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## Application Note



### Frozen Food

## Achieving durable, quality codes for traceability and food safety

### The challenge

Growing demand for case-ready and pre-packaged foods drives greater regulatory focus on food safety and traceability. This makes durable, high quality codes more important than ever. Production challenges can include required ink dry times with high speed production, temperature swings, packaging condensation, and possible code erosion as packages come into contact with each other.

### The Videojet advantage

Videojet Continuous Inkjet (CIJ) printers have been engineered to face these challenges. Optimized and ideal for wash down, select Videojet CIJ printers are food grade certified and incorporate an IP65 rated design within a 316 stainless steel enclosure. For ease of integration, Videojet CIJ printers are designed with flexible umbilicals and also offer connectivity options for automated lines. For simple operation, the Videojet SIMPLICITY™ user interface virtually eliminates printing of the wrong code. By pairing crisp, consistent codes with a proven Videojet track and trace solution or with a solution of your own, you can help safeguard your products from production through distribution.

### Food safety and traceability: Regulations, food safety concerns and retailer demands for accurate and readable codes

According to a study by Grand View Research, Inc., the global frozen food market size was valued at USD 193.74 billion in 2023 and is expected to grow at a compound annual growth rate (CAGR) of 5.4% from 2024 to 2030. Globally, the increasing popularity of shelf-stable foods among consumers is expected to enhance industry growth over the next few years. Also, the utilization of these products by numerous end-users, such as full-service restaurants, hotels and resorts, and quick service restaurants (QSRs), will support market growth.<sup>1</sup>

While providing greater choice for consumers, quick growth in the global frozen food market can have a downside. In some regions, a largely unorganized market with many small manufacturers can pose a real risk when it comes to hygiene, food safety and product quality standards. The importance of keeping the distribution channel controlled plays an important role for consumers and helps provide confidence in the products they are purchasing. Consumer trust has been built over many years with highly regulated processes, but this trust can easily be damaged with one product incident.

<sup>1</sup>Grand View Research, Inc. Frozen Food Market Size, Share & Trends Analysis Report By Product (Fruits & Vegetables, Potatoes, Ready Meals), By Distribution Channel (Offline, Online), By Region, And Segment Forecasts, 2024 - 2030.  
<https://www.grandviewresearch.com/industry-analysis/frozen-food-market>

# Consumer confidence and high quality codes



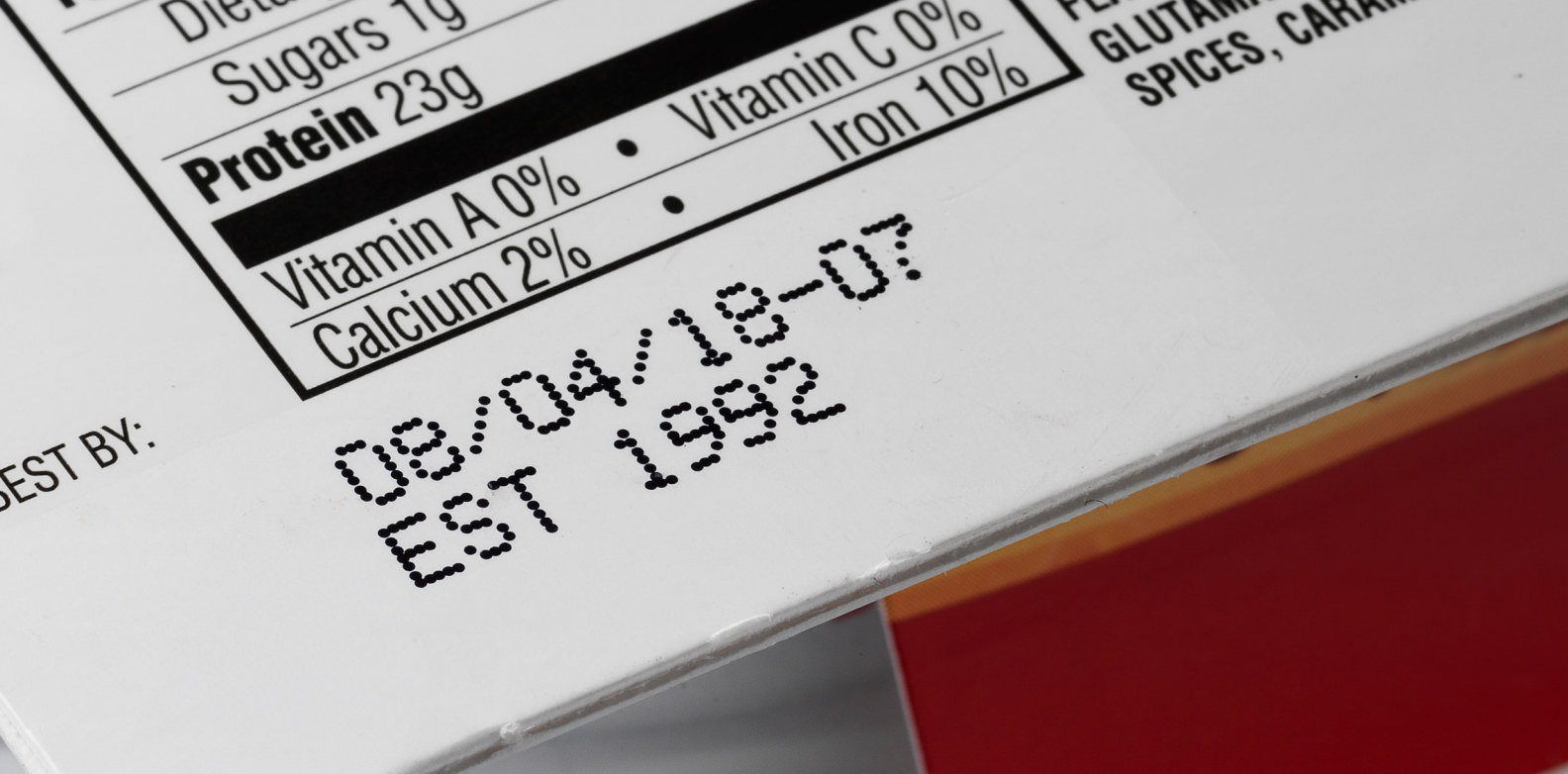
## Code quality is not something to be taken for granted

High quality codes that are easy to read help consumers buy with confidence. For producers, the traceability of manufacturing parameters can make the difference between a controlled containment – when or if an incident should occur – or a scandal. And for channel companies, coding that supports transparency and meets logistic traceability requirements both impacts speed and cost of distribution.

With traceability being paramount to maintaining consumer confidence and product containment, it is clear to see the value of high quality codes. Coding can be especially challenging for frozen food producers due to their variable environments. Low temperatures, temperature swings as well as moisture and condensation can drive printers to and beyond their limits. Additionally, hygienic standards require frequent wash down and the use of aggressive cleaning chemicals that can affect the coding equipment. Printers must also be ready for uninterrupted production at high speeds which are common in high efficiency filling and packaging lines.







## Print solutions for damp production environments

Damp environments can alter printing operation if water is ingested into the ink system. Water in the ink system affects ink stability, causing altering of ink droplet flight and clogging of the printhead. This clogging leads to poor print quality, printer problems and increased maintenance. Positive air in the printhead of Videojet CIJ printers reduces the risk of water entering the system. Additionally, Videojet printers manage the printing process using Dynamic Calibration™. This allows the printer to continuously monitor and adjust ink consistency to help produce great print quality, even as the printing environment changes.

Also helping to maximize uptime and minimize maintenance, the Videojet CleanFlow™ printhead is designed to purge itself at regular intervals and doesn't require the use of plant air.

By reducing ink build-up that can cause traditional inkjet printers to shut down, this unique printhead requires less cleaning and helps enable longer runs without intervention. And an optional membrane keyboard is also available for easier operation with work gloves. These features help to provide producers with clean, consistent codes including bold print, large characters and multi-lines of text, at the speeds specified by your coding equipment.



## Inks formulated specifically for food manufacturing

Videojet understands that products and packaging may be exposed to temperature changes throughout the distribution chain. Therefore, we've formulated specialty inks that are designed to withstand these conditions. Our unique inks allow producers to achieve excellent adhesion, durability and printer performance in cold and humid conditions, even on challenging substrates.

For producers requiring extra resiliency, Videojet V4230 ink provides scratch and rub resistance on flexible packaging. Moreover, the V4230 provides good adhesion to waxy substrates (e.g. boxes) and on general purpose plastic packaging (e.g. films, bags or pouches). For applications where natural oils or grease are present, such as meat, poultry, fish and seafood production, we offer the Videojet V4218 ink. And for customers looking for MEK-free inks, V4262 ink is a versatile, general purpose, fast-drying ethanol-based ink for a wide variety of substrates used in food production.



### The Bottom Line

Track and trace capabilities are only as good as the quality of your code and its ability to withstand the challenges of your distribution channel. The consequences of poor quality codes and the inability to trace your product can be dramatic. It can cause costly rework, regulatory fines, recalls and even illness and the resulting loss of consumer trust. Videojet offers CIJ printer solutions for cold and wet environments as well as specialized inks for best adherence to your substrate, even when condensation is present. A true printing partner understands the importance of great print quality and achieving your operational goals in a highly regulated environment. With over four decades of experience in your industry, Videojet offers the perfect combination of technology, expertise and service options to be your coding partner of choice.

**Contact your local representative for guidance on coding in these tough environments. We are pleased to assist you with a production line audit or sample testing in our Videojet sample laboratories.**

Call **800-843-3610**  
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