Industry Focus

Pharmaceutical

Coding innovations driven by pharmaceutical regulations

As serialization requirements in the pharmaceutical industry continue to evolve, data management becomes more complex and critical. Innovative coding and marking solutions enable companies to comply with regulatory requirements while also handling the varied packaging types being utilized. Videojet Thermal Inkjet (TIJ) and laser coding solutions are designed with these requirements in mind, to help create serialized, human- and machine-readable codes to address pharmaceutical regulations.

For suppliers to the pharmaceutical industry, serialization requirements are driving innovation across their product lines. Demand is increasing for equipment that can handle more complex data management responsibilities while marking on a wider range of substrates, without compromising product safety or legislative compliance. Optimal coding solutions are part of a holistic approach to pharmaceutical manufacturing, with the printer playing a small but integral role in addressing industry regulations. Key attributes for today's pharmaceutical printers include superior data management and broader application addressability.

Improved data handling for serialization

One key trend is the heightened need for intelligent data management. Examples include:

Asynchronous communications:
This allows the printer to send unsolicited information to the line control system. This functionality provides the dual benefits of active notification of a printer event and reduced network traffic, which translates to faster notifications and higher potential throughput.

Buffer management:
Serialization solutions vary in their requirements for printer memory. Printers must be configurable to print unbuffered, where variable data is received and printed one record at a time, and buffered, where many records are sent to the printer at once but printed only once each. When using a buffer, an unexpected line stoppage can result in unused codes unless an intelligent coding device can communicate which numbers are still available for use. This is especially relevant in countries where manufacturers may have to purchase serial numbers, enabling manufacturers to reclaim unused codes and protect their investment.

Unicode:
Given the global markets served by the pharmaceutical industry, printers need to represent an extensive number of characters in Arabic, Cyrillic and pan-Asian languages. Through the use Unicode encoding functionality, printers can encode over 1,000,000 characters, unlocking access to a much wider range of global languages.

Broader application addressability

Most global pharmaceutical regulation applies to the saleable unit, requiring more code content to be applied at higher resolutions, even on challenging substrates. This has led to coding innovation for several applications, including:

High-density polyethylene (HDPE)

White HDPE bottles are extremely common packaging for pharmaceutical products, especially in North America. Until recently, it has been a challenge to deliver the high resolution, high contrast codes required for machine readability. Recent innovations in laser printing technologies, however, leverage UV wavelengths to create crisp, indelible black marks on HDPE, including serial number and 2D bar codes.

Non- and semi-porous materials

Thermal inkjet (TIJ) technology is frequently selected by pharmaceutical customers because of its high resolution coding at high lines speeds. However, many products come in non-porous or semi-porous packaging such as films, foils, plastics and coated stocks, previously not addressable by TIJ technology. Developments in printer and ink technology for TIJ have unlocked the ability to code these substrates with all the traditional benefits of TIJ.

Cold Chain

Cold chain product handling is a rapidly growing segment of the pharmaceutical market. This process can result in condensation or incidental moisture exposure during post-packaging or distribution which can compromise code quality. Recently developed inks demonstrate improved water fastness over current dye-based offerings, improving code permanence across the supply chain.

To a greater degree than other industries, pharmaceutical and medical device packaging demands the highest quality variable coding. In light of recent legislation, this is truer than ever. It is important to partner with a coding provider that designs products with today's challenges in mind, and has the expertise and global support network to meet project requirements.

The Videojet 7810 laser system leverages Ultraviolet wavelengths to create permanent, high resolution codes on HDPE packaging

The Wolke m600 TIJ printer line features inks optimized for contrast, adherence to challenging substrates, and water resistance

Authorized Distributor:

VCP TRADING INTERNATIONAL CORPORATION

Office Address:
8F, 68 Kalayaan VCP Bldg., 68 Kalayaan Avenue,
Teacher's Village West, Quezon City 1101, Philippines

Contact Information:
Office Landline: +632 8364-6868
Email: sales@vcpintl.com / info@vcpintl.com
Website: www.vcpintl.com

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