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**C**ontinuous Inkjet (CIJ) technology has traditionally enjoyed a market advantage in package coding, because it was the only digital print technology capable of printing on nonporous surfaces.

Alternative print technologies include laser and piezo inkjet. However, the biggest competitive inroads are being made by another inkjet technology known as Thermal Inkjet (TIJ). Hewlett Packard (HP) is the innovator behind TIJ.

There are several manufacturers and distributors of TIJ but AT Information Products (AT Info) has distinguished itself. Originally known as American Technologies, AT Info started offering HP thermal inkjet technology in 1999 in order to provide an efficient and ecofriendly solution to customers. When HP sourced printer technology for its own packaging lines, AT Info was selected over all other suppliers. AT Info's technology scored highest for Windows based software, ease of use technology, and integration capabilities.

### How thermal inkjet works

Continuous inkjet technology uses a pressurized system to send out a constant stream of ink droplets. Whether the unit is actively printing or not, solvent-based ink is constantly being exposed to the atmosphere and evaporating. To counter evaporation losses, a make-up fluid is

added to the ink—in turn adding more cost.

In contrast, the TIJ ink-ejection process is highly efficient, using tiny resistors to create a vapor bubble that drives ink out of the print head, and dramatically reducing the risk of nozzle-clogging air bubbles. Minimal servicing is required for a TIJ print head, providing more economical ink management than with CIJ technology, and considerably reducing the amount of lost or wasted ink.

### Overcoming obstacles

And what about the objection concerning TIJ's inability to print on non-porous materials found regularly in food, beverage and consumer goods packaging? AT Info and HP worked together to overcome this objection.

In 2014, HP launched an industrial version of its 45a print cartridge. Known as 45si, the new cartridge technology allows for the jetting of solvent-based inks through a proprietary design and material modifications. HP is one of several ink fillers with access to empty 45si cartridges, which has accelerated the availability of various black, spot color and bulk size ink products.

On the printer side, AT Info re-launched its line of industrial coders featuring HP's SmartCard technology.

The AT Info iJET printer features a stainless steel housing, iLogic and organic light emitting diode (OLED) technology for message selection, as well as an onboard



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controller. Combined with HP 45si and solvent-based inks, the iJET is steadily gaining market share.

The iJET's SmartCard microcontroller reads the chip on the ink cartridge in order to identify ink type, firing parameter requirements, and remaining ink level. These capabilities help the customer achieve quick changeovers and ink color swaps.

## Advantages of TIJ

Consider TIJ's advantages:

### Uptime

- Reliability is a hallmark of TIJ. Changeovers and color swaps are as quick as snapping in a new cartridge and hitting the print button.
- With CIJ, when the system goes down, a technician's onsite services are needed. Scheduled maintenance can keep a line down for days.

### Speed and print quality

- TIJ can print 150 x 300 resolution at 480 ft/min., or 146 meters/min.
- TIJ can print 300 x 300 resolution at 240 ft/min., or 73 meters/min.
- TIJ can print all types of codes in high resolution, including alphanumeric text, barcodes, and graphics. These codes can be read by off-the-shelf vision systems.

### Ease of use

- TIJ's combined print head and ink supply are easily replaced and provide long and predictable maintenance cycles.
- Highly skilled labor is not required to operate TIJ coders. Messages are quickly created on WYSIWYG HTML text-editing software and printed.

### Compatible substrates

- TIJ works well on porous and semi-porous materials using aqueous inks.





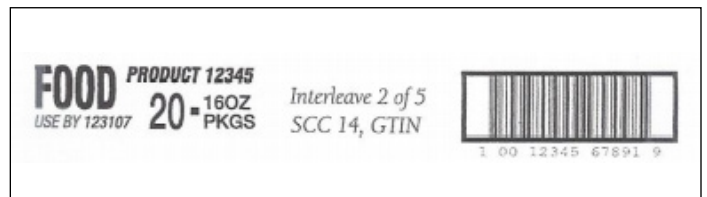
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- New solvent-based inks in the HP 45si cartridge enable TIJ to print reliably on nonporous surfaces including foil, film, hard plastic, glossy boxes, metal, and more.

### Cost of ownership

- TIJ compares favorably to CIJ when all the tangible cost drivers are considered: capital costs, consumable supplies, spare parts, ongoing maintenance and labor.
- Industry experts estimate 15% to 20% of a CIJ system's costs are related to ongoing spare parts, maintenance and consumables (ink + make-up), not to mention greater labor requirements.
- With AT Info thermal inkjet, the capital costs are typically less than CIJ. Also, there's essentially no spare parts or maintenance to consider, and consumables are easy to forecast.

When packagers look closely at the numbers, they find that TIJ technology has an unmistakable advantage over CIJ in terms of the total cost of ownership. It's no longer about amortizing operating costs over long production runs, it's about getting the best return on investment. It's about minimizing labor, maintenance and handling costs while meeting changing print demands. It's about keeping operating costs as low as possible, and maximizing the efficiency of the chosen printing system.





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