

Pharmaceutical **Achieving readable codes for serialization**

A late 2017 study found that only 6.6% of Drug Supply Chain Security Act (DSCSA) DataMatrix bar codes are readable.¹

Hard-and-fast timelines for serialization regulations are proving to be difficult for pharmaceutical companies. Manufacturers are trying, but in many cases are failing to meet traceability requirements.

Dedicated Videojet pharmaceutical coding experts can help with sample coding on your packaging, and identify an ideal solution for your needs.

The challenge:

Many pharmaceutical companies face challenges ensuring their codes are readable, and that they are compliant with regulations. In fact, an assessment conducted by AmerisourceBergen and McKesson Pharmaceutical, in collaboration with GS1 Healthcare US®, revealed that only 6.6% of more than 16,000 products scanned for the study had a readable bar code containing all four DSCSA-required data elements.¹ This shocking finding illustrates the need to pretest product codes for readability. It also shows the necessity for manufacturers to partner with a coding specialist who understands code requirements, the nuances of product packaging, and production processes.

Videojet advantage:

The dedicated Videojet pharmaceutical team understands the unique challenges of pharmaceutical packaging. Our established coding experts help companies identify an optimal combination of codes and packaging type; select an ideal ink for adhesion and code durability; and determine the ideal contrast for readability.

An industry leader, Videojet manufactures hundreds of application-unique fluids covering a vast array of packaging substrates. In applications where laser is better suited, we also offer a wide selection of laser marking systems, providing a permanent code for virtually any application. With a full suite of solutions, Videojet can help you achieve the right code on virtually any packaging type.

¹ <https://www.gs1us.org/industries/healthcare/standards-in-use/dscsa/datamatrix-barcode>

A three-step process to optimize code quality



1. Evaluate code needs

Desired contrast and bar code size

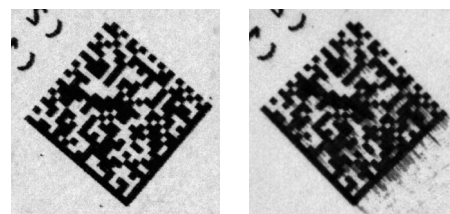
It is important to consider the desired ink/mark color against the color of the package. This is because scanners usually perform better with high-contrast codes. Black codes with white backgrounds typically produce the lowest-fault scan results. And to help prevent code fading for optimal contrast, ink pigments must be resistant to light. UV rays, for example, will fade pigments over time and deteriorate readability. Inappropriate bar code sizes can also cause data capture issues, making codes unreadable. For more guidance on code size and color, review Chapter 5 of the GS1 General Specifications.

Ink adhesion

In pharmaceutical cold chains, codes are exposed to moisture, so water-resistant markings are a must to prevent smearing. Adhesion can also be a problem if packaging materials include slick plasticizers. These materials provide desirable package flexibility, but also make ink adhesion difficult.

Location

Often overlooked, code placement can impact both contrast and permanence of a code. Special print windows (areas on a bottle or label which have been pre-printed with a different color) can also increase code contrast. Moreover, it is advisable that manufacturers avoid having other bar codes on packaging that could cause confusion further down the distribution chain. Consider reviewing Chapter 6 of the GS1 General Specifications for more information on code placement.



In pharmaceutical cold chains, codes are often exposed to moisture. Codes with a low level of water resistance are easily smeared and may become illegible.



2. Determine the optimal coding technology

Thermal inkjet (TIJ)

TIJ printers are ink-based systems that print non-contact, high-resolution serialization codes up to 600x600 dpi. TIJ technology is ideal for high-quality text and bar codes on cartons and paper-based substrates. And it helps ensure that even complex and detailed codes are clearly readable for downstream verification.

Suggested solution: The Wolke® m610 touch TIJ coder delivers high-resolution codes, including bar codes on packaging. Its compact design integrates easily into production processes, and its flexible communications and menu-driven interface are easy to configure and use.



**Wolke® m610 touch
TIJ printer**

Continuous inkjet (CIJ)

CIJ is the most versatile of all variable coding technologies and can print on nearly any packaging type or product shape. Fast print speeds and a range of application-specific inks make it a common choice for highly-readable codes in pharmaceutical applications.

Suggested solution: The Videojet 1860 CIJ printer offers predictive capabilities to provide up to eight hours of advanced notification of the most common downtime-generating faults under normal operating conditions. And with the Videojet SIMPLICITY™ interface, operating the 1860 will become second nature for your team.



**Videojet® 1860
CIJ printer**

Laser marking

CO₂ laser printing systems improve the appearance and readability of pharmaceutical codes by permanently etching the material surface without physical contact. They also require less maintenance and supplies than other solutions.

Suggested solutions: Videojet offers 10-watt and 30-watt CO₂ laser printers with 21 different mark window options. They are suitable for a wide range of applications, including multi-lane, continuous and intermittent motion production. Moreover, Videojet fiber lasers utilize an Ytterbium laser source, providing an additional substrate range for coding metal, plastic or other hard-to-mark materials.



**Videojet® 3640 PharmaLine
laser marking system**

3. Do sample testing

Due to variability between packaging materials and colors, it is important to test a coding solution before starting production. These tests can help determine if the technology meets coding needs in terms of contrast, permanence and placement. Furthermore, testing allows you to help ensure the information you have coded is correct, and that all required elements are present. As exhibited by the study mentioned in this application note, different date formats proved to be problematic for many packaging types. Moreover, aligning on specified date and data formatting across the distribution chain helps ensure smooth data transfers.

Videojet offers a no-charge sample lab service that can provide physical samples of varying codes on user-specific packaging using different coding technologies. These samples can also be used by our coding experts to suggest an optimal technology for each packaging type. This expertise can help users to make an informed decision before investing in a specific coding solution.



The Bottom Line

To achieve durable, readable codes that meet required regulations, it is important to consider code contrast, code location and the selection of an ideal technology for your application and packaging type. The experienced and dedicated Videojet pharmaceutical team can assist you in identifying best practices for achieving desired codes, discuss the features and benefits of different coding technologies, and provide print samples on user-specific packaging.

Ask your Videojet representative today for more guidance, a production line review, and sample testing on your product and/or packaging.

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