

Effective "post-treatment" of UV/LED screen printing on glass using Infrared heat

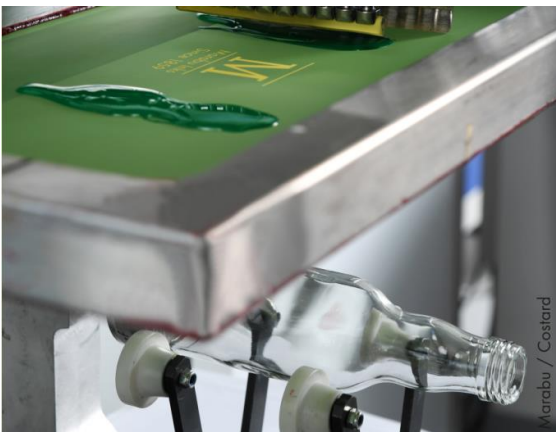
Marabu UV/LED screen printing inks on glass show significantly better adhesion properties and resistance with a post heat treatment in a continuous dryer or the use of hot air ovens/convection ovens. Extensive tests showed that carbon infrared heaters reduce the drying time from about 20-30 minutes to about 3 minutes.

Decorative prints on glass bottles and jars must be scratch-resistant and robust. This includes, for example, a high level of resistance to the filling material and the dishwasher. Marabu UV/LED screen printing inks for glass can be cured with UV light (medium pressure mercury vapour lamps, UV LEDs) and post-cured or post-fixed with heat, depending on the ink system selected. Marabu carried out comprehensive test series in the in-house Print Centre, in the Heraeus Noblelight application centre and at customers' premises. It was shown that infrared heat ensures efficient final curing. In addition, handling was faster and easier than with conventional large-volume hot air ovens or continuous dryers.

The tests showed that infrared heat significantly shortens the process time for "post-drying" or "post-tempering", thus reducing energy costs. Different residence and exposure times were tested on ink structures with different colour tones (black, white, coloured). Since then, Marabu's has been preferring infrared heat to accelerate and optimise post curing. In contrast to the previous post-curing or annealing processes, this offers a much higher power density, reacts very quickly and is easily controllable.

The production speed and economic efficiency (energy cost savings) can be significantly increased by this technology. The basic tests were later verified by Marabu for inks used by end customers. The drying process was reduced from about 20-30 minutes to about 3 minutes by using carbon infrared emitters. Carbon emitters transfer medium-wave infrared heat, which is particularly well absorbed by glass, water, many solvent, and UV/LED inks.

Compared to conventional convection ovens, this provides significant savings in processing and oven dwell times. Norbert Burzynski, Print Centre Manager at Marabu, is very satisfied and explains: "Our customers have very high demands on their decorated products. After these very extensive internal and external tests, we can now recommend a viable alternative for post-treatment using circulating air ovens and/or continuous dryers that saves time and energy."



Features

- Post-curing of UV inks on glass bodies
- Faster "response time" than conventional convection ovens and/or continuous dryers
- Fast and efficient energy transfer
- Flexible adaptation to product requirements
- Higher production speed

Technical Data

- Carbon Infrared emitters
- Medium-wave infrared heat

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