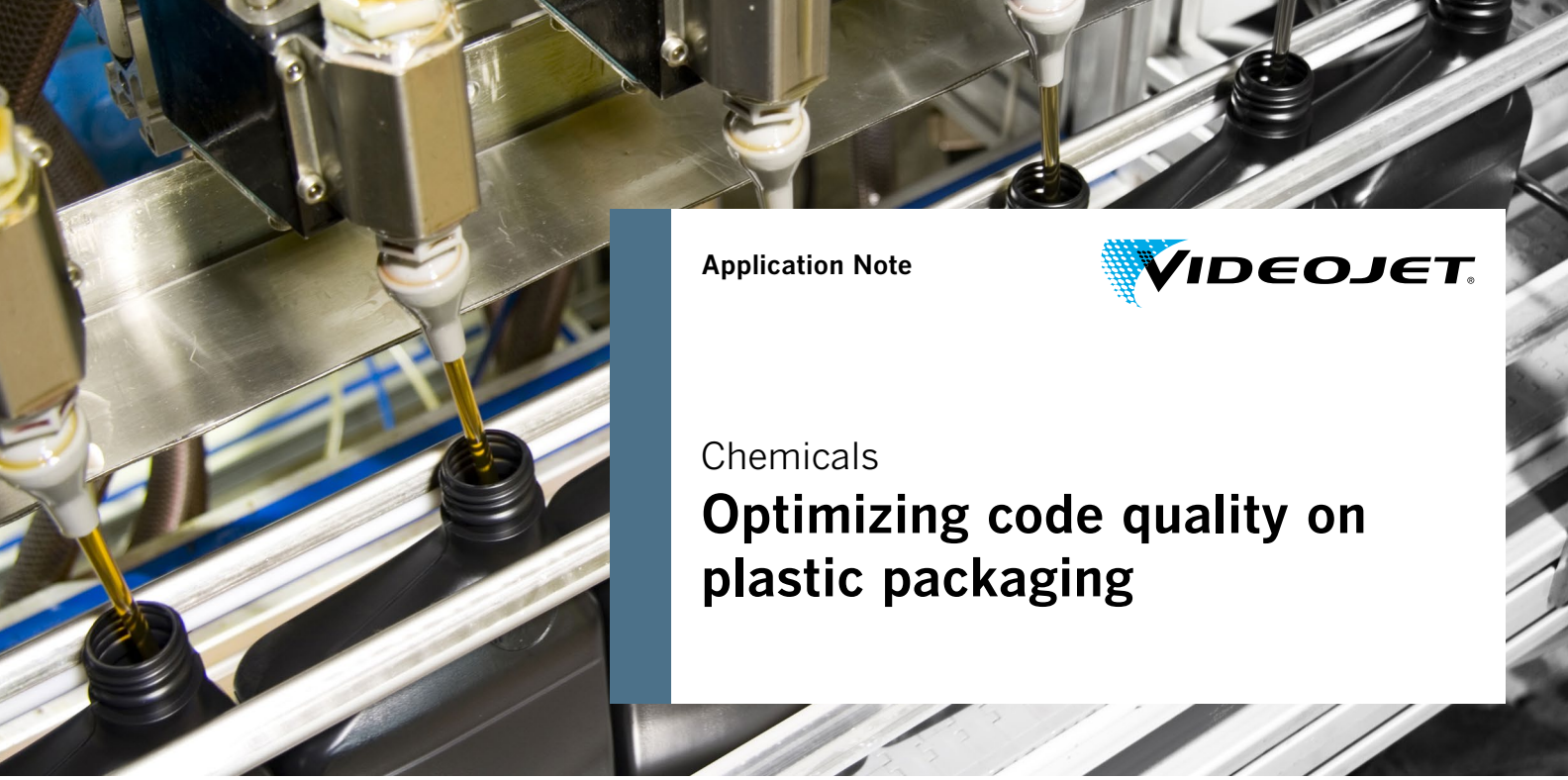

Application Note

Chemicals

Optimizing code quality on plastic packaging

The challenge

Plastic bottles and other containers are commonly selected for chemicals packaging for their ability to safely transport products while also standing out on retail shelves. However, coding on plastics comes with several challenges, including code contrast, adherence and permanence. Unclear, non-permanent or misplaced codes can put consumers at risk and damage brand reputations.

The Videojet advantage

Videojet offers a wide range of solutions for achieving the desired code on your plastics packaging:

- **With over 640 application-specific fluids, Videojet manufactures more fluids and supplies than any other industrial coding and marking manufacturer and can help determine which continuous ink jet solution is best for your plastic package**
- **Videojet offers a wide selection of laser marking systems, providing a permanent code solution for virtually any application**

Plastics are frequently selected for chemicals packaging for the numerous benefits they provide, including inherent barrier properties, recyclability and chemical resistance. It can be a challenging material to code on, however, due to material surface, shape and color. Follow these three steps to determine the optimal coding solution for your plastic package.

1. Evaluate your code needs

Considerations for creating an optimal code include:

Desired contrast

The purpose of codes varies by product. When chemical efficacy diminishes after the expiration date, expiry information should be clearly visible to the consumer. By contrast, batch/lot information used for recalls or tracking purposes may be best conveyed with a less obvious code. Determine if a high contrast code or a less prominent code is more desirable for your product.

Ink adhesion

Plastic packaging includes slick plasticizers which enable package flexibility, but make ink adhesion difficult. Additionally, many chemical products contain ingredients that can remove ink codes in the event of spillage. However, a permanent code can be crucial to protect customers and brand reputation. For example, any chemical product that can be harmful to consumers should be permanently marked. Evaluate your product and packaging characteristics to identify the ideal coding solution.

Location

Often overlooked, code placement can impact both contrast and permanence of a code. If possible, coding on a label instead of directly to the plastic can increase code contrast and permanence, especially on dark colored bottles. Often special print windows (areas on a bottle or label which have been pre-printed with a different color) can also increase code contrast.

2. Determine the optimal coding technology

There are two primary coding technologies for plastic packaging: continuous inkjet and laser. Both provide certain benefits and drawbacks which should be evaluated against your coding needs.

Continuous Inkjet (CIJ)

CIJ is an extremely versatile ink-based coding technology which is ideal for curved surfaces and high-speed lines. Ink codes are generally durable, however, code degradation can be caused by plastic type, product spillage or product use environment. Most of these causes can be mitigated through ink formulation. While black is generally the standard CIJ ink color, it is often suboptimal for dark packages. Alternately, a yellow, white or red ink may provide improved contrast on a dark package. With over 640 application-specific fluids, Videojet offer a wide range of ink colors to help you choose the solution that can provide ideal adhesion and contrast on your plastic bottles, tubes and containers.

Laser Marking

Lasers provide a permanent code either directly to the bottle or on the label by causing a material change that cannot be removed without damaging the product surface. In addition to code permanence, laser marking provides the benefit of high resolution codes. However, laser coding has a restricted color palette, providing limited contrast on most plastics. This can be ideal when you don't want the code to distract from the packaging design, such as with branded goods. But if the code is conveying vital consumer information, laser marking is best deployed on the label to achieve greater legibility. Videojet is a leader in laser offerings with CO2, Fiber and UV laser sources, and a wide range of lens sizes, enabling us to configure the correct solution for your application.

3. Do sample tests

Due to variability between plastics and colors, it is important to test your coding solution before starting production. These tests can help determine if the technology meets your coding needs in terms of contrast, permanence and placement.

Videojet offers a sample lab service and can provide you with various codes on your packaging using different technologies. The lab can suggest the optimal technology for all of your packaging and send samples to help you make an informed decision before you invest in a coding solution.

Black CIJ code on vinyl

CIJ code on a dark plastic

Laser code on paper label

Laser code on plastic

The bottom line

Plastic bottles, tubes and containers are advantageous for protecting your product and conveying your brand position, but can be difficult to code. Videojet can help. Our experienced sales team can assist you in determining your coding requirements, discuss the trade-offs of different coding technologies, and provide you with code samples on your packaging to help you be confident in your coding decision.

Ask your Videojet representative for more guidance, a production line audit, or sample testing on your substrate.

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