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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

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Engineering for Health, a Look at Fresh Vegetables and the Importance of Packaging

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SEMI-AUTOMATIC
TRAY SEALER MACHINE

AUTOMATIC TRAY SEALER
PACKAGING MACHINE

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Modern Packaging Technologies; Competitive Advantage of Fresh Vegetable Producers

Editorial: Dr. David Sterling

In recent years, the fresh and ready-to-eat vegetable industry has been undergoing an unprecedented transformation; a transformation that is not only the result of changes in consumer behavior, but is also considered the outcome of advancements in packaging technologies, food safety standards, and sustainability requirements in the global supply chain. In this context, **Tray Sealer** packaging machines and modern vacuum packaging technologies, as well as modified atmosphere packaging methods, play a decisive role in creating added value, increasing shelf life, and expanding export markets.

Today's market demands transparency, efficiency, and traceability more than ever. The modern consumer has become more sensitive to quality, packaging appearance, and product authenticity, and expects to receive a healthy, cost-effective, and environmentally friendly product. On the other hand, producers, in order to meet these expectations, are compelled to abandon traditional approaches and, by adopting automation technologies, analyzing consumption data, and optimizing packaging lines, create a sustainable competitive advantage.

The twelfth issue of the Vormek electronic magazine, with a special focus on the vegetable industry, seeks to present a comprehensive perspective on technological trends, growth opportunities, and strategic challenges of this sector. In this issue, in addition to introducing new achievements in the field of **Tray Sealer** packaging machines, we have addressed topics such as improving the shelf life of fresh vegetables, global packaging standards, sustainable innovations, and analysis of consumer behavior in target markets.



Safe And Advanced Design of Food Packaging Machines

Mr. Simon Füllenbach

A Specialized Perspective from Mechanical, Electrical and Automation, Food Industry, and Industrial Safety Experts

In the food packaging industry, machine safety not only means protecting the operator, but also directly affects product quality, production line efficiency, and compliance with hygienic and industrial standards. At Vormek, we carry out the design and manufacture of packaging machines with a comprehensive and multidisciplinary approach; machines including **Tray Sealer** machines, thermoforming machines, vacuum chambers, and auxiliary equipment, which are built from start to finish with consideration of safety principles, hygiene, operational accuracy, and ease of use.

Mechanical Design with a Safety-Oriented Approach

From the perspective of a mechanical design engineer, the first step in machine safety is principled design without hazardous points. All body parts and moving components are manufactured from hygienic steels (stainless steel 304 or 316), which, in addition to high resistance, are suitable for contact with food products.

In component design, we have specifically avoided creating sharp edges, and all corners are designed to be rounded and safe so that in case of sudden contact, the operator does not suffer cuts or injuries. In addition, the machines are designed in such a way that the operator has minimal need for direct intervention in hazardous areas.

Conclusion

At Vormek, we believe that safety is an inseparable part of machine quality. A machine that is designed without considering safety, no matter how technically advanced it may be, lacks operational value. For this reason, by utilizing specialized knowledge in mechanical design, automation, food industries, and industrial safety, we have strived to produce a new generation of packaging machines that meet global standards in terms of performance, safety, and hygiene.

Intelligent Control and Error Prevention

In the field of industrial automation, our focus is on preventing errors before they occur. By using advanced PLCs and precise programming, the machine control system is designed so that when faced with even the smallest sign of technical fault or danger, the machine automatically stops and issues a warning.

Sensors that monitor air pressure, temperature, cylinder positions, mold status, and even doors send commands to the control system. This control process minimizes the possibility of accidents. Additionally, in special conditions such as pneumatic pressure loss or opening of the machine door, the system immediately enters Safe Mode.

Safety Requirements and Protection of Human Resources

From the viewpoint of industrial safety experts, protecting the operator in emergency conditions is of vital importance. Emergency Stop keys are installed at various points of the machine, including operator stations and machine input and output areas. These keys are positioned so that in any working situation, the operator can react quickly.

In addition, safety covers, emergency stop sensors, interlock locks, and physical guards are used to prevent accidents. When the emergency key is pressed, machine operation stops immediately, and restarting is not possible until reinspection.



The Importance of Packaging with Tray Sealer Machines Equipped with MAP in Enhancing the Brand of Ready Vegetable Producers

The ready-to-eat vegetable market has been one of the most dynamic segments of the food industry over the past decade. Changes in lifestyle, increased demand for healthy and ready products, and the growth of modern sales channels have shifted consumer selection criteria from merely price to perceived quality, brand authenticity, and reliability. Within this framework, packaging is not only responsible for protecting the product, but also serves as a communication medium and a value-creating element for the brand. With the development of Tray Sealer packaging machine technologies, producers are able to preserve quality in a measurable manner from the production stage to the moment of consumption and convey it to the customer.

Packaging with **Tray Sealer** machines equipped with modified atmosphere, by removing or replacing oxygen inside the tray, creates conditions that prevent the most important quality-degrading factors in the fresh food chain. These technologies:

- Minimize discoloration, wilting, and texture degradation in fresh vegetables.
- Significantly increase product safety and shelf life by controlling the growth of microorganisms.
- Create a positive mental image of the brand in the consumer's mind due to the preservation of physical and sensory freshness.

Perceived quality is one of the most influential components of brand equity. Consumers consider shelf-life stability and consistent quality as indicators of brand reliability; therefore, investment in advanced packaging is, in fact, an investment in brand value.

Additionally, marketing studies show that packaging is the first point of contact between the consumer and the brand in the store. Packaging features based on modified atmosphere technology such as transparency, seal integrity, absence of free moisture, and uniform product arrangement lead to:

- Increased product visibility on retail shelves
- Strengthened belief in quality and hygiene
- Enhanced perception of value relative to the price paid
- Reduced perceived purchase risk in fresh products

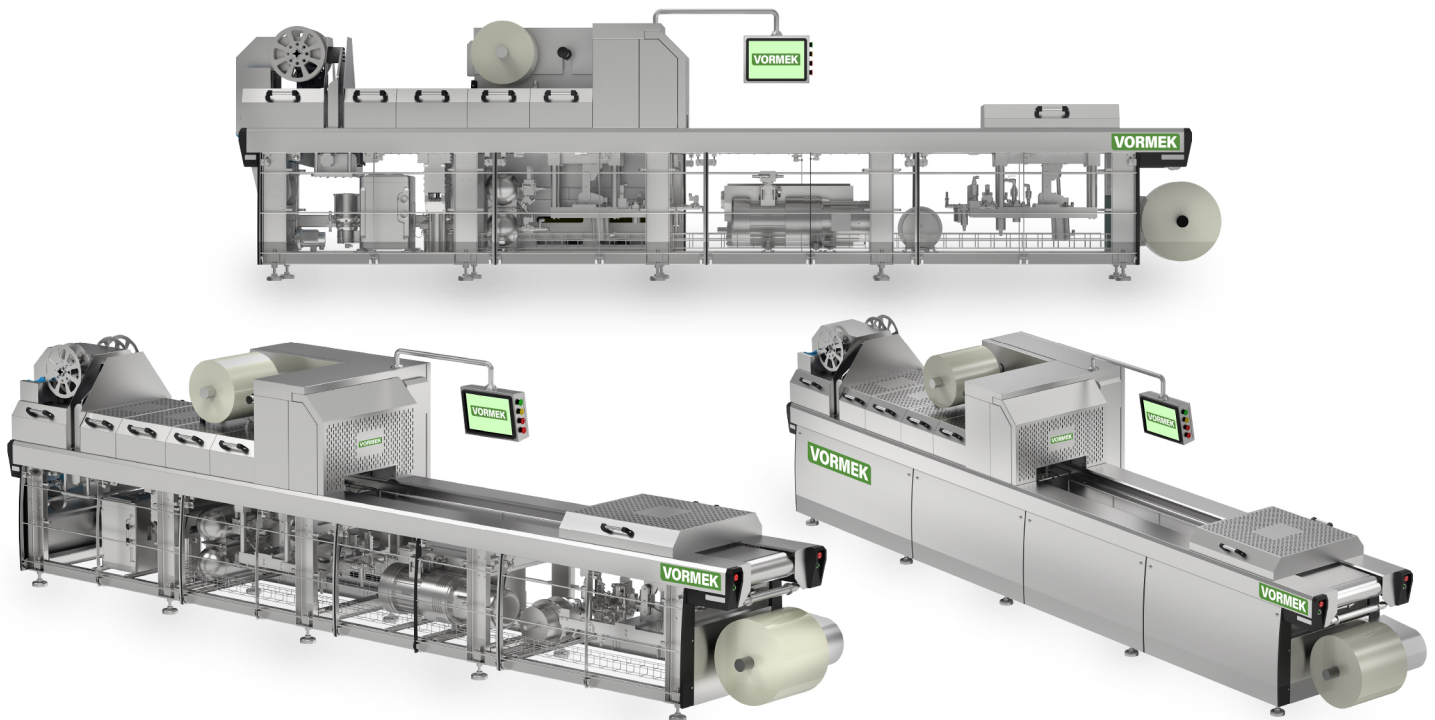
These factors directly increase product selection rates and strengthen brand loyalty, especially in markets where competition is intense and physical product differentiation is limited.

The use of **Tray Sealer** machines equipped with MAP systems for packaging products such as ready vegetables, in addition to their direct effects on quality, offers significant operational and economic advantages, including:

- Increased production speed and operational consistency
- Reduction of human error
- Standardization of product dimensions and weight
- Reduction of logistics costs due to longer shelf life

These factors enable entry into more distant markets and export opportunities, and increase the brand's capacity to expand market share.

In conclusion, packaging with **Tray Sealer** machines combined with the modified atmosphere option are not merely technical tools for preserving the freshness of vegetables; rather, they are considered strategic marketing elements that directly impact brand equity, competitive differentiation, and market share. In today's competitive environment, producers who integrate these technologies with quality management systems, branding strategies, and consumer behavior analysis will not only be operationally ahead, but will also achieve a more sustainable and profitable position in the market.



Thermoforming Packaging Machine;

The Convergence of Precision Engineering, Production Speed, and Hygienic Standards

Mr. Simon Füllenbach

In the food industry, packaging is no longer merely the final stage of production; rather, it plays a decisive role in product quality, health protection, shelf life, and identity. In this context, thermoforming packaging machines, as one of the most advanced technologies, have gained an important position in food and pharmaceutical packaging lines. These machines, by forming film and converting it into a tray, packaging with soft or rigid films or in skin form, and final separation of filled and sealed trays in a continuous process, make it possible to produce precise, hygienic, and long-lasting packages.

How Does Thermoforming Work?

The operating process of a thermoforming machine begins with the entry of the film roll into the machine. The film first enters the preheating section and reaches the appropriate temperature for forming. Then, at the forming station, the film is shaped inside the mold and converted into a tray.

In the next stage, the product is placed manually or automatically into the formed trays. After that, the machine enters the sealing section, with or without vacuum; where the air is evacuated from inside the package and, if necessary, protective gas (MAP) is injected. Finally, the packages are separated from one another with high precision at the cutting station and exit the machine in ready form. This process integration is the most important advantage of thermoforming technology compared to traditional packaging methods.

Standards of Thermoforming Packaging Machines and How Close the VORMEK Brand Has Come to Them

Competitive Advantage Beyond Technology

The important point is that similarity to global brands is not limited to hardware alone. VORMEK thermoforming machines are designed with a precise understanding of market's needs; from real customization capability to accessible after-sales service and fast spare parts supply. These features, along with competitive pricing, have led many manufacturers to consider these machines a logical and intelligent alternative to imported models.

The thermoforming packaging machine is a symbol of technological maturity in the packaging industry, and successful entry into this field requires courage, knowledge, and long-term investment. The experience of VORMEK shows that by relying on precise engineering and real market understanding, it is possible to produce machines that not only are close to the technology of reputable global brands, but also, in many aspects, provide a better response to the needs of domestic and regional producers.

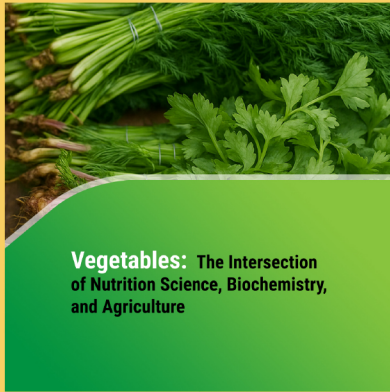
According to global standards, a thermoforming packaging machine must be at the highest engineering level in terms of mechanical design, thermal stability, precision in vacuum control, coordination of motion systems, and level of automation. Achieving these standards requires deep technical knowledge, long-term practical experience, and precise understanding of industrial packaging processes.

The VORMEK brand, relying on years of practical experience, development of local knowledge, and careful study of reputable global machines, has been able to design and manufacture machines that, in terms of performance, accuracy, and stability, are very close to the standards of leading international brands and meet the needs of modern packaging lines.

VORMEK Thermoformings; How Close Are They to Reputable Global Brands?

Thermoforming machines produced by VORMEK are the result of years of practical work, technical experience, and development of local knowledge. The design team of this company, through years of experience working on leading European machines, has gained a precise understanding of their strengths and weaknesses, and this experience has become the basis for designing the new generation of VORMEK thermoformings.

In terms of technology level, mechanical accuracy, control systems, material quality, and variety of options, these machines in many cases are on par with reputable global models. The use of durable shafts and bushings, automatic lubrication systems, PID temperature control, precise single-stage and two-stage cutting, and an advanced user interface are only part of this technical similarity.



Vegetables: The Intersection of Nutrition Science, Biochemistry, and Agriculture



Spinach; A Rare Plant Source of Coenzyme Q10

Fresh spinach contains small amounts of coenzyme Q10, which plays a role in cellular energy production and heart health



Parsley; A Natural Blood Cleanser

The apigenin and chlorophyll compounds found in parsley help detoxify the blood and reduce inflammation.



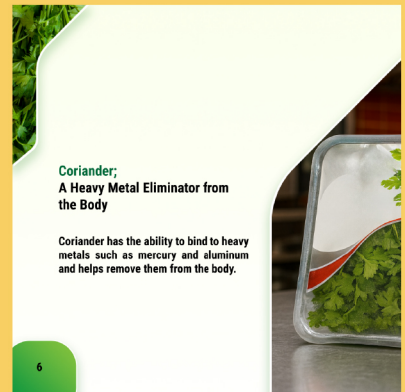
Basil; A Plant-Based Antiviral with Enzyme-Inhibiting Properties

The essential oils of basil contain eugenol, which can inhibit viral activity at the cellular level



Mint; A Digestive Regulator with Antispasmodic Effects

The menthol in mint helps relax the smooth muscles of the digestive system and reduce bloating.



Coriander; A Heavy Metal Eliminator from the Body

Coriander has the ability to bind to heavy metals such as mercury and aluminum and helps remove them from the body.



Dill; A Natural Protector of DNA Against Mutations

The antioxidants present in dill can prevent oxidative damage to DNA.



Green Onion; An Activator of Anti-Cancer Enzymes

The organosulfur compounds in green onion stimulate phase II liver enzymes, which play a role in neutralizing carcinogenic substances.



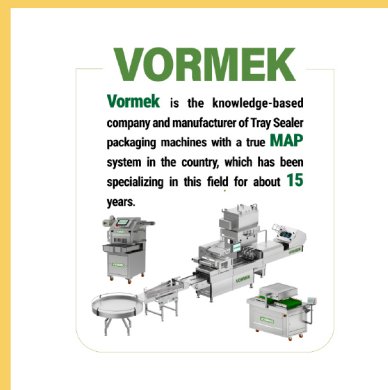
Mixed Fresh Herbs; A Smart Combination for Acid-Base Balance

Daily consumption of leafy greens helps regulate blood pH and brings the body environment closer to balance from an acidic state.



Modified Atmosphere Packaging (MAP); Gas Regulation to Preserve Plant Tissue Physiology.

In MAP packaging, the precise ratio of oxygen, carbon dioxide, and nitrogen is adjusted in such a way that the respiratory processes of vegetables are controlled and their sensory quality is preserved.



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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.

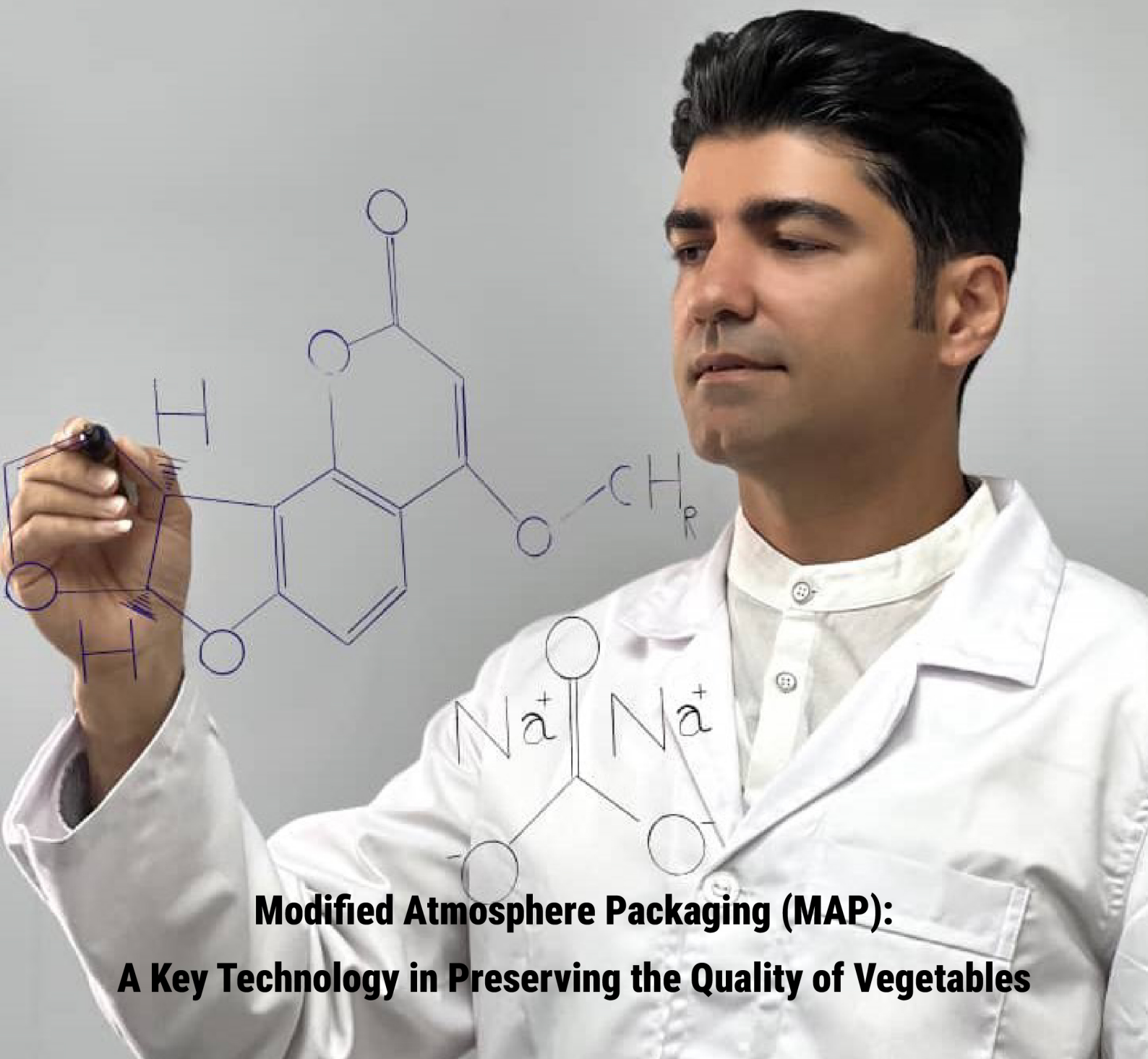


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Modified Atmosphere Packaging (MAP): A Key Technology in Preserving the Quality of Vegetables

Mr. Kohan Nia: PhD of Food Industries

Modified Atmosphere Packaging (MAP) is a key technology in preserving the quality of fresh-consumption vegetables such as lettuce, spinach, and sliced carrots. This method reduces the respiration rate of vegetables by adjusting the levels of gases inside the packaging, such as reducing oxygen to 1–5% and increasing carbon dioxide to 3–10%, and prevents oxidative processes that lead to browning and spoilage. Studies show that MAP can double the shelf life of these products while preserving nutritional value such as vitamin C and antioxidants. In addition, the use of gas-permeable polymer films naturally establishes gas balance and prevents the growth of aerobic microorganisms such as *Pseudomonas*.

However, the success of MAP depends on various factors such as the type of vegetable, storage temperature (usually 4–8 °C), and humidity control. For example, in vegetables with high respiration rates such as broccoli, high CO₂ levels can inhibit ethylene production, but if oxygen levels become too low, anaerobic respiration may occur and produce unpleasant odors. Recent research focuses on combining MAP with modern technologies such as antimicrobial coatings or noble gases to enhance food safety and prevent potential contaminations such as *Listeria*. Ultimately, this approach not only reduces food waste but also contributes to a more sustainable supply chain.





Fried eggplant



peas



fried onion



Dolma vegetable

Fresh Until Day Eight: The Experience of Delsan Nobarchin Kaban with Advanced Packaging Technology

When Shelf Life Goes Beyond Standards; The Experience of Delsan Nobarchin Kaban as part of continued reviews and after-sales service follow-ups, this time we spoke with Mr. Arabi from the Delsan Nobarchin Kaban collection; a company active in the production and packaging of raw vegetables and fried vegetables, which uses our company's machines for its packaging processes. This collection, depending on the type of product, applies two different packaging methods; for some products, aluminum sealing is used, and for raw vegetables, MAP packaging is applied with 40% vacuum along with the injection of 50 to 60% nitrogen gas. Mr. Arabi noted that with this very combination, they were able to achieve the best shelf life for vegetable products.

According to the standards and limitations of the Food and Drug Organization, the maximum allowable expiration date printed on the product is 5 days. However, the interesting point in the company's report was that even after 7 to 8 days had passed, the vegetables still maintained acceptable quality, freshness, and safety. This issue is very important for producers in this field, as it shows that choosing the correct packaging technology can, in a real and practical way, increase product performance beyond defined limits. This experience proved that the combined use of standard gas and proper vacuum, especially for products with higher spoilage sensitivity, can practically create a serious competitive advantage in the fresh food market.

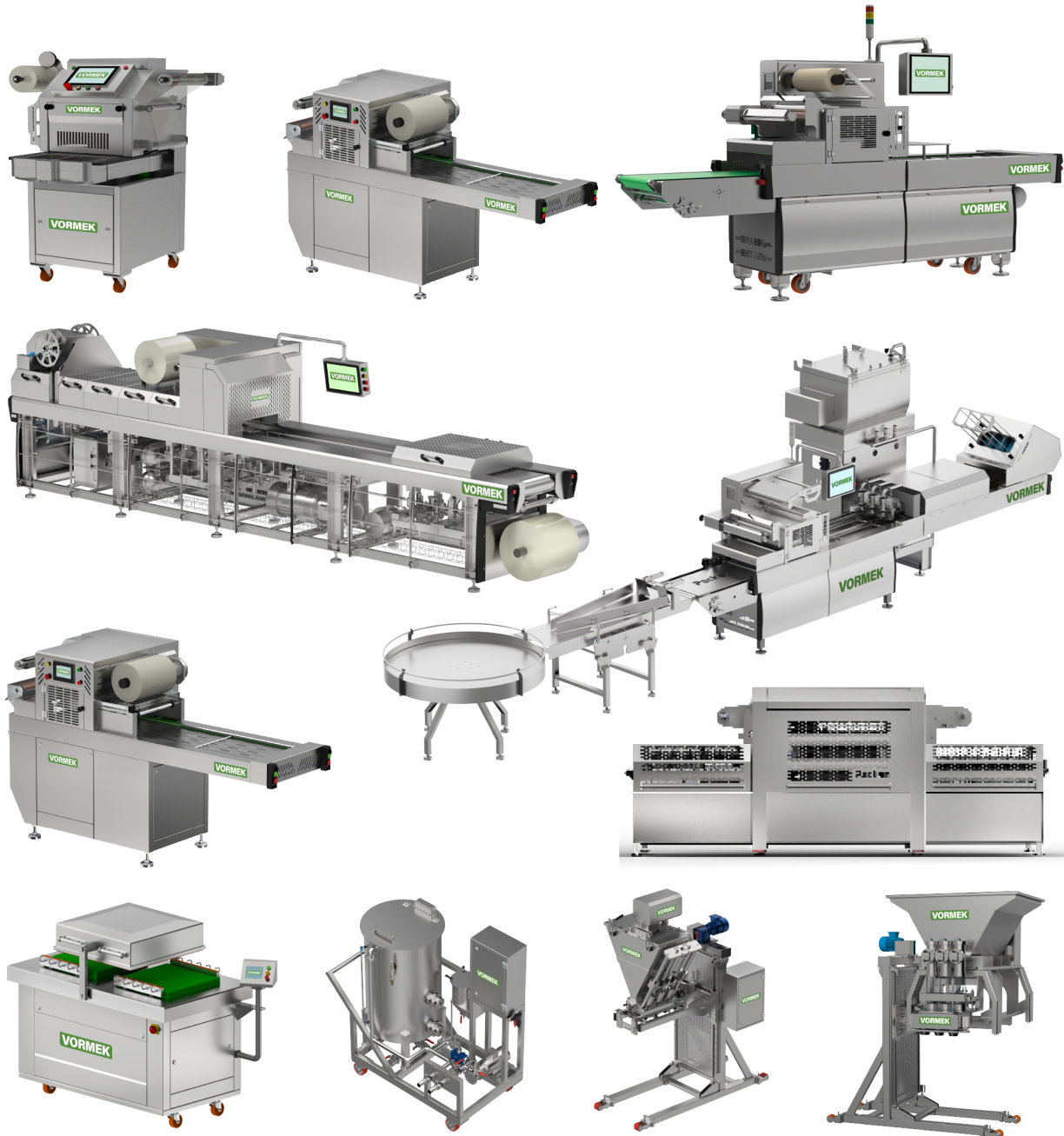


Global Packaging Outlook

Engineer Füllenbach, as one of the prominent specialists in the field of packaging engineering, recently visited the Indonesia International Packaging Exhibition (SIAL InterFOOD) in Jakarta to become familiar with the latest innovations in food and industrial processing and packaging technologies. At this event, which was held with the participation of leading companies from Southeast Asia, he focused on sustainable solutions such as biodegradable materials and intelligent automation systems, and held meetings with local manufacturers. This visit not only enriched his technical knowledge, but also provided new ideas for optimizing packaging processes in the face of environmental and economic challenges.

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.