No. 15

The First Specialized Monthly Magazine of Tray Sealer, Thermoforming and Vacuum Chamber Packaging Machinery Industry

VORMEK

Vormek an Innovation–based Machinery Company, an Knowledge & Progress Center with Superior Technology and High Reputation in its Field

Editor–in–Chief: Mr. Simon FÜllenbach– Designer of Vormek Packaging Machines and Founder of this Company
Editorialist: Dr. David Sterling (Faculty Member of University and Marketing and Sale Consultant)

Editor and Translator: Dr. Stefanie Kaiser
Editorial Board: Marketing and Sales Unit of Vormek

Monthly Magazine Fiftheen Issue / March of 2026

Importance of Modified Atmosphere Packaging (MAP) in Extending Shelf Life of Dry Pet Food

VORMEK.COM
EN-AR-RU-DE

Iso 9001 Certificate in the Field of Packaging Machines Manufacturing

Achieving CE Certificate from European Country in the Field of Packaging Machines Manufacturing

License Holder and Director-in-Charge :
Simon Füllenbach

Editor-in-Chief :
Dr.David Sterling
Faculty Member of University

Editor and Translator :
Dr. Stefanie Kaiser

Graphic Designer and Layout Artist :
Mr. Ben Stevens

Website: Vormek.Com/ En-Ar-Ru-De
Mobile Phone: +44 7552 732408
Email: info@vormek.co

SEMI-AUTOMATIC
TRAY SEALER MACHINE

AUTOMATIC TRAY SEALER
PACKAGING MACHINE

Content

What Happens Behind the Shelves of Pet Shops?
The Role of Tray Sealer Packaging Machines in Real Shelf Life

Editorial: Dr. David Sterling

The pet food industry is no longer a niche market today. Due to the importance humans place on their pets, customers expect the same level of safety and freshness from pet food as they do from human food. In such conditions, packaging, especially with tray sealer machines, has become crucial for product quality, as wet pet foods are highly sensitive to oxygen, moisture, and microbial contamination.

Therefore, it's not just about sealing the container; precise gas management within the package, uniform temperature of the seal and correct seal settings directly impact shelf life. Many market returns are actually due to packaging instability, such as microscopic leaks or internal condensation, which consumers perceive as a brand weakness. For this reason, packaging with tray sealers using the Modified Atmosphere Packaging (MAP) method is now considered part of a manufacturer's credibility in the retail market.

In this issue, we have tried to provide a practical perspective on the MAP method, particularly in the pet food industry. We hope the compiled content will be useful for honorable manufacturers.

Fully Automatic Meat Packaging Line

Mr. Simon Füllenbach

The meat processing and distribution industry has become increasingly dependent on hygiene, consistent quality, and extended shelf life in recent years. Products such as ground meat, hamburgers, chicken, and other meat derivatives reach their final and most critical production stage when they enter packaging. Even the smallest error at this stage can compromise the entire production chain. Therefore, designing a standardized, fully automated packaging line is no longer just an optionit has become an industrial necessity.

Vormek, with a focus on delivering practical, engineered solutions for producers, has developed a system that enables manufacturing facilities to carry out packaging with greater ease, precision, and hygienic safety. The core objective of this solution is to eliminate human contact during the final production phasewhere the product reaches its final form and must be correctly packaged before being released to the market.

Importance of Hygiene in the Final Production Stage

Once the product enters the packaging stage, production is effectively complete. The less direct contact an operator has with the product, the lower the risk of contamination. Replacing manual operations with automated equipment significantly reduces microbial load, preserves product integrity, and enhances shelf life. Conversely, any human intervention at this stage can introduce contamination, as packaging is the last link in the production chainafter which the product is typically distributed to consumers without further processing or correction.

A Practical Industrial Solution

Based on over 15 years of experience in designing and manufacturing packaging lines for various products, Vormek has developed a new, European-standard-compliant system that delivers precise, stable, and fully hygienic performance. This fully automatic line, named Meat Line, represents a comprehensive, integrated solution tailored for meat and protein-based products.

Step-by-Step Process

Step 1: Container Feeding and Preparation

An automatic container feeder places containers onto a conveyor belt without operator involvement. These containers are then transferred via a modular conveyor system to subsequent stages. The parallel design of the feeder minimizes floor space usage and improves overall facility efficiency.

Step 2: Automatic Product Filling

For ground meat, the product first enters a meat grinder, followed by a precision press that cuts it into uniform portions. The processed meat is then conveyed directly into the containerswithout any human touchen-suring minimal microbial risk.

Step 3: Additional Processing (Optional)

After filling, containers move along a 2-meter transfer line where optional operationssuch as adding sauce or other additivescan be performed manually or via an automated filler, allowing customization based on producer needs.

Step 4: Container Reconfiguration

Containers are then fed into a reconfiguration unit that organizes them from single to multiple rows (e.g., 2-row or 3-row) according to the mold configuration of the tray sealer machine, ensuring precise alignment for final packaging.

Step 5: Final Packaging

The core of the system is the Intelligent Packing tray sealer Automatic Machine which packages the filled containers using customizable methods:

- Inside Cut
- Outside Cut
- Skin Pack

Producers can select the most suitable method based on product type, desired packaging appearance, and target market.

Step 6: Exit, Direction Change, Date Coding, and Labeling
After packaging, products exit the line and pass through a Pop-Up device that redirects them at a 90-degree angle to optimize space utilization. An automatic date coder and labeler can be integrated to print product information and apply labels.

Final Step: Ready for Dispatch
Packaged products are collected on a rotating table, where operators can safely place them into cartons or trays. At this stage, human interaction is limited to secondary handling no direct contact with the food product remains.

Conclusion
Vormek 's Meat Line is more than just a machineit is a smart engineering solution that elevates food safety, enhances consumer trust, and adds real value for meat and protein producers. The key advantage lies in minimizing operator presence during packaging, directly improving hygiene, product consistency, production uptime, and line efficiency. With proven experience and reliable performance, this system stands as a trusted, future-ready investment for modern food manufacturing facilities.

Importance of Modified Atmosphere Packaging (MAP) in Extending Shelf Life of Dry Pet Food

In recent decades, the growing culture of pet ownership and the evolving societal perception of pets as family members have transformed the pet food industry into one of the fastest-growing and most strategic sectors within the global food industry. Today's consumers not only seek to meet the basic nutritional needs of their pets but also place strong emphasis on product quality, safety, nutritional value, and sustainability. Among various pet food types, dry pet food has secured a significant market share due to its convenience, longer shelf life, and cost-effectiveness.

Dry pet food typically contains moisture levels between 8% and 10%, making it inherently more resistant to microbial growth than wet foods. However, low moisture alone does not guarantee long-term stability. One of the most critical challenges in dry pet food is fat oxidation, which leads to rancidity, sensory degradation, loss of nutritional value, and in some cases, mold growth due to oxygen and moisture ingress through inadequate packaging. These issues can result in the formation of undesirable compounds, reduced palatability, and even gastrointestinal or metabolic problems in pets.

For years, synthetic preservatives such as BHA, BHT, and propionates were commonly used in dry pet food formulations to combat these challenges. While effective, long-term consumption of these additives raises health concerns for pets and consumer skepticism. As a result, the pet food industry has shifted toward innovative packaging solutions that enhance product stability without relying on chemical preservatives.

One of the most effective approaches is Modified Atmosphere Packaging (MAP). In this method, the air inside the package is removed and replaced with a controlled gas mixture typically by reducing or eliminating oxygen and replacing it with gases like nitrogen (N_2) and carbon dioxide (CO_2). Removing oxygen plays a key role in slowing down oxidation reactions, especially lipid peroxidation, thereby preventing fat rancidity and preserving flavor and aroma.

In dry pet food, MAP offers multiple benefits:
- It significantly inhibits the growth of molds and fungi, which require oxygen to thrive.
- It preserves heat-sensitive vitamins and essential fatty acids, maintaining the product's nutritional value over time.
- It reduces the need for synthetic preservatives, enabling the production of cleaner, more natural, and market-acceptable productsboth domestically and for export.

From an industrial engineering perspective, combining scientifically formulated dry pet food with MAP packaging represents a systematic approach to enhancing safety, quality, and shelf life. Success depends on several key factors: high-quality raw materials, precise final moisture control, use of high-barrier packaging films (such as multilayer laminates or barrier films), and accurate gas composition within the package.

Beyond technical advantages, MAP also holds strong economic and marketing value. Extended shelf life reduces supply chain waste, simplifies logistics, and enables distribution to distant markets. Moreover, the professional, secure appearance of MAP packaging builds consumer trust and strengthens brand positioning in a competitive market.

Ultimately, given the increasing consumer awareness of pet health and food quality, MAP is no longer a luxury optionit has become an industrial necessity. When combined with advanced food engineering expertise, MAP represents a powerful step toward producing dry pet food that is safer, more sustainable, and aligned with international quality standards.

Vacuum Pump Role in Modified Atmosphere Packaging (MAP): A Key Factor in Quality and Efficiency

Mr. Alexander Hoffmann (Deputy CEO of Vormek)

In the food packaging industry, especially for sensitive products such as proteins and fresh products, the vacuum pump is one of the vital components of MAP systems. This pump not only removes air from inside the package but also creates the conditions for injecting mixed gases to enhance product shelf life. Choosing the right pump can make the difference between a high-quality, long-lasting product and one with quality and economic issues. In this article, based on practical experiences in production lines, we will explore the types of pumps, their advantages and disadvantages, and their impact on the MAP process.

Types of Vacuum Pumps

Vacuum pumps are categorized into three main types based on their applications: oil-sealed, dry, and screw. Screw pumps are designed for very high capacities and are used in large production lines. Dry pumps are suitable for environments with high oil sensitivity, such as infant formula production plants or food products sensitive to contamination. In contrast, oil-sealed pumps, commonly used in trisector machines, offer reliable and cost-effective performance and are ideal for most production lines.

The Importance of Vacuum Pump Performance in MAP

The main goal of vacuum in MAP is to reach the target pressure so that the mixed gases (such as carbon dioxide and nitrogen) can be properly injected. If the vacuum pump is weak or inefficient, the gas composition is disrupted, and the remaining oxygen causes bacterial growth, reduced shelf life, color and texture changes, and ultimately mold. These problems not only reduce product quality but also increase the risk of product returns and financial losses.

On the other hand, a strong and high-capacity vacuum pump has a direct impact on efficiency. The packaging cycle time is reduced; for example, if the vacuum target is to remove 40% of the air inside the package, a more powerful pump will do this faster, increasing the number of packages produced per unit of time. This means saving time and labor, and ultimately greater profitability.

Conclusion

The vacuum pump in MAP packaging is not just a technical tool but a determining factor in the final product quality and production line efficiency. Choosing the right pump, such as oil-sealed for general use, dry for sensitive environments, and screw for high capacities, can minimize quality and economic challenges. Ultimately, investing in a high-quality vacuum pump means preserving customer trust, reducing waste, and strengthening your market position. If you need advice on selecting or optimizing your MAP system, I'd be happy to share my experience with you.

The Foundation of Health, Growth and Quality

High-quality pet food is the essential source of energy and vital nutrients that ensure the health, growth, and well-being of household pets.

2

Pet Food Production: The Science and Art of Precise Formulation

Scientific formulation, use of premium raw materials, and strict quality control are essential for ensuring pet health and safety.

3

The Secret to Shelf Life: Moisture Control and Proper Processing

Maintaining optimal moisture levels, proper drying, and preventing mold growth help preserve the nutritional value of pet food over time.

4

Challenges in Pet Food Production: From Raw Materials to Final Product

Processing errors during receiving, grinding, mixing, and pelleting can impair digestibility, compromise safety, and negatively affect pet health.

5

Spoilage Challenges: Pests, Moisture, and Oxidation

Pet food is highly sensitive to pests, moisture, and fat oxidation; improper management can lead to vitamin degradation and increased disease risk

6

Pet Food Packaging: Preserving Nutritional Value and Preventing Contamination

Proper packaging protects food from moisture, light, oxygen, and pests, ensuring long-term nutritional quality and safety.

7

Sustainable and Eco-Friendly Packaging

Using durable, recyclable, and environmentally low-impact packaging not only maintains food quality

8

Smart Packaging in Pet Food

Smart packaging with sensors for moisture, oxygen, and contamination continuously monitors food conditions, preventing premature spoilage.

9

The Role of MAP in Long-Term Pet Food Preservation

Replacing oxygen with inert gases in Modified Atmosphere Packaging (MAP) significantly reduces oxidation and mold growth, extending shelf life and maintaining product quality

10

Conclusion: Balancing Quality, Nutritional Value and Shelf Life

Combining scientific formulation, rigorous quality control, and standardized packaging ensures pet health and consistent nutritional value throughout the product's shelf life

11

VORMEK

Vormek is the knowledge-based company and manufacturer of Tray Sealer packaging machines with a true **MAP** system in the country, which has been specializing in this field for about **15** years.

Preserving Aroma and Quality; Shayer's Successful Experience in Pet Food Packaging

Continuing our after-sales service visits, this time we spoke with Mr. Jamshidian, the CEO of Shayr brand in the pet food production sector. This company packages dry treats, including dried turkey, chicken, and chicken liver, using our company's tray sealer packaging machines. For these products, preserving aroma, taste, and freshness plays a decisive role in their appeal to cats and dogs.

According to Mr. Jamshidian, without the use of appropriate packaging technology, the appeal of these products to pets ranges between 30% to 70% and decreases over time. However, by using proper vacuum sealing and injecting nitrogen and carbon dioxide gases with our machines, they have managed to maintain this appeal up to 95%, a factor that has directly impacted product quality and final consumer satisfaction. In terms of production capacity, this company can package 1500 packages or even more in just 4 hours.

This process is carried out with two operators; although it's possible for one person to manage, having two operators has increased the speed and orderliness of the production line. One operator is responsible for placing and controlling the process, while the other operator collects the final products. Mr. Jamshidian also pointed out a significant advantage of the machine: the absence of limitations in using various types of packaging film rolls.

This feature has enabled them to offer diverse packaging options according to market needs and increase their production volume without constraints. According to him, this type of packaging has had a direct impact on increasing profit margins and improving the overall performance of the company, and has also played a key role in enhancing the popularity and acceptance of their products. He concluded by saying, "Using your machines has had a completely positive impact on our work, and the packaging quality has reached a higher level. This advancement has led us to consider developing new products and, in the future, packaging wet products as well, using new molds or other machines."

Advanced Layer Palletizer Technology: A Revolution in the Packaging Industry

Advanced Layer Palletizer Technology: A Revolution in the Packaging Industry

Hello, I'm E.S.Pack'manager and with pride I introduce the layer palletizer. layer palletizers, a marvel of industrial automation engineering, place packages on pallets with amazing speed and unmatched precision. These intelligent systems use advanced movable plates and in industries where every second is valuable, such as mass production, they perform miracles and elevate productivity to its peak.

The main components of this machine work in perfect harmony:

- Input Feeder: The gateway for packages from the production line, where smart conveyors adjust the order.
- Storage Table: A smart temporary warehouse that organizes products using precise algorithms.
- Movable Plate (Platen): The heart of the system that places packages in their place like a precise surgeon.
- Lifter System: It magically adjusts the height and fills the layers.
- Driven Conveyors: Ensure fast and uninterrupted transfer.
- Pallet Magazine: Provides an endless source of empty pallets.
- Post-Pallet Robot: Gently transfers the complete pallets.
- Control Panel: The thoughtful brain with PLC that monitors and optimizes the process.

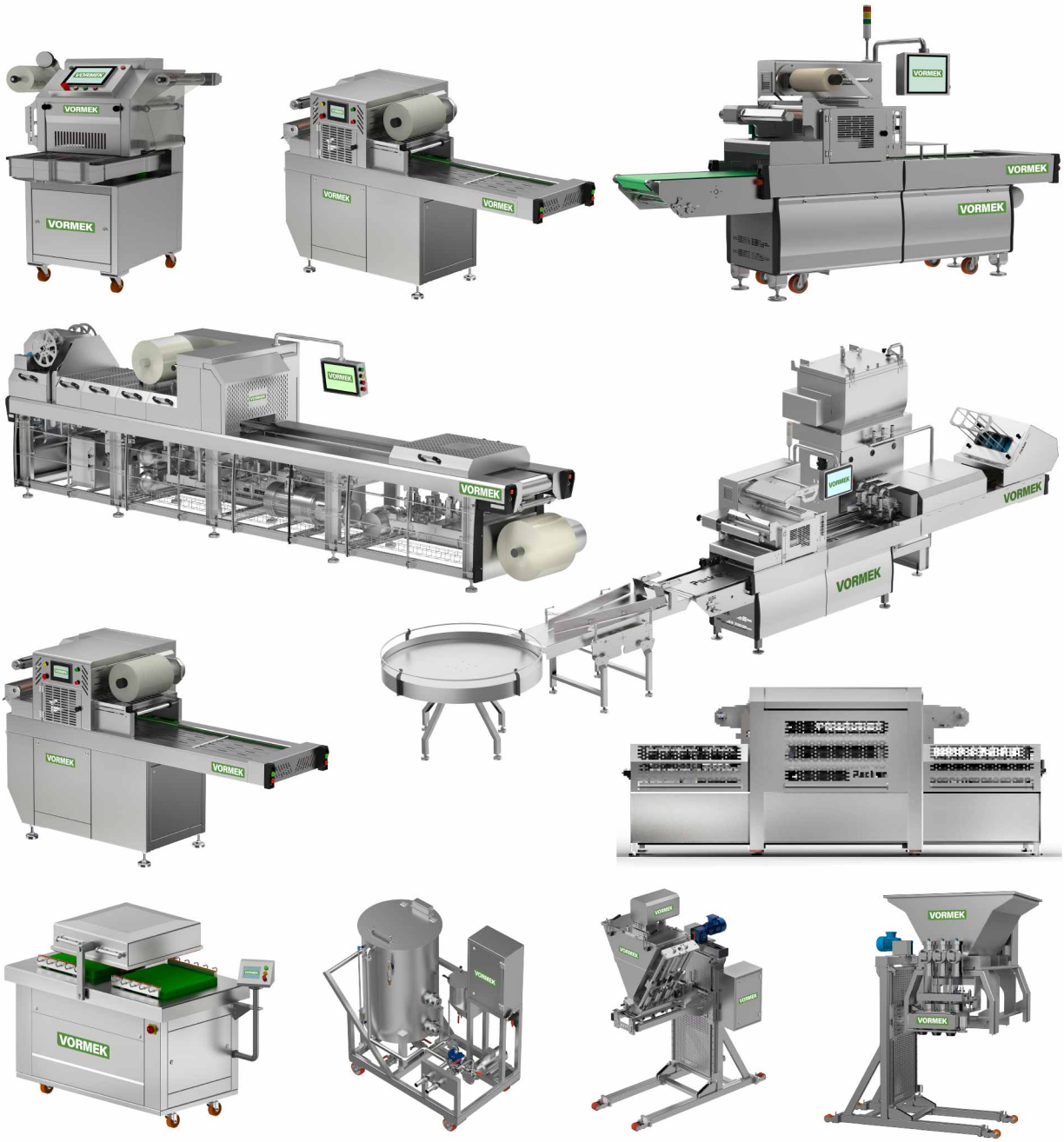
Key advantages include exceptional speed, managing thousands of packages per hour; laser precision with sensors that maximize space; saving human labor and reducing costs; absolute safety that eliminates accidents; unlimited flexibility for various products; 100% accuracy that ends human error; optimized space that makes transportation economical.

It shines in the food, pharmaceutical, home appliance, electronics, automotive, and consumer goods industries.

Conclusion: With lightning speed and unprecedented cost savings, it writes the future of industry and ensures competitive advantage.

The Importance of Using Tray Sealer, Thermoforming, and Vacuum Chamber Machines in Today's Packaging Industries

- Tray Sealer packaging machines, with easy operation and simple maintenance, make it possible to package a wide variety of food products. In addition to extending shelf life, they give the product a stylish and professional appearance.
- Thermoforming packaging machines, in addition to producing trays, also carry out the filling and packaging process. These machines, in different types such as soft film, hard film, and skin pack, can package food products in a highly professional and attractive way with complete precision.
- Vacuum Chamber machines, by completely removing the air (vacuum) from inside the filled pouches, can ensure freshness, safety, and long-term preservation of food products. Furthermore, the installation of various fillers and dedicated options on these machines makes the packaging process more automated, hygienic, and faster.
- This technological combination elevates packaging standards and, while modernizing the production process, creates trust and a modern image of the producer's brand in the minds of customers.



We warmly invite you, our dear audience, to share your topics of interest with us. Your opinions and suggestions not only help enrich our content but also guide us in providing more practical material to meet your needs. **Would you like to read a report about a specific industry or a special technology in the field of packaging?**

Share your thoughts with us so we can cover them in upcoming editions.