

Product Information

Background

In today's pharma packaging production mostly highly flexible packaging centers are used in order to meet the demands of high yields. This is caused by the increase in variety of products and packaging presentations as well as the increased numbers of small-sized and micro-sized batches. Above all, these systems are geared to fast changeover times and easy clean-ability during batch changes and thus to effective production in order to produce with a high total OEE.

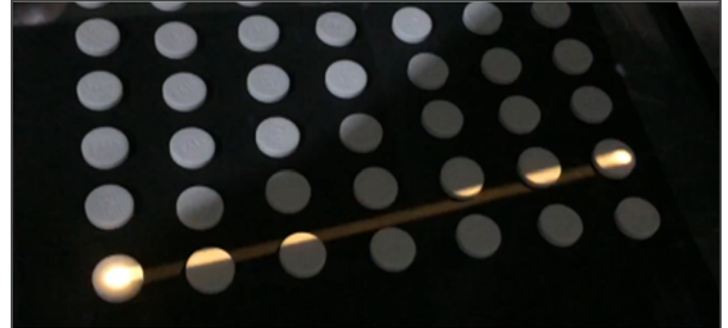
Conversely, this means that more and more different products are being run on these packaging lines. Some are partly similar in appearance or even look the same. The traditional camera-based product inspection alone therefore can no longer reliably differentiate between all of them and there is a potential risk of mix-up.



VisioNIR AS system on a blister packaging machine

The development of VisioNIR AS is the result of the considerations described above. The outstanding feature of VisioNIR AS is its dual function which is also revealed by its name: Visio stands for traditional optical inspection, NIR stands for near-infrared spectral analysis (AS meaning Area Scan).

NIR is particularly interesting for spectral comparisons and, in analogy to criminal investigation, it can be referred to as "molecular fingerprint".

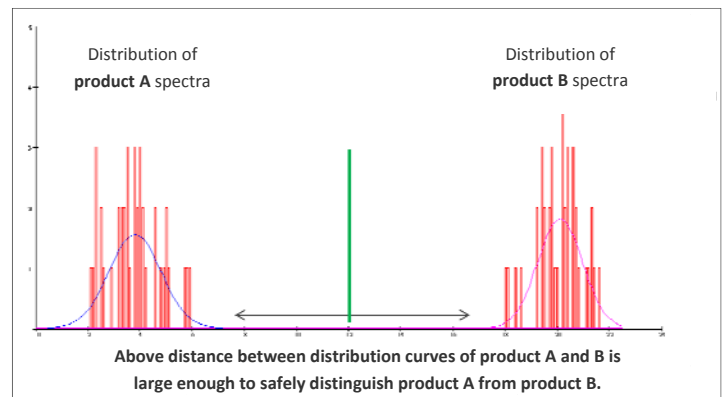


NIR scanning process: close-up of light spot moving at high-speed from tablet to tablet in order to acquire spectral product information

VisioNIR AS, the innovative inspection system from visiotec GmbH, a member of the Uhlmann Group, is a patented combination of optical and content-based product inspection for solid dose products (e.g. tablets) in the pharmaceutical industry.

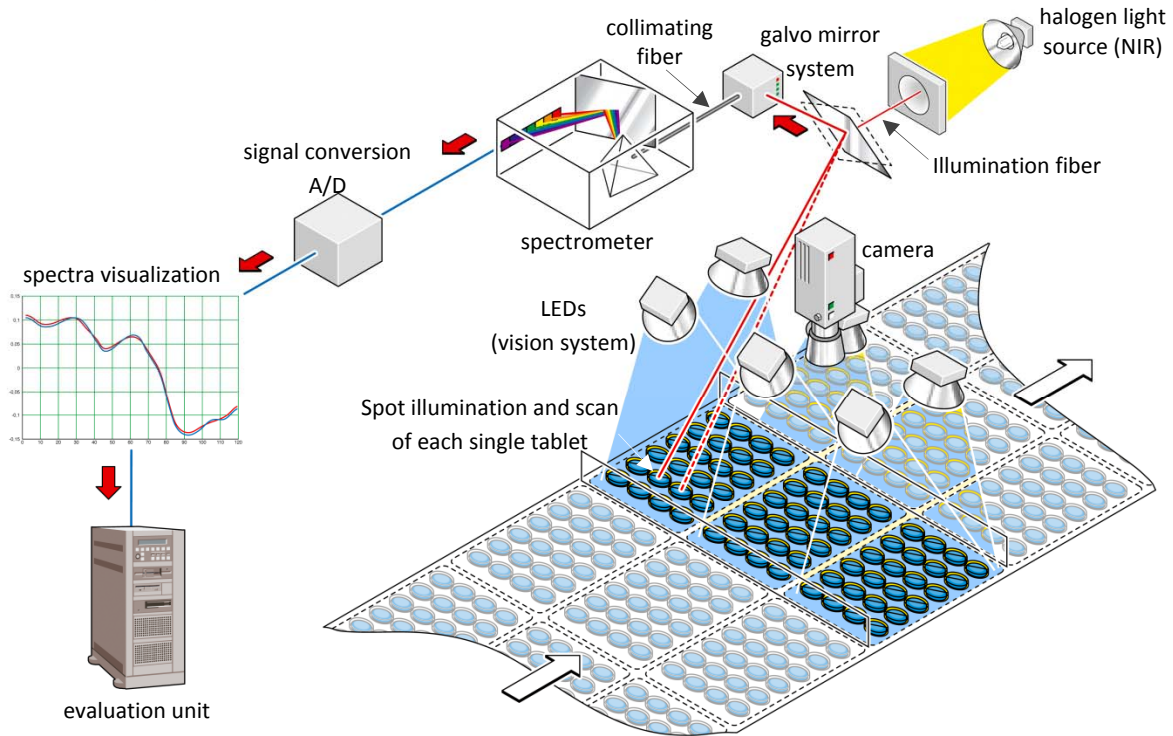
In addition to the visual camera inspection for possible cosmetic defects of the products to be examined, the system additionally checks for the correctness of the content (ingredients) of the products. Thus, the use of the system ensures that all packaged products are both tested and correct in their appearance and content.

For the user, this ensures a 100% inspected production on the packaging line - and the patient is excluded from the risk of product confusion potentially caused in production.



Normal distribution of two look-alike products evaluated by VisioNIR AS

Functional Principle



Highlights

The vision system takes a snapshot of the format area and performs its optical inspection (color, geometry, etc.) using a high-res camera and LED illumination. It also provides the coordinates of each tablet to the NIR system. The NIR system has a separate light source (halogen) which provides NIR radiation. This radiation is bundled and transported via an illumination fiber through a galvo mirror system, which targets each tablet with a light spot. On the same pathway back, the reflected NIR radiation with spectral information is then coupled into the collimation light fiber. The collimated NIR radiation is transported to the diode array NIR spectrometer and converted into a spectral chart. Evaluation is performed via software so the information of these spectral charts can be classified in order to distinguish tablets based on their physical-chemical characteristics resp. their “forensic fingerprint”.

- Sophisticated in-line technique combining vision inspection and NIR technologies
- 100% inspection of individual tablets by state-of-the art high-resolution vision system for cosmetic defects and with NIR for product chemical composition
- Integration time 0.1 ms – 100 ms (application dependent)
- Diode array technology with 256 pixels
- Wavelength range 850 – 1600 nm or 1100 – 2100 nm
- Integrated or stand-alone solution
- Applicable for intermittent or continuous motion operating machines
- Applicable for clinical trial and commercial packaging operations – also for re-inspection
- Retrofit-able into existing processes
- GMP design and 21 CFR Part 11 capable