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Alpha MOS

SENSORY ANALYSIS SOLUTIONS

IRIS Visual Analyzer
color & shape analysis

Company profile

Specialized in electronic sensing systems, Alpha MOS is positioned as the world leader in the design and development of instruments dedicated to the smell, taste and visual aspect (color and shape) analysis.

To answer the needs of major industries, Alpha MOS offers reliable and fast solutions that can control the sensory quality of their products and secure their manufacturing process.

IRIS visual Analyzer

IRIS system is composed of two elements :

➢ The IRIS cabinet housing the lighting camera for picture acquisition under controlled conditions

➢ A computer (provide by AlphaMOS) for system monitoring ,data acquisition with AlphaSoft software.

Hardware

Closeable light cabinet

➢ large measurement surface （270 x 390mm）

➢ lighting conditions

- LED （light Emitting Diodes)-T=5700k :with dual lighting system(top and/or bottom lighting)

- Lifetime> 40 000h

- Very fast starting time （5min）

- Highly reproducible

- Back –lighting to avoid shadow effect

➢ removable tray diffusing a uniform light （white or black – 420 x 560mm）

➢ ability to exchange the base plate and choose the lighting

Imaging

➢ Camera

- Embedded in the cabin for better protection

- CMOS technology : 5 mega pixels

- precise tunable camera 16M colors settings available from soft: software-controlled zoom

- Resolution 2588 x 1942

- Conformity： CE， FCC， IP30， RoHS， PoE (802.3af) ， UL， GigE Vision， GeniCam

➢ Lens

- Fixed focal (high reproducibility & robustness)

- Low geometrical distortion (lower than 0.5%)

- Manual focus and diaphragm aperture

- Several model available with focal length ranging from 4mm to 25mm (5mm in standard), depending on the minimum size to be detected and the amount of sample to be analyzed.

➢ Color calibration： computer-monitored calibration for r

- Certified color checker 24 colors. The calibration is done either on a standard calibration checker (4mm to 8mm) or on a passport –size checker(12mm to 25mm)

- White balance

- High calibration reproducibility (standard deviation <5 on 24color distances)

Application

IRIS is mainly used for the color, shape and size analysis of samples, mainly used in：

- Visual analysis of food & packaging products
- Visual monitoring of product stability and shelf life
- Comparison of visual among competing products
- Shape/material identification
- Surface analysis
- Consumer preference analysis

AlphaSoft

Compatible with Windows®7 and Windows®10. This software contains instruments control and monitoring and includes a complete chemometrics software package for data processing.
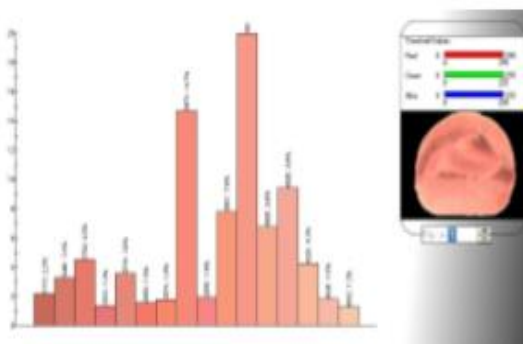
Data Analysis

➢ color & shape， size analysis
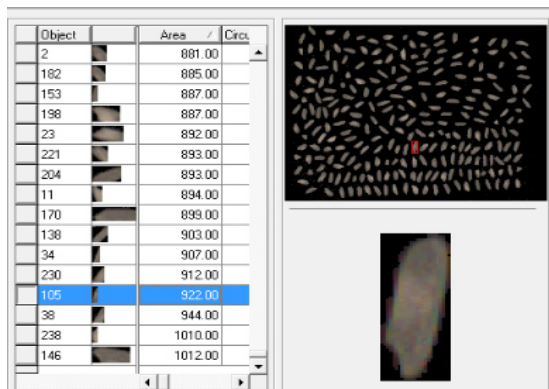

Figure 1. color analysis of ham samples
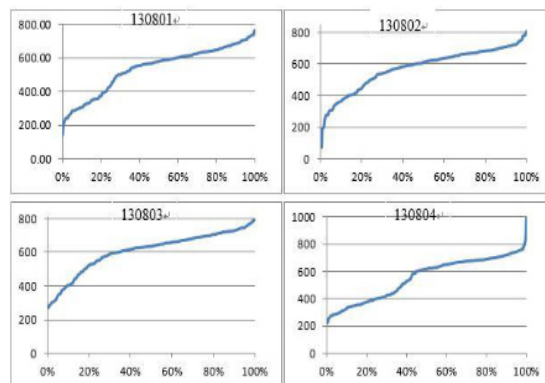
Figure 2. shape and size analysis of rice samples

Figure 3. Distribution map of size composition of rice sample

➢ Statistics Analysis

- PCA：The software can automatically combine and screen all the information, select the characteristic fingerprint information of the sample, and objectively reflect the differences between the samples.
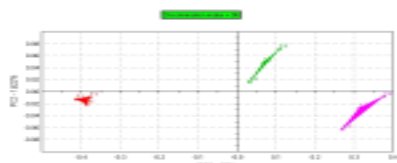

Figure 4. PCA map

- SIMCA：After training, blind samples can be qualified. Qualitative model based on Pass/Fail or Good/Bad test.
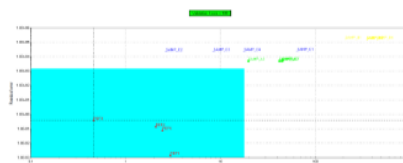

Figure 7. SIMCA map

- DFA：Classification of products based on several groups, Discrimination of various grades, origins, intensities, classes, etc.
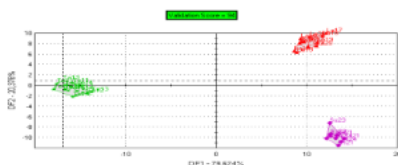

Figure 5. DFA map

- SQC：After training, blind samples can be qualified . Model for statistical monitoring of product quality and variability
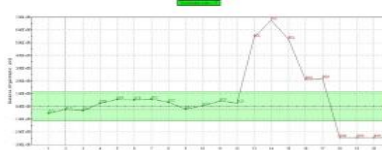

Figure 8. SQC map

- PLS ：Quantitative model, can be used for concentration quantification, can also be used to correlate with human sensory panel to predict sensory score .
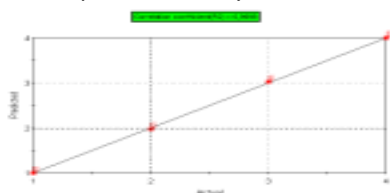

Figure 6. PLS map

- Shelflife: Mapping of the evolution of odor/taste/visual profile of products over time
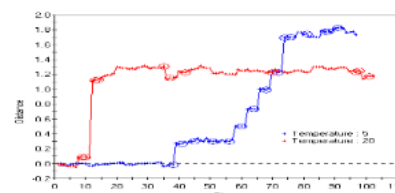

Figure 9. Shelf-life map

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