



CHOOSING THE RIGHT CODING & MARKING SOLUTION FOR THE CHEMICAL MANUFACTURING INDUSTRY

WHITE PAPER

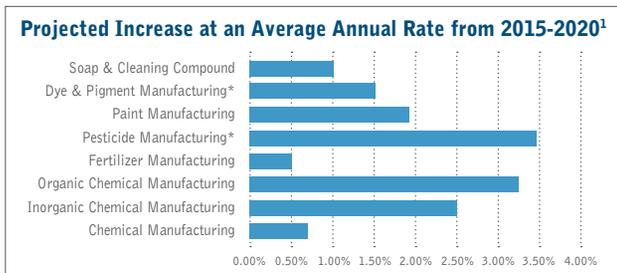
INTRODUCTION

The US chemical industry continues to strengthen, with a predicted combined average annual growth across chemical industry subsectors reaching 14.70% between 2015 and 2020.¹

The expected growth is notably attributed to the rebounding automotive manufacturing and housing markets. The rise in the consumer confidence index, decline in the national unemployment rate, low oil prices, and pent up consumer demand from the economic downturn is the putting upward pressure on demand in end-use markets for the chemical industry.²

The automotive industry is expected to increase at an average annual rate of 2.5% between 2015 and 2020.³ With nearly \$3,500 invested in chemistry per vehicle, this bodes well for demands on chemical manufacturers.⁴ Similarly, housing developers are predicted to see an average annual increase of 6.5% over the same time period.⁵ With an estimated \$15,000 invested in chemistry per start, the housing market's continued recovery is expected to boost chemical industry subsectors in the US.⁶

Subsectors leading growth in the overall chemical industry include organic chemical manufacturing and pesticide manufacturing, with a projected average annual increase of 3.2% and 3.4% respectively.⁷ Increased demand from end-market users and growing demand for biofuels is expected to boost growth in these industries.



*Projections based on years 2014-2019

Although the chemical industry is expected to be an area of growth in the US economy, maintaining margins remains crucial. The overall cost of ownership of machinery such as coding and marking equipment can play an important role in reducing spend.

Overall Equipment Effectiveness (OEE) and the desire for cost saving are being used by many coding equipment vendors to reinforce the benefits of their products. The best modern printers are designed to maximize OEE and minimize scheduled maintenance time.





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FACTORS TO CONSIDER

Choosing the right coding solution is not easy. No two applications in the chemical product manufacturing industry are exactly the same and the following are all factors to be considered when deciding which coding solution to choose:

- Code content – the codes required for chemical manufacture tend to be simple, often one or two lines although sometimes up to three. Precise code placement and print definition may not be core considerations, but with increased code complexity, such as varying message content for different customers, printing in different orientations, or to match future industry standards, already be supported by the printer you choose, or will you need to purchase another to keep up?
- Available budget – not just the initial purchase price, but when calculating OEE, consider the overall cost of ownership and factor-in reliability; by compromising on price you may pay more with unexpected breakdowns. Is leasing a better option, as a revenue rather than capital cost? During peaks in production, will rental give you flexibility to meet coding demands?
- Substrate – in an industry where substrates to be coded can include metal cans, PET, PVC, HDPE, PP and other plastics, flexible or rigid, paper or cardboard, ensure that you have each of the substrates you use sample-coded by the printers you are considering. Is the code legible? Also consider the range of colors of the materials you want to code onto: could one coding solution be suitable for all?
- Production environment – although manufacturing lines for controlled chemicals tend to be clean and temperature-controlled, other production environments can have an effect on coder reliability or code quality. Specialist inks and non-ink based coding can address these issues. Also ensure that your coder has the right IP rating and features to perform reliably in a wet or dusty environment.
- Testing – will your coding and marking provider offer a free trial? You need to be certain the machine is capable of meeting the demands you will put on it.

Linx's own Voice of Customer research in 2014 suggests that the key drivers behind coding purchases in the chemical manufacturing industry include controlling costs from unnecessary downtime and missed production targets,

as well as finding coding solutions that are simpler to use and save time when setting up and operating, and can deal with continuous operation and a wide range of coding requirements.

Less downtime on a production line means less cost to your business, and less risk of delaying delivery to customers. Simple set-up and operation means fewer coding errors, resulting in less scrappage and the associated costs to the business. These factors, and others, are often inter-connected.

REDUCE COSTS FROM UNNECESSARY DOWNTIME AND MISSED PRODUCTION TARGETS

Coder failures, or machines being out of use regularly for frequent recalibration or maintenance, mean costly downtime. Coders with IP55 or IP65-rated steel enclosures, or a sealed printhead, offer protection against liquid or particle contamination, preventing stoppages and offering high quality continuous coding.

Both ink-based coders with specialty inks, or laser coders, can deliver chemical-resistant codes that stay put during both production and end-use by the customer.

Modern coders with easy-to-use interfaces reduce the risk of human error – for example by entering an incorrect message or selecting the wrong code. Easy, intuitive message selection and a large memory to store different codes can substantially reduce these risks by making sure the correct code is selected the first time, every time.

Coders which can be linked to a barcode reader or central PC also help to reduce the chance of manual errors when switching between products or messages. By reducing these errors, scrappage costs are reduced further down the line.





CODING SOLUTIONS THAT ARE SIMPLER TO USE AND SAVE TIME WHEN SETTING UP AND OPERATING

Fast line speeds may not be a crucial consideration, but you need to be able to trust your printer to work reliably and unobtrusively during continual operation, without constant checking or cleaning.

Coders which are easy to set up and operate will save time, especially during frequent product changes.

Codes which can be changed quickly without stopping the printer, mean downtime is saved and delays on delivering to customers are reduced. Additionally, the ability to code in different orientations, for example in reverse for traversing applications, allows for quick code changeovers between product runs.

CODERS DESIGNED TO DEAL WITH CONTINUOUS OPERATION AND A WIDE RANGE OF USES

Coders must be robust, and offer the reliability and flexibility you need to meet demands in a challenging market while being capable of withstanding the pressure to perform 24/7.

A coding system with limited message types will cause additional cost and delays when setting up new messages.

Poor quality code, which is either illegible against the substrate color or smudges can result in costly rework or scrappage. However pigmented inks in a range of colors will ensure codes stand out against any color of substrate.

Non-contact printing is the ideal solution for accurate coding onto a range of container shapes including rounded tins or the base of aerosol cans. Quick and simple to set up, coders are able to cope with high production line speeds

Digital CIJ and laser coding systems provide the flexibility to change messages quickly at the press of a button, and also deliver a vast range of code sizes and styles onto most materials.

A simple WYSIWYG interface can help to minimize operator error and save the costs associated with delays to production.

With self-service options, longer service intervals and IP-rating available, modern coders can maintain uptime at lower cost.

THE DIFFERENT CODING TECHNOLOGIES

There is a range of coding technologies available, each with its own particular strengths in different applications.

Continuous Ink Jet (CIJ)

Perhaps the most cost effective choice, CIJ maintains an important place as it can print on almost any substrate. A wide range of inks is available to use with CIJ printers, including pigmented inks of different colours which offer superlative contrast and durability to ensure codes stand out on any background

Additionally, UV cure inks provide excellent adhesion, light fastness, and resistance to a range of chemicals – perfect for preventing code transference during production, and during end-use when incidental contact with the container's contents could cause smudging or code removal.

CIJ can print from one to multiple lines of text and simple graphics at speeds of over 2600 characters per second. Further versatility is given by the compact printhead that can be situated above, beside or beneath a production line – even traversing from side to side across the line if necessary. With lighter models increasingly being produced, the CIJ printer is more capable of being quickly moved from line to line and is quicker to install and set up than laser coders.

Large Character Marking

Case coders are particularly well-suited for printing large character information, for example company logos or industry standards, onto porous materials such as cardboard secondary packaging, using text and graphics which are easy to see.

Case coders can print to a high-resolution quality, and are easy to set-up and adjust; their reliability and predictable cost of ownership endear them to production lines in a range of industries. They are also a cost effective alternative to pre-printed labels.

The digital inkjet capability of large character coders allows printing directly onto the sides of boxes or cases, removing the need for labels and the label applicator, so no more storing different label stock, loading labels and printing ribbons into the label printer, and no tricky label dispenser setting up or disposal of backing paper. Large character case coders even allow users to continue printing while they change the ink canister.



Laser

Laser coding can deliver a wide range of code sizes and styles, onto most materials, providing the flexibility to meet most coding applications.

Laser coding also provides a permanent code. On PVC, laser produces a color change for added code visibility. On other plastics it will leave a permanent etched code.

As there is no ink involved in the coding process and therefore no drying time, the risk of smudging is removed, for example when the coded product is in contact with other products or handling systems soon after coding. Plus codes will not be removed during end-use.

Laser coders are particularly attractive due to their low downtime, high-speed capability and the fact there are no consumables; which together make the long-term cost of ownership lower than some other technologies.

Steered beam laser systems are highly versatile as they provide clear, consistent and perfectly formed characters in a variety of fonts and message formats, and enable the use of high quality graphics across a wide range of print sizes, for example international standards, or company logos.

Developments in design have also recently given rise to a new generation of lower cost compact laser coders, which offer an affordable alternative to other technologies while still maximizing functionality.

CONCLUSION

In an industry which can require information to be printed onto containers at various stages of the process, at varying speeds or angles and in different environments, coding and marking equipment must be able to meet complex demands comfortably.

Robust coders are required to operate reliably in challenging production environments, with trouble-free integration into production processes: ready to code onto most packaging shapes and materials, Linx coders are versatile so you can meet the ever-changing demands placed on your production lines.

Long service intervals, on printers where only minimal parts need to be changed and other components are designed to be fit for life, makes scheduled maintenance quicker and less costly.

Selecting coders that are reliable, with minimum service or maintenance requirements and ease of use to aid quick operation and minimize errors, can help maximize OEE.

An effective coding solution, tailored to your particular requirements, can help facilitate smooth manufacturing processes, as well as helping you deliver top-quality service to your customers.

References

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