

## Low-odor and low-VOC coding solutions for odor-sensitive applications

Understanding available technologies and application considerations



Understanding what customers value, selecting the appropriate inks for applications, and determining how to integrate marking and coding into production processes can be challenging. You need a partner with expertise and technology you can rely on to assist you through all of the aspects of marking and coding for odor-sensitive products.



## Contents

Meeting production speeds while avoiding print-related odors	3
Product quality and sensitivity to environmental conditions	4
<b>Solutions:</b>	
Continuous Inkjet (CIJ)	5
Thermal Inkjet (TIJ)	6
Thermal Transfer Overprinting (TTO)	7
Laser Marking	8
The Videojet advantage	9

# Meet production requirements and avoid print-related odors

Manufacturers who produce odor-sensitive products have unique needs when selecting coding technology. Not only are they concerned with identifying and integrating the solution that best meets the needs of their production, they must select a technology and ink that doesn't affect the quality of their product.

## **With odor-sensitive products, it can be hard to know which coding technology is ideal for your application.**

Aside from selecting the optimum marking technology that won't adversely affect your product, elements such as line speed and required code permanence on varying substrates must also be taken into consideration. Selecting a coding and marking expert to partner with can be as difficult as the identification and integration of an optimal coding solution into your production line.

While several digital coding technologies can meet the substrate and speed requirements of producers with odor-sensitive products, some companies have been hesitant to incorporate technologies that utilize MEK-based or similar inks.

One common misconception is that product quality could be negatively affected by all inks used in Continuous Inkjet (CIJ) and Thermal Inkjet (TIJ) printers. While it is true that these technologies use solvent-based inks, not all printers and inks are created equal.

Furthermore, other coding technologies, including laser marking and thermal transfer overprinting (TTO) also offer non-solvent based options.



# Product quality and sensitivity to environmental conditions



A coding technology can be perfect for your application, but if the ink has a strong solvent base and is not ideal for products sensitive to environmental odors, then there is potential risk to product quality.

## Low-odor and low-VOC

Certain consumable goods and foods tend to acquire odors from their environment during the manufacturing, packaging and coding process. For customers that need a high-contrast, non-contact code that requires a solvent-based ink, Videojet offers both low-VOC (Volatile Organic Compound) and low-odor inks. VOCs are organic chemicals that have a high vapor pressure causing them to evaporate at room temperature. Inks with VOCs are developed to promote high adhesion and fast dry times. Many Videojet inks have been specially formulated with solvents and compatible resins/dyes that are designed to not impose unwanted flavors. Low-odor inks are designed to reduce the need for venting, however, good ventilation is recommended for manufacturers using low-VOC ink options.

**Used for:** bread and pastry packaging and other food packages, including bread, chocolate, candy and confectionery that are coded in close proximity to the food filling process. Also ideal for tobacco product packaging.

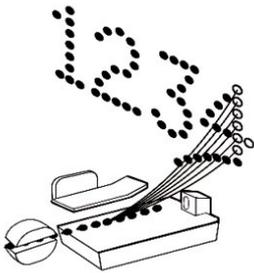


# Continuous Inkjet (CIJ)



## Why this technology?

CIJ printers produce simple lines of code and are ideal for flow wrapping, pouches, vertical bagging, jars, bottles or baked goods applications. They are cost-effective for producers of all sizes and are easily integrated into existing production equipment. CIJ inks are fast-drying and can accommodate both high-speed and lower-volume productions. While this coding technology typically uses solvent-based inks (like MEK), advanced manufactures do offer CIJ inks that are appropriate for use with odor-sensitive products. This coding technology is also non-contact, offers fast dry times, and is designed to not puncture packaging.



## Application considerations

There is a common belief that MEK-based inks are the only options for fast dry times and good adhesion. This belief is not true and Videojet has ink options that meet both expedited dry time requirements and adhesion needs. For CIJ coding, we recommend that producers consider inks that use non-MEK solvents as a base, such as alcohol. Well-suited for most odor-sensitive applications, alcohol-based inks offer good adhesion on various packaging types, are virtually odorless, and depending on your application, dry in around two seconds. When quicker drying times for higher speed applications are required, an ethanol-based ink may dry in as fast as one second. Ethanol has a low-odor profile and rivals adhesion of traditional MEK-based inks on glossy substrates. Videojet also offers food grade inks as well as inks for egg shell printing.



# Thermal Inkjet (TIJ)



## Why this technology?

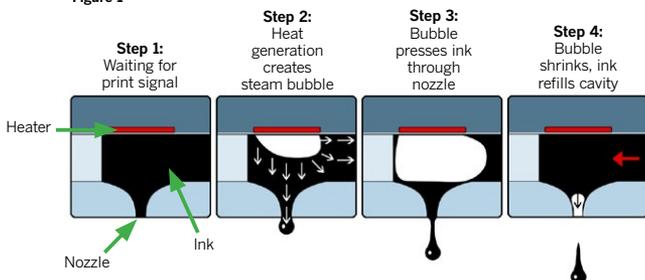
Not unlike CIJ, TIJ also uses solvent-based inks that are fast-drying and are therefore ideal for fast-moving, high-volume production lines. Benefits of TIJ include a small footprint, maintenance simplicity, and ease of integration into production lines. TIJ is able to print high resolution codes, including bar codes and codes for promotional or loyalty programs. While TIJ printers may emit odor, it is only present when they are actively printing, unlike other technologies that emit odor the entire time they are turned on. Traditional TIJ printers are ideal for printing on porous substrates, but with recent advances in technology, high resolution printing on non-porous substrates is now also a possibility. Like CIJ, TIJ is also non-contact and designed to not puncture packaging. TIJ is ideal for coding on flexible films and coated cardboard.

## Application considerations

Before now, TIJ hasn't been an ideal solution, due to its typically lower adhesion on non-porous substrates. Videojet has created the first TIJ cartridge utilizing MEK-based inks for the 8610 printer. This helps enable producers to print on non-porous materials including foils, films and plastics that are common in flow wrap applications. The amount of MEK used in the 8610 is only a fraction of that used in common CIJ inks, thus it has a low odor impact and lower environmental emissions. Finally, unlike other TIJ systems, the Cartridge Readiness System™ technology helps ensure consistent code quality, even after interruptions in production flow.

For porous substrates, Videojet offers the 8510 and many other water-based inks for virtually any application.

Figure 1



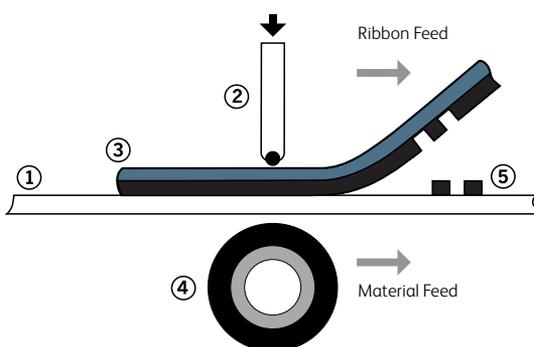
# Thermal Transfer Overprinting (TTO)



## Why this technology?

TTO does not use solvents, so it has no environmental emissions. Rather than fluid inks, TTO uses ribbons composed of solid waxes and resins, with no solvents. With virtually instant dry times, TTO is ideal for flow wrappers that don't provide much time before the product comes into contact with rails or other products. Once used, TTO ribbon can be disposed of without special hazardous substance handling.

One of the main advantages of this technology is its ability to print high resolution information like logos, nutritional facts, allergen information, batch numbers and 'best-by' dates on flow wrap and vertical form, fill, seal packaging. This high resolution capacity helps enable producers to use generic film for different products and code the product-specific information during packing. This saves in changeover time and inventory holding costs. TTO is best for applications running below 400 packages per minute.

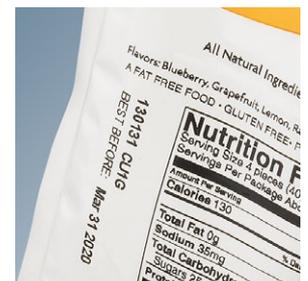


## Application considerations

TTO printers must be integrated directly with the packaging equipment. While the function may be the same, packaging equipment from different manufacturers are built differently and can require specialized brackets and other accessories. Therefore, it is important to find a coding partner with the right experience, software, and accessories to complete the integration seamlessly.

TTO printers can be extremely reliable and require minimal maintenance as compared to other coding technologies. Videojet TTO printers also maximize the use of ribbon, which leads to ribbon savings and reduces downtime required for ribbon replacement.

Specific applications, such as bread bags, may utilize a thin PE material. Since the substrate may not have a function barrier to separate the product from VOCs and the thin film is susceptible to burn through, a TTO solution may be ideal over laser.

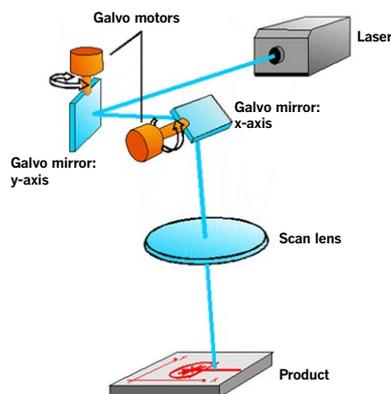


# Laser Marking



## Why this technology?

Laser coding is ideal for high volume operations and can be used for marking onto foils, pouches, stick packs, coated cardboard, paper bags, jars and bottles. Instead of “printing” on products in the traditional sense, products are engraved with their respective coding data. Lasers don’t utilize inks or fluids, so they don’t have the same concern of ink odor and its potential to affect uncovered product. However, unlike CIJ and TII printers, lasers do require a fume extractor and filter that immediately remove any particles generated in the laser marking process. An added feature of this technology is its environmental friendliness, as lasers don’t emit Volatile Organic Compounds into the atmosphere. With correct laser configuration there is little risk of puncture to typical packaging material.



## Application considerations

Laser is a great choice for fast speeds and low maintenance. Videojet offers larger marking fields that can code two packages virtually at the same time and save you the unnecessary expense of purchasing two lasers to do the same amount of work. A large marking field also helps optimize power settings and avoid film burn through. With the largest selection of laser configurations in the industry, we can help you find the right configuration for your application. This means that you don’t have to buy a laser with more capacity than you need (and at greater expense).



## The Videojet advantage:

**With over four decades of industry experience, Videojet understands not only coding technology, but also the nuances of manufacturing.**

We have the expertise to provide guidance on how each coding solution and its respective consumables can potentially interact with your product. Add our field-based application experts, our state-of-the-art sample laboratories, and the biggest service network in the industry, and we can help you make the optimal coding decision and product-friendly ink selection for your specific application need.

Depending on your specific application and business needs we can provide:

- Zero or low odor solutions
- High quality codes, from simple to complex
- Good adhesion, even on glossy packages
- High-speed print capabilities including flow wrapping lines

For more information on our full-line of products and services, contact your local sales representative and let one of our experts perform a production line audit. Or to learn more, visit [www.videojet.com](http://www.videojet.com).

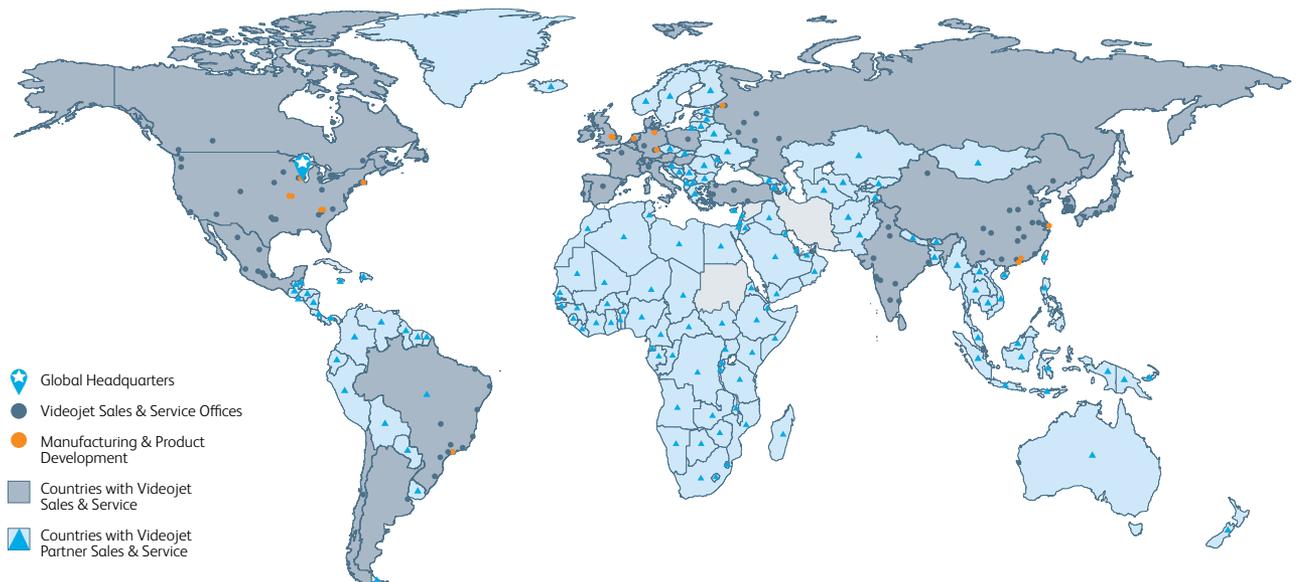
# Peace of mind comes as standard

Videojet Technologies is a world-leader in the product identification market, providing in-line printing, coding, and marking products, application specific fluids, and product life cycle services.

Our goal is to partner with our customers in the consumer packaged goods, pharmaceutical, and industrial goods industries to improve their productivity, to protect and grow their brands, and to stay ahead of industry trends and regulations. With our customer application experts and technology leadership in continuous ink jet (CIJ), thermal ink jet (TIJ), laser marking, thermal transfer overprinting (TTO), case coding and labeling, and wide array printing, Videojet has more than 325,000 printers installed worldwide.

Our customers rely on Videojet products to print on over ten billion products daily. Customer sales, application, service, and training support is provided by direct operations with over 3,000 team members in 26 countries worldwide.

In addition, Videojet's distribution network includes more than 400 distributors and OEMs, serving 135 countries.



Call (65) 6444 4218  
or visit [www.videojet.sg](http://www.videojet.sg)  
or email [marketing.singapore@videojet.com](mailto:marketing.singapore@videojet.com)

**Videojet Technologies (S) Pte Ltd**  
No. 11 Lorong 3 Toa Payoh  
Block B #03-20/21 Jackson Square  
Singapore 319579

© 2015 Videojet Technologies Inc. — All rights reserved.  
Videojet Technologies Inc.'s policy is one of continued product improvement.  
We reserve the right to alter design and/or specifications without notice.