CODE 2 CARTON℠

VIDEOJET®
PHARMA LINE

Code2Carton: Tested marking quality for your cartons

When it comes to traceability, it is crucial that the codes on pharmaceutical products remain readable over the long term. Yet influences along the distribution chain such as condensation or UV radiation may blur or fade the code.

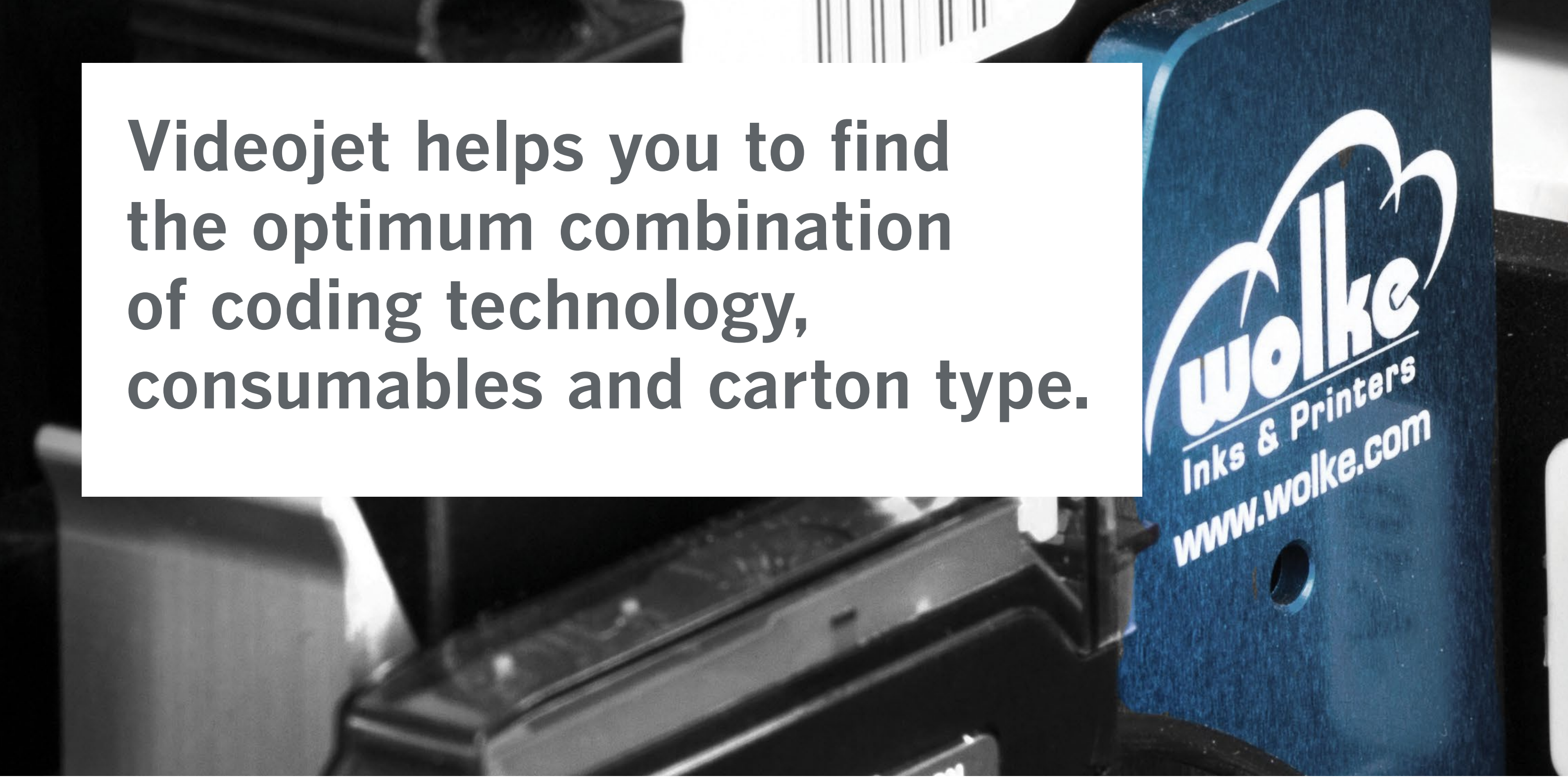
In order to help ensure optimum marking quality on your packaging, Videojet has worked together with the Paper Technology Foundation (PTS) to offer a test for Videojet codes on the folding cartons that you use.

CODE 2 CARTON℠

Helping you find the optimum combination of code onto cartons:

- **Matching the optimal combination of coding technology, consumables and carton type**
- **Understanding the durability of codes on varieties of carton**
- **Preparing adequately for regulatory compliance**
- **Avoid costs deriving from code problems**
- **Enabling you to be at the forefront of the market through innovation**

Videojet helps you to find the optimum combination of coding technology, consumables and carton type.



The Paper Technology Foundation (PTS)

The Paper Technology Foundation (PTS) supports companies in all industries with the development and implementation of modern fibre-based solutions. In its business unit “Printing & functional surfaces”, PTS develops papers for high-speed inkjet printing on a laboratory and pilot scale and pre-certifies them using industrial printing technology. Further emphasis is put on the development of formulations and coatings for individual applications.

For more information please visit: www.ptspaper.com

Coding technologies

Thermal Inkjet (TIJ)

Thermal Inkjet is a non-contact printing technology that enables high-resolution serialization codes on flat and slightly uneven surfaces. Heating elements are built into the ink cartridges. Within microseconds, these heaters generate tiny vapour bubbles that press ink drops out of the nozzles and place the ink precisely on the substrate.

Thermal Inkjet: Wolke m610 OEM

Thermal Transfer Overprinter (TTO)

Thermal Transfer Overprinters use a digitally controlled printhead to transfer ink from a ribbon directly to the substrate for high-resolution printing in real-time. During printing, the heating elements integrated in the print head melt off parts of the ribbon and the detached ink is transferred to the substrate.

Thermal Transfer Overprinter: Videojet 6530 DataFlex

CO_2 Laser Marking System

CO_2 Laser Marking Systems create an infrared laser beam which interacts with the product surface. As part of the test service, the laser beam removes the color coating of the coated test box, revealing a different-colored substrate and a GS1 DataMatrix code can be created. This can be tested for light fastness. In addition, we can also determine the optimum marking thickness at a defined marking speed.

CO_2 Laser: Videojet 3340 Pharma Line

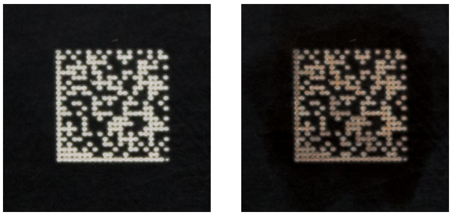
The test services at a glance

Codability with Thermal Inkjet

To test the codability with Thermal Inkjet, your test cartons are printed with a GS1 DataMatrix code (300dpi) and securely placed against a wipe unit in a defined manner after a precisely predetermined time. The print is then evaluated offline by using a verifier according to DIN EN ISO/IEC 15415. The variation in the smudge times and the verification of the print provide accurate information on the drying time of the code and its quality.

Codability with Thermal Transfer Overprinter

In this test, a GS1 DataMatrix code (~305dpi) is printed onto your test cartons by means of intermittent thermal transfer printing at a speed of 200mm/s and evaluated offline using a verifier in accordance with DIN EN ISO/IEC 15415.



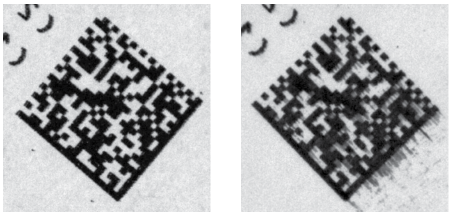
If the selected marking intensity at a laser generated code is too high, the cardboard box can burn when heated by the laser beam (right picture). This results in lower contrast, which can lead to poorer readability of the code.

Codability with Laser Marking Systems

To achieve the best possible laser marking, your coated test cartons are marked with different marking intensities and wavelengths for a defined marking time. The subsequent code evaluation with a verifier provides information on the ideal combination of both.

Water resistance

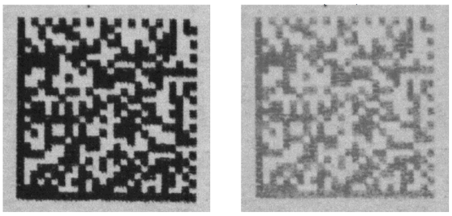
Especially in pharmaceutical cold chains, condensation water can form on the packaging. Water-resistant markings are required here. To determine the water resistance, your cardboard samples are printed with a GS1 DataMatrix code and wetted with 0.1ml of water. Before and after the water test, the code is evaluated using a verifier to determine the water resistance based on the resulting quality differences.



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

Light fastness

Light fastness describes the resistance of colors under the influence of light, in particular sunlight with high UV levels. Since UV rays destroy pigments, there is no such thing as permanent light fastness. Sooner or later every printed code will fade and every carton will turn yellow. To determine the degree of light fastness, your test cartons are marked with a GS1 DataMatrix code and subjected to a defined level of UV radiation for several periods, under laboratory conditions. Before and after radiation, the code is evaluated using a verifier in order to determine the degree of light fastness based on the resulting quality differences.



In the lightfastness test, the tested cartons are exposed to UV radiation. This causes the codes to fade, the contrast to the carton decreases and code readability can be reduced.

Rub resistance

Rub resistance means that codes are resistant to the ink being rubbed off by another carton and do not suffer any loss of quality. In this test, your cardboard sample is printed with a GS1DataMatrix code and rubbed together with an unprinted cardboard sample in a special device. Before and after the rubbing test, the code is evaluated using a verifier to determine the rub resistance based on the resulting quality differences.

Ink penetration depth

The ink penetration depth indicates how deeply the ink penetrates the cardboard. In this test, your test cartons are printed over the entire surface, cross sections are made and the ink penetration depth is determined by image analysis using a digital microscope.

Accelerated aging of a code

In this test, your test cartons are printed with GS1 DataMatrix codes and stored for a defined period of time at 80° C and 65% relative humidity. This simulates the aging of the materials. Before and after storage, the codes are evaluated by using a verifier to predict the aging behavior of the code based on the resulting quality differences.

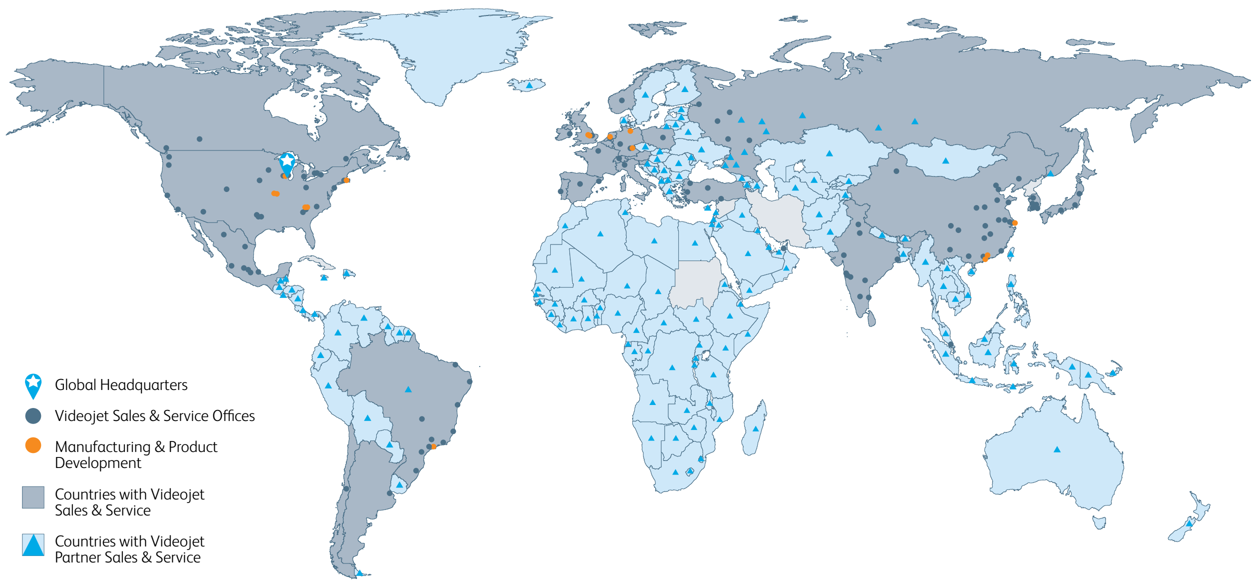
Print uneveness

For machine readability of a DataMatrix code, the code elements must be displayed evenly and with pinpoint accuracy. However, the quality of the printed image can be impaired, for example by wetting disturbances on the carton surface. This can lead to defects in the marking and thus to non-readability of the code. In order to help ensure that the selected ink is evenly distributed and fits optimally on your carton, the printing unevenness can be determined. During this test, your carton samples are printed over the entire surface and examined by means of image analysis software.

Peace of mind comes as standard

Videojet Technologies is a world leader in industrial coding and marking solutions with a dedicated global pharmaceutical team supporting organizations and supply chain partners with solutions, certifications and fast, reliable service. A product portfolio including thermal inkjet, laser marking, continuous inkjet and labeling provides consistent, high-quality serialization and traceability codes, helping the pharmaceutical and medical device industries safeguard their products against counterfeiting and protect consumer safety. With a wide range of technologies addressing virtually any application, Videojet is the expert in realizing the specific requirements of a wide range of healthcare applications.

With decades of knowledge, Videojet Technologies' expertise in industry standards and global regulations makes them the right partner for understanding complex coding needs. Videojet solutions code 10 billion products a day worldwide, playing a vital and responsible role in the world. With over 4,000 associates serving 135 countries, Videojet has the capability to provide local service through global resources.



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