: 70% CO₂ 30% N₂

Crustaceans and molluscs **– such as prawns, lobster, crab, squid, mussels and cockles**

As with the oily fish, carbon dioxide is used in the MAP of crustacea to inhibit the growth of aerobic bacteria. Care must be taken not to use too high a proportion of carbon dioxide as this can lead to pack collapse, excessive drip and an acidic taste. Shelf life can be extended by up to four days when stored at 0°C.

Retail: 40% CO₂ 30% N₂ 30% O₂

Bulk: 70% CO₂ 30% N₂

It is worth knowing that whatever the fish a product to gas ratio of 1:3 is recommended.

The lower the temperature the more carbon dioxide can dissolve in the fish and so the greater and more long lasting its effects. A storage temperature of 2°C to 3°C is recommended. In cod fillets stored in 40% CO₂ at 0°C a shelf life extension of 10 days and total storage life of 17 days has been demonstrated.

The most popular MAP retail pack for all seafood products is a clear preformed semi-rigid tray, hermetically sealed to a clear flexible barrier lid.

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