Container

2 piece inside spray case study

Best Practices Yield the Best Results

Performance by design

Nordson

Best practices yield the best results

Installation of Nordson systems increases this can manufacturer's revenue and decreases material usage

Nordson equipment and systems continue to be the industry standard for 2 piece inside spray, because of its accuracy, durability, and high level of performance. Nordson's products are made to deliver increased productivity to manufacturers of metal packaging. This may be in terms of better quality, better manufacturing efficiency, less downtime, less coating material consumption, faster line speeds, or combinations of these and other factors that enable canmakers to produce a better product at a lower cost.

A typical example of Nordson's impact on the inside spray process is from a recent installation at a major 2 piece can manufacturing plant. This plant manufactures 12 oz aluminum beer and beverage containers and uses dual gun spray machines. For the inside spray application, the spray equipment in use prior to the line upgrade consisted of:

- non-Nordson pumps
- Nordson model NH-4 heaters
- old-style Nordson A20A spray guns
- older-style non-Nordson spray controllers

Nordson Spray Pressure Control was not used in the system, and a spray monitoring device was not used.

This manufacturer ran several different categories for spray weights:

Category	Target Film Weight	Minimum Coating Thickness
Category A	100mg +/- 5mg	1.3 mg/in^2
Category B	125mg +/- 5mg	1.5 mg/in^2
Category C	145mg +/- 5mg	1.9 mg/in^2
Category D	155mg +/- 5mg	2.1 mg/in^2

Changing from one category to the other required changes in spray pressure and spray time. The target film weights were determined by the overall spray system's ability to consistently deliver the minimum film thickness and not drop below this thickness requirement. For example, in Category A if cans weighed between 95 – 105mg, it was probable that the minimum coating thickness had been achieved throughout the container.

By using Nordson's Best Practices and implementing the above-mentioned changes, this plant saved over $550,000 in coating material costs in one year. In addition, there were significant reductions in scrap and HFIs.

Investing in best practices

A fully-integrated Nordson inside spray system was installed to replace the existing equipment. This new system consisted of the following Nordson products:

- MEG-IIrc spray guns
- Spray Pressure Control System
- iTrax Spray Controllers (timer & driver)
- iTrax Spray Monitor
- EP-II Pumping System
- Temperature Control System

Installing the above resulted in greater accuracy and repeatability (which means less variability) in the overall system, along with the capability to automatically monitor the spray equipment's performance for each and every can sprayed. As such, the plant was able to do the following:

- Reduce spray pressure to 600 psi and use the same pressure for all categories.
- Reduce the spin speed of the cans from approximately 2400 rpm to 2000 rpm.
- Reduce the number of categories from 4 to 3, eliminating one change-over step. Using the same pressure for the 3 categories also reduced change-over time and provided more consistency.
- Reduce film weight requirements in each category.

The new categories were:

Category	Target Film Weight	Minimum Coating Thickness	% Savings Old vs New
Category A	90mg +/- 3mg	1.3 mg/in^2	10%
Category B	110mg +/- 3mg	1.5 mg/in^2	12%
Category C	132mg +/- 3mg	2.1 mg/in^2	9 – 15%

Thus, a minimum of 10 mg savings for Category A; 15 mg savings for Category B; and 13 to 23 mg savings in the new combined Category C. In addition, the acceptable range for film weight was reduced from a total of 10 mg down to 6 mg.

The Bottom Line

By using Nordson's Best Practices and implementing the above-mentioned changes, this plant saved over $550,000 in coating material costs in one year. In addition, there were significant reductions in scrap and HFIs. This was especially significant with the Category C (& former D) cans, which previously had more frequent quality problems.

In fact, the improved quality and greater productivity helped the plant to increase their revenue generated from this category and contributed towards growth in their business. And although they were making more cans, and more cans in the higher weight category, they were able to reduce their overall lacquer consumption by 4-8%.

The bottom line: the return on their investment was well beyond their target value and each year contributes incremental productivity and profit to their operation.

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