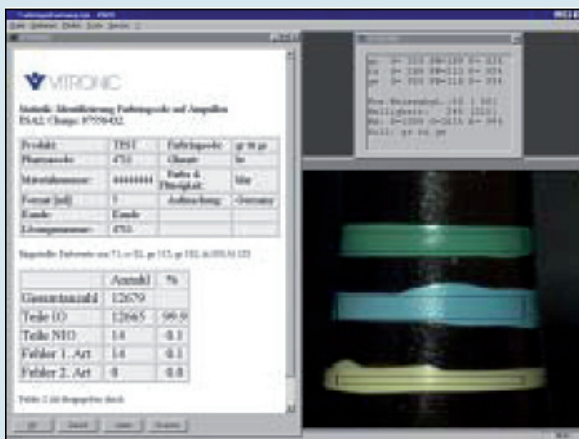


More safety in medical technology

Automated inspection of color ring codes on glass ampoules

The task

The contents of ampoules of different sizes are coded by manufacturers by means of three colored rings. Vitronic's quality inspection system VINSPEC verifies these color ring combinations that define the contents on a circular automated system, prior to labeling of the ampoules. Here, the intensity



and arrangement of the color rings are checked for errors. The verification is carried out by the image-processing system, where a specifications database has been integrated. Inspection reports are generated in HTML format and can be viewed via a web interface.

Benefit

The inspection system VINSPEC ensures that only correctly labeled products leave the production facility. Competitive advantages in this sector can only be achieved by means of high safety standards. Ampoules with the wrong contents represent a substantial risk for the patient and a great liability risk for the manufacturer. When a wrongly marked ampoule has been identified the production stops immediately.

Implementation

The robust color evaluation system works using a classifier, which in addition to the color levels, also evaluates the color saturation, so that markings varying slightly from the already learned color levels can still be detected reliably. VINSPEC systems are capable of full validation and have integrated software modules to enable the tracking of the system parameters (leaving an audit trail).

Technical data

Cameras:	1 full-frame shutter color camera
Illumination:	Cold light source
Resolution:	approx. 0.02 mm
Speed / Throughput::	approx. 15 m per minute approx. 420 parts per minute
Hardware / Interfaces:	Industrial PC RS232 serial interface to control system Rejection and trigger signals via I/O interface, opto-isolated