A common issue many flexographic printers face today is having ink dry on the printing plate prior to transferring to the substrate. What can you do to remedy this situation?

No-Tox water based direct food contact inks behave similarly to conventional water-based inks. Based on acrylic polymers, they are required to remain basic in pH nature to perform satisfactorily on press. Similarly, they will respond like conventional inks to pressroom environmental conditions and changing conditions on the printing press. As such, it is important to look at all three parameters to address this issue.

1) Check the ink! A No-Tox water-based ink will have performance issues when pH drops below 8.5. Due to the volatility of the amines in the ink, it will begin to increase in viscosity as the amines evaporate, leading to poor transfer from the anilox to the plate, and subsequently from the plate to the substrate. Adding aqueous ammonia, or a No-Tox pH conditioner, will raise the pH into the ideal operating window of 8.5-9.5, lower viscosity and result in improved transfer.

2) Note that in a pressroom without temperature or humidity controls, either higher temperatures or lower humidity levels will result in pH drops. If these properties cannot be controlled in your plant, it becomes important to more frequently check ink pH, adjusting as necessary.

3) Check the press! Has something changed in the set-up of the machine since the last run? Is there more pressure between the plate and the substrate? Back-off to a kiss impression. Is the anilox roll dirty, resulting in less ink transferring from the roll to the plate and make it more prone to evaporation? Check and clean if necessary. Is the press speed lower than for previous runs? If so, try increasing printing speed. Also, check the airflow in the between- unit dryers. Make sure that there is no air blowing onto the printing plate, which will dry the ink on the plate just as it causes the ink to dry when applied to the substrate.

These simple but important measures will almost always eliminate premature ink-drying. In the rare occasion that additional help is needed after doing the above, add a bit of propylene glycol to the ink. Propylene glycol is an edible food additive, frequently used in salad dressings, marinades and sauces to protect the product from freezing. It is also a slow-drying diluent that can retard the drying of the ink. But only add propylene glycol to the ink after exhausting the above recommendations, and only in small quantities. We don’t want the ink to now dry too slowly and cause set-off, tracking or blocking after printing!