

# Summertime, and 2-Piece Deco's Not Easy!



## Various ink properties and issues affected and compromised by the excessive ambient and decorator temperatures of summer

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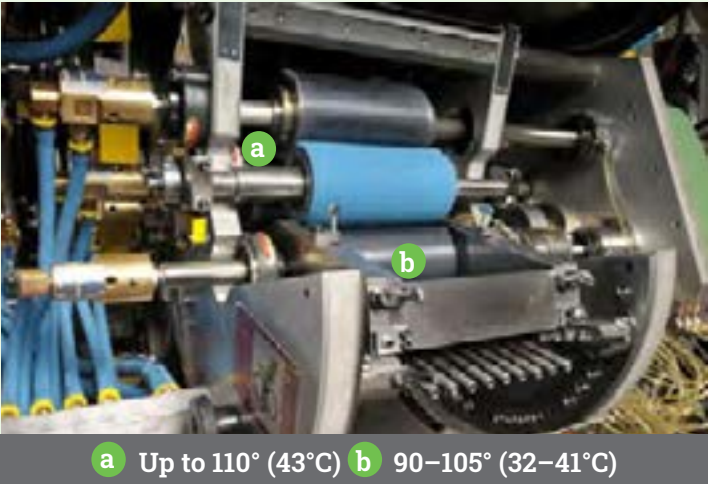
It's been a long cold winter; made longer and colder by the limited social and professional interaction we've experienced in the past 15 months. Spring brings warmer temperatures, outdoor activities, and optimism. But inevitably, spring leads to summer. We find that most labels run very well in the summer or winter, but both seasons can be problematic in a few situations.

### Viscosity

Warm ink is generally less viscous and flows more readily, transfers well down the roller train, and lays down better on the can. You may be able to turn it down and maintain the label's target density and tone.

### Misting

However, reduced viscosity often means an increase in misting, usually on a "full-wrap" color, and sometimes on a color with something less than full coverage. First, compare your cans to the target density. If you are running heavier than target, simply turning the keys down to target may reduce misting considerably. If misting is excessive when your cans match the target density, turn the ink down, and if you observe no change to the visual density or tone, you are running past the ink's saturation point. Restricting ink film to its saturation point or below often reduces misting to an acceptable level. If ink



key adjustment isn't an option or doesn't help, roll temperatures, nip pressures, and parallelism should be checked and adjusted as necessary to reduce misting. Note: There is nothing your in-plant ink service technician can add press-side to increase viscosity. But if the ink is not already a "full strength" formula, your service tech may be able to add more base colorant to increase its strength to allow you to turn it down, and therefore reduce misting.

**Solvent Loss**

Ink solvent evaporation can be a major problem associated with excessively hot

conditions, especially for those inks with minimal print coverage areas on longer runs. When a limited amount of ink is distributed to the roller train, it rolls in the hot fountain, sometimes for hours on end. If no fresh ink is added the vital wet ingredients may evaporate. The ink is literally drying out in the fountain and on the rolls, compromising transfer from roll to roll and ultimately providing a stippled and maybe even porous laydown on the can. Another serious related problem is the possibility of rolls exploding. Remember, the ink not only provides color to the can, it also acts as a lubricant for the inker rolls. As the ink dries out, friction

will increase between the rolls. Due to the increase in heat the rolls may swell, and the nip pressure increases. This continues until the rollers get so hot they might explode. A possible solution is to put only a minimal amount of ink in the fountain to start, and add a small amount from the bucket on a regular basis. This should maintain the integrity and percentage of the solvents throughout the run. If the ink is too strong for light density or print coverage area on the can, your ink service rep typically has several wet additives at his disposal to wet and weaken the ink. This necessitates opening up the keys to achieve the target density and color on the can, keeping the inker rolls more saturated. Note: Any ink that is determined to be depleted of solvents and appears dirty and grainy on the can should NOT be returned to the bucket, it should be scrapped.

### **Dot Gain; Fill-in; and Feathering**

As ambient and decorator temperatures increase, the rolls swell, cylinders expand, and the ink flows more freely. Additionally, when the looser, less viscous ink comes in contact with warm substrate, the ink will

tend to spread out on the can. These factors result in dot gain, loss of stay-away between solids, feathering of ink from one solid to another, and fill-in of reverse type and images. Turning down the ink, and backing off on form, plate and carriage pressures can help reduce the image gain that tends to increase when conditions heat up.

Ideally, we like to see ink in the fountain, and the inker rolls at the temperature limits displayed on the graphic below. However, we realize that ambient conditions, proximity to ovens, and the heat that transfers through the metal frame and radiates from the bull gear to the inker may make these optimum temperatures unrealistic. This does NOT mean when your temperatures are hotter, the ink won't run, or you can't make good cans. But it DOES mean as your temperatures exceed those displayed, the complicating factors noted above are more apt to occur, and there are limits to how the ink will be able to perform. Cans should be inspected closely and more frequently as temperatures increase. **[FM]**