



Freshline[®] Aroma MAP[™] System for Packaged Food

Empower your modified atmosphere packaged products with natural aromas



Clean label trends: Enhancing your modified atmosphere from protective to active

Increased scrutiny of food ingredients and the consumer's desire for natural or healthy produce have motivated food processors to find novel ways of replacing chemical preservatives with natural ones.

Our modified atmosphere packaging (MAP) development team has discovered that combining natural compound vapours such as essential oils or aromas with MAP can give an enhanced aroma or flavour to packaged products. Another benefit of the Freshline® Aroma MAP™ System is the extended shelf life of the product compared to standard MAP (when adding certain specific essential oils in the aroma vapour), offering the possibility to replace or remove chemical preservatives currently used.

As a consequence, Air Products' R&D team created the Freshline® Aroma MAP™ System for food packaging.

What is the Freshline® Aroma MAP™ System for Food Packaging?

The Freshline® Aroma MAP™ System allows you to seamlessly deliver precise amounts of volatile compounds (essential oils) into your MAP gas stream. This provides a tailored aroma to your product and potentially extends the product shelf life, depending on the compounds chosen.

Why use the Freshline® Aroma MAP™ System for your products?

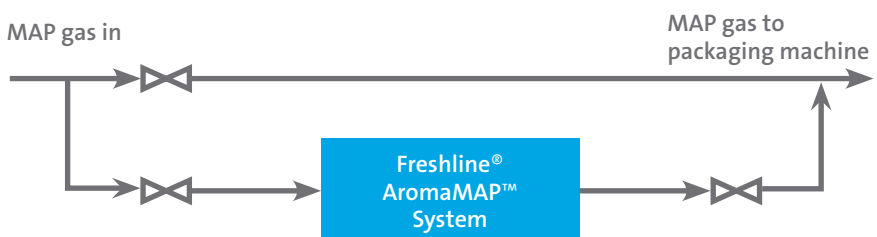
- **Enhanced customer experience:** The technology improves the flavour or aroma of packaged food.
- **Brand recognition:** Olfactory or scent marketing is increasingly used to make an impression on consumers. Choosing a specific aroma may help you to differentiate your product on the market.
- **Extended shelf life:** Using specific essential oils with antimicrobial properties in the aroma vapour can further extend the shelf-life of your product. In that case, the aroma vapour becomes active.
- **Cost savings & waste reduction:** Some MAP packed products have an unpleasant odour just after opening. Enhancing your product aroma may lead to fewer product returns.
- **Clean label:** MAP gases are derived from the air that we breathe. Essential oils are natural plant extracts. Depending on the one that you choose, you may be able to replace or remove chemical additives.

How does it work?

Built on a skid on wheels, this system is easily and rapidly fitted onto your existing packaging line, between your MAP gas supply and the packaging machine.

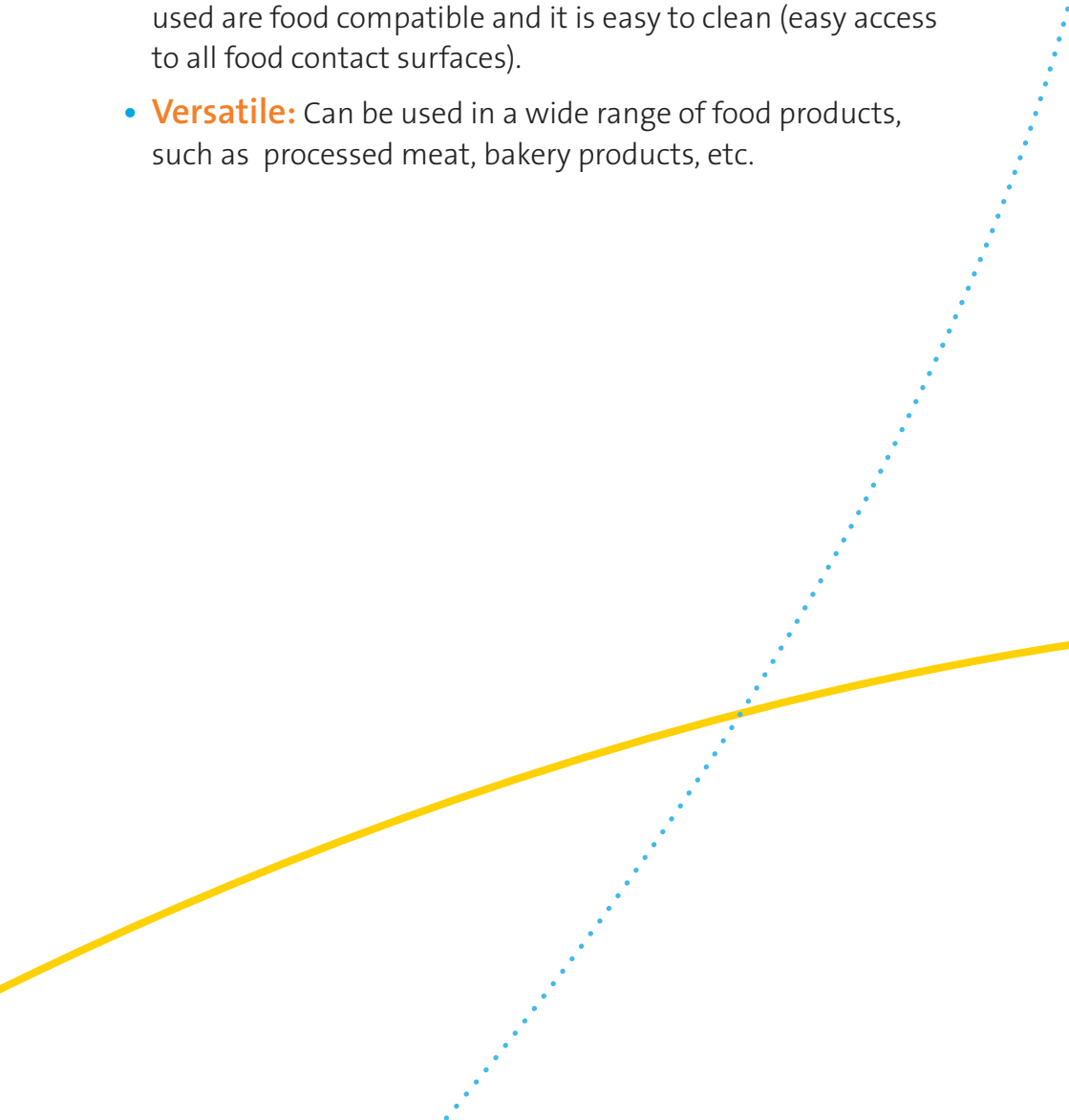
Thanks to its pre-set parameters, the machine injects a precise and repeatable amount of aroma/active compounds into the gas flow.

The mix of MAP gas and evaporated active/aroma compounds is then led to the packaging machine, where it is inserted in the packaging the same way it is done for standard MAP.



Air Products takes care of the installation, upfront calibration, maintenance and training. We also can support you with the right aroma dosing and analysis.

Key features of the Freshline® Aroma MAP™ System

- **Unique & Precise:** Unique and precise dosing system ensures a specific aroma/active compound concentration, leaving little to no trace on the packaging.
 - **Easy / Plug & play:** Calibrated upfront then easily fitted to the MAP gas supply for a simultaneous injection of the gas and the aroma in the packaging.
 - **Flexible:** Can be adapted to different production speeds.
 - **Safe and hygienic:** This system complies with all relevant legislation in place and current best practices. The materials used are food compatible and it is easy to clean (easy access to all food contact surfaces).
 - **Versatile:** Can be used in a wide range of food products, such as processed meat, bakery products, etc.
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How easily can I develop this for my product?

This solution can be implemented in 3 easy steps and we will help you all the way.

1 **Aroma/active volatile compound development:**

You can either use your own in-house aroma or create a new one. Before installation, our Air Products experts can help you develop your own specific aroma/active compound thanks to a close collaboration with Carinsa's Department of Food Aromas development. Carinsa will then design and provide the appropriate aroma/active compound for your product.



2 **Pre-calibration:** Air Products experts will then build and calibrate your Freshline® Aroma MAP™ System to the exact dosing rate needed depending on the compound used and desired end result. This will ensure that you consistently achieve the desired end result.

3 **Installation & start up:** Air Products will help you fit the Freshline® Aroma MAP™ System to your modified atmosphere packaging line. We will also show you how to set the Freshline® Aroma MAP™ System to the specific gas flow and inlet pressure needed by your packaging line.

About Air Products

Air Products' Freshline® solutions offer to the food industry high-purity food gases and equipment. Our international supply capability, and – most important – our unmatched industry experience and technical support help you to succeed just about anywhere in the world. We can help you improve your productivity, lower your costs, maximize your returns, and, as a result, allow you to continuously grow in a very competitive market.

Through continuous development and research, we will work closely with you to find the systems that precisely fit your requirement.

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