

Food and Modified Atmosphere Packaging (MAP)

Using Air Products CryoEase® microbulk solutions can extend your product's shelf life, increase distribution possibilities, and decrease costs



What is MAP?

- Food packaging in which the earth's normal atmosphere has been modified to extend a food's shelf life.
- A gas mix—typically utilizing carbon dioxide, nitrogen, and oxygen gases.
- Products are packed in a single gas or a combination of three gases, depending on the spoilage mechanism of the food item.



How can MAP benefit my product?

Air Products' Modified Atmosphere Packaging can help extend a product's shelf life by up to 4 times versus non-MAP packaging.

Extended shelf life can enhance your product's desirability because it:

- Increases distribution distance possibilities
- Preserves quality by slowing deterioration and rancidity not only in transit but also after it reaches your customers' destinations.
- Reduces the need for artificial preservatives and creates a more environmentally-friendly product
- Minimizes food waste which allows a store to order your product more accurately

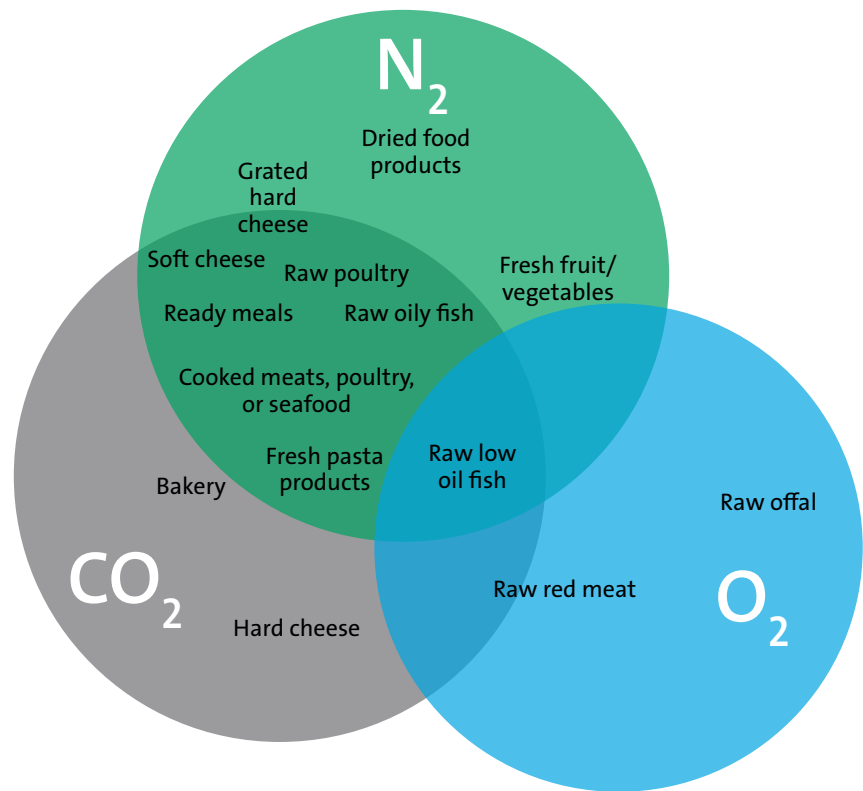
What gas mix works with my product?

Every food product has a unique gas mix that can best maximize the preservation effect of MAP. Carbon dioxide, nitrogen, and oxygen are utilized in various combinations that provide a unique benefit depending upon your food item. Our food MAP team can help you identify solutions to meet your needs.

See the next page to find the gas mix that can optimize your food product.

Unique solutions for every food

- **Nitrogen** is an inert gas that does not react with food. When used with no other gas, its primary function is to eliminate oxygen in contact with the food.
- **Carbon Dioxide** reacts mildly with food, creating carbonic acid. It can be used in small quantities (10%–30%) along with nitrogen to both protect food from oxygen and to inhibit the growth of most bacteria and molds.
- **Oxygen** is highly reactive with foods, causing both oxidation of oils (rancidity) and fuel for aerobic micro-organisms; it is usually excluded in food preservation. However, for certain foods, there are reasons to keep some oxygen in food packaging.



Our distribution system can work for your process in the following ways:

Maximizing safety: Eliminating inconvenient cylinder handling and risk of exposure to pressurized gases.

Increasing efficiencies: Providing constant on-stream supply, eliminating cylinder expenses, and freeing storage space.

Improving quality control: Eliminating potential contamination with dedicated containers and simplified inventory management.

Easing of maintenance: Eliminating maintenance of complicated on-site gas generation equipment.

Growing with your business: Optimizing vessel sizes to grow as your production increases.

What does it take to implement MAP into my process?

Implementing MAP into your food process is made easy with help from our qualified MAP food specialists. Often, MAP can be added into your existing process without major modifications. An Air Products technology specialist can visit your production site to discuss the appropriate gas mixture and implementation for your facility, and identify all aspects of tank selection, gas system design, installation, servicing, maintenance and safety guidance.

For more information, please contact us at:

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