Keep quality consistent with the right tools

With fillers now enforcing strict colour compliance, canmakers need to assess the available tools to make the right choices for their operation, says Amir Novini

For canmakers, containers rejected and/or held for inspection (HFI) due to colour non-conformity and decoration defects are a significant cost concern. Highly complex graphics and exacting requirements now heighten the risks. Moreover, with today's sophisticated multi-colour printing processes, can decoration has achieved photographic quality, and speciality batches are being produced with more than just the filler's brand identity at stake. Consistent colour accuracy must be achieved in the sponsor logos, celebrity likenesses and similar graphic elements appearing on those cans.

Ensuring colour consistency requires colourimetric (colour measurement) technology. In response to fillers' latest requirements, some canmakers initially implemented spectrophotometer-based tools to measure colour.

Spectrophotometer-based instruments achieve precise colour measurement in controlled conditions on flat surfaces and generally on solid colours. As such, they have been used successfully for decades in the printing, paint and ink industries. However, their tiny aperture, inability to distinguish patterns and difficulty interpreting process colours make them impractical for use on shiny cylindrical surfaces with complex patterns, whether on production lines or in the laboratory.

As a result, at least two major canmakers are currently using camera-based tools in their operations instead of or alongside spectrophotometer-based systems for comparing accuracies, repeatability and ease of use.

Because camera-based systems basically 'see' in a similar way to the human eye, they have been proving more useful. At least one leading canmaker has already demonstrated the advantages of camera-based systems over spectrophotometer-based systems to a major filler customer. Effective colourimetric tools for canmaking are able to register patterns, interpret process colours and obtain a holistic view of the can for making simultaneous measurements in multiple regions of interest. Integrated in on-line inspection systems, these tools also perform those functions on cans moving in random orientation at line speeds.

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Camera-based colourimetric tools can perform either absolute or comparative colour measurement. Laboratory units in which the object, lighting and other environmental factors are controlled provide absolute measurement.

The other main types of tools are decorator blanket inspection and online systems for high-speed or low-speed (eg, bottle can or aerosol) lines. These tools are 'trained' to recognise, accept and reject within established tolerances, and therefore provide comparative measurement. A key advantage of the blanket inspection tool is earliest possible problem detection and traceability to the 'faulty' blanket. The online after-the-oven tool detects process problems in seconds while performing colour measurement functions on randomly oriented cans moving at production speeds.

Finally, as with any technology, you should carefully consider the user interface. A system that is easy to set up, learn and use is key to successful utilization. If your operations are global, also be certain your system employs colourimetric standard technology for consistent application and results worldwide.

The issue of 100-percent colour consistency is not suddenly new. It has been gradually building along with, but not apace with, can decoration's dramatic leap in graphical complexity and colour palette expansion. In other words, the concern has trailed the phenomenon, and the phenomenon has become the norm! Practical solutions are available – just choose carefully.