



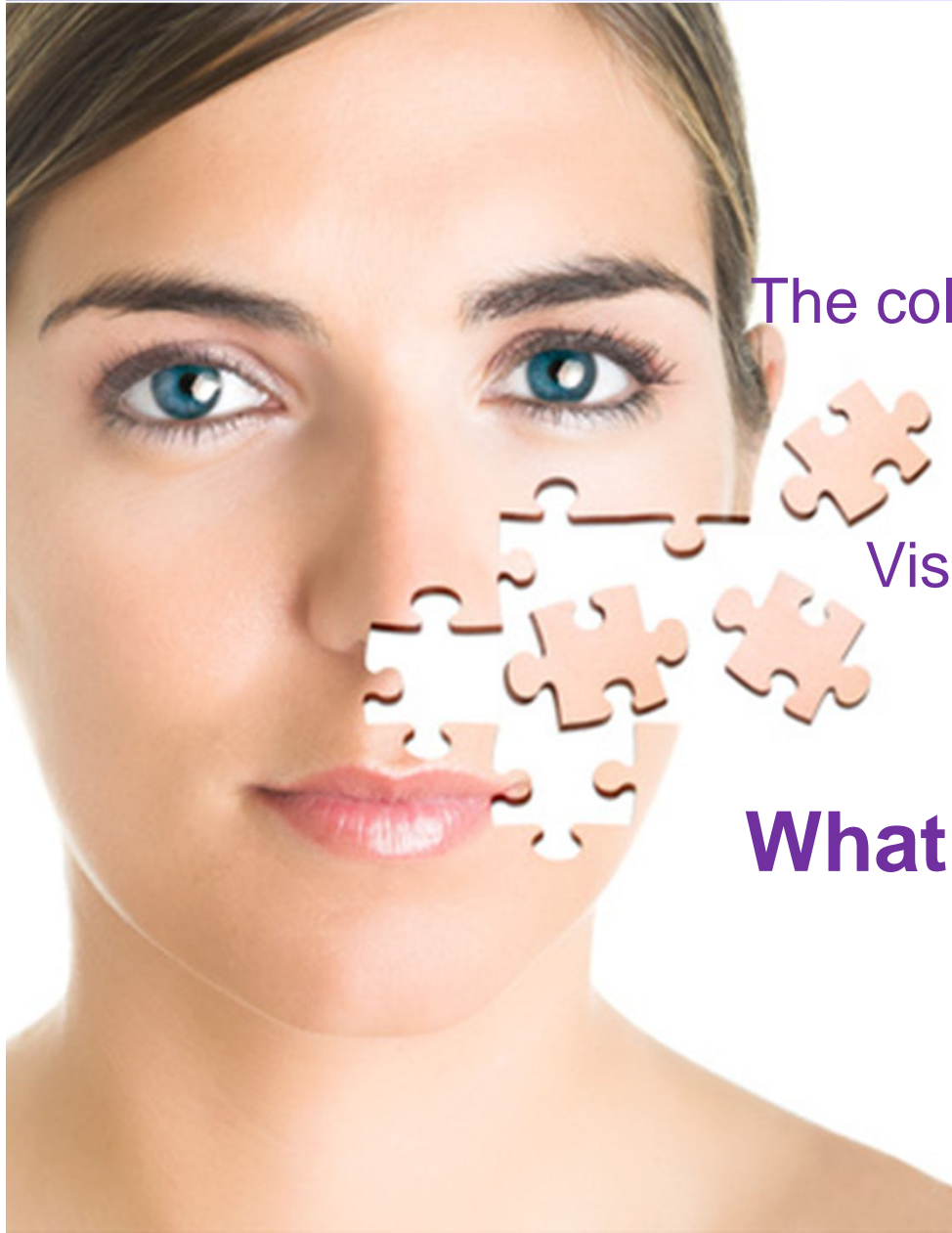
Manufactured by
VeriVide Ltd

The DigiEye System

a complete non-contact color
measurement and imaging
solution.



The Challenge of managing the colour of Cosmetics



The colour of cosmetics is a major factor influencing the consumer.

Visually assessing the colour is limited and subjective....

What is the missing piece?

The Challenge of managing the colour of Cosmetics

The traditional method of Quality Control has been either;

Visual Assessment

with uncontrolled or inconsistent viewing methods in terms of

- The Observer
- Light Source
- Angle of Observation

OR

Instrumental Measurement (Spectrophotometer / Colorimeter)

with restrictions and limitation. . . .

- Only works well on flat, solid, opaque objects – rarely the case is cosmetics.
- Limitation of aperture size. Cosmetic samples tend to be outside of the range of aperture sizes available meaning inconsistent results.
- The results are inconsistent and do not give good agreement with visual assessment.



The Challenge of managing the colour of Cosmetics

The Solution:

DigiEye – Measuring Colour in Context

The DigiEye System from VeriVide is different.

- Digitally capturing and measuring
 - **Texture, Colour & Appearance**
- High Resolution - Great Precision.
- Consistent and Repeatable results.
- Calibrated images – Colour visualisation.
- Measures colour in context not in isolation.
- Colour as seen by the consumer.



What is DigiEye?

- DigiEye is a digital colour imaging system with proven applications in the cosmetics industry.

- Offers the ability to consistently and reliably measure colour & appearance using a non-contact method.

- DigiEye is not restricted by non-uniformity; measuring the total colour and appearance of 2D and 3D objects with incongruous surfaces.

- Used to assess total colour or colour difference between standard and batch.

- Much less restrictive than a spectrophotometer



What is DigiEye?



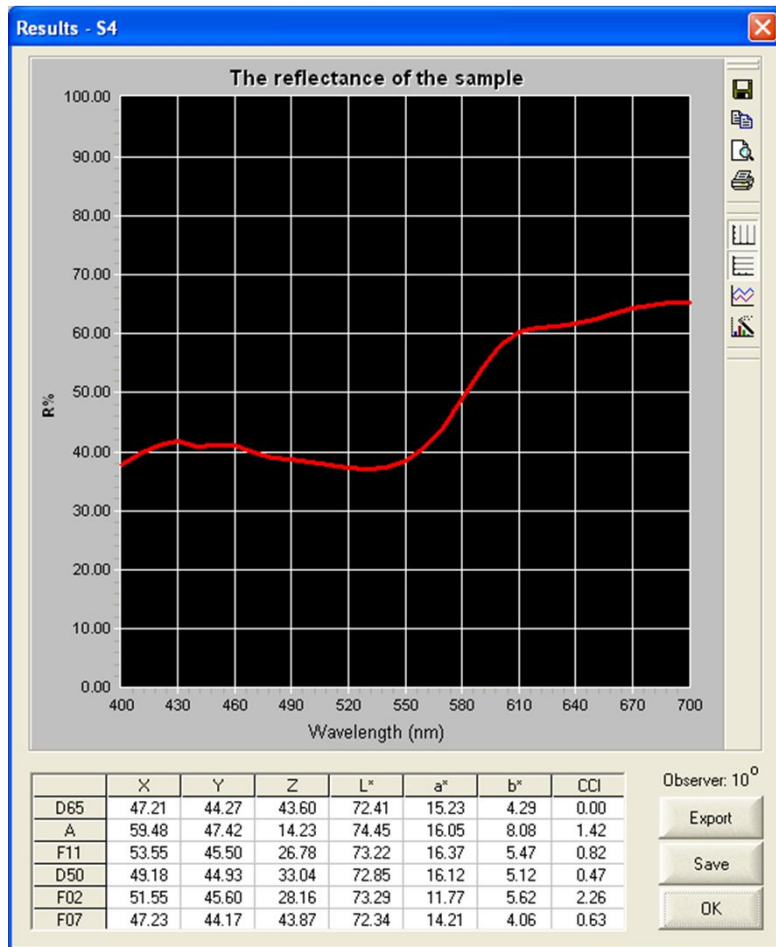
- **Characterized SLR Camera.**
 - Recording colour data at millions of points.
- **Calibrated Monitor & Printer.**
 - Accurate on-screen product representation.
 - Colour accurate photographic images.
- **Enclosed 'DigiEye Cube'.**
 - Eliminating all ambient light.
 - Product capture in Consistent lighting
 - Both Angled and Diffuse lighting

DigiEye Colour Measurement

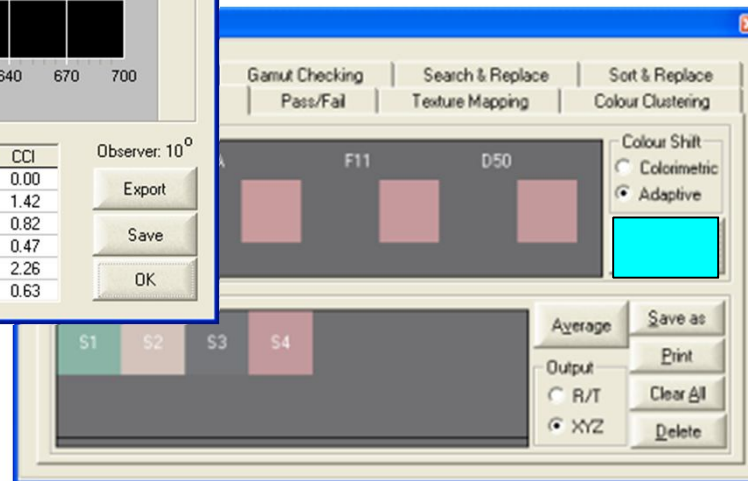


- DigiEye colour measurement is very quick and easy.
- Can be used on packaging and product
- No aperture restrictions – measure a single pixel or can average the whole image if required.
- Product can be solid, liquid or curved.
- No need to destroy product for measuring.
- Enhanced selection method reducing the measurement effect of shadow between the strands.
- All measured data can be stored or exported via .QTX format

DigiEye Colour Measurement



- DigiEye can measure discrete or whole areas of colour
- Standard numerical data can be extracted from the image.
- Accurate on screen appearance allows colour to be visualised as well as measured.
- More accurate and repeatable than a Spectrophotometer .
- Measured data can be saved or exported.



DigiEye Colour Difference Measurement

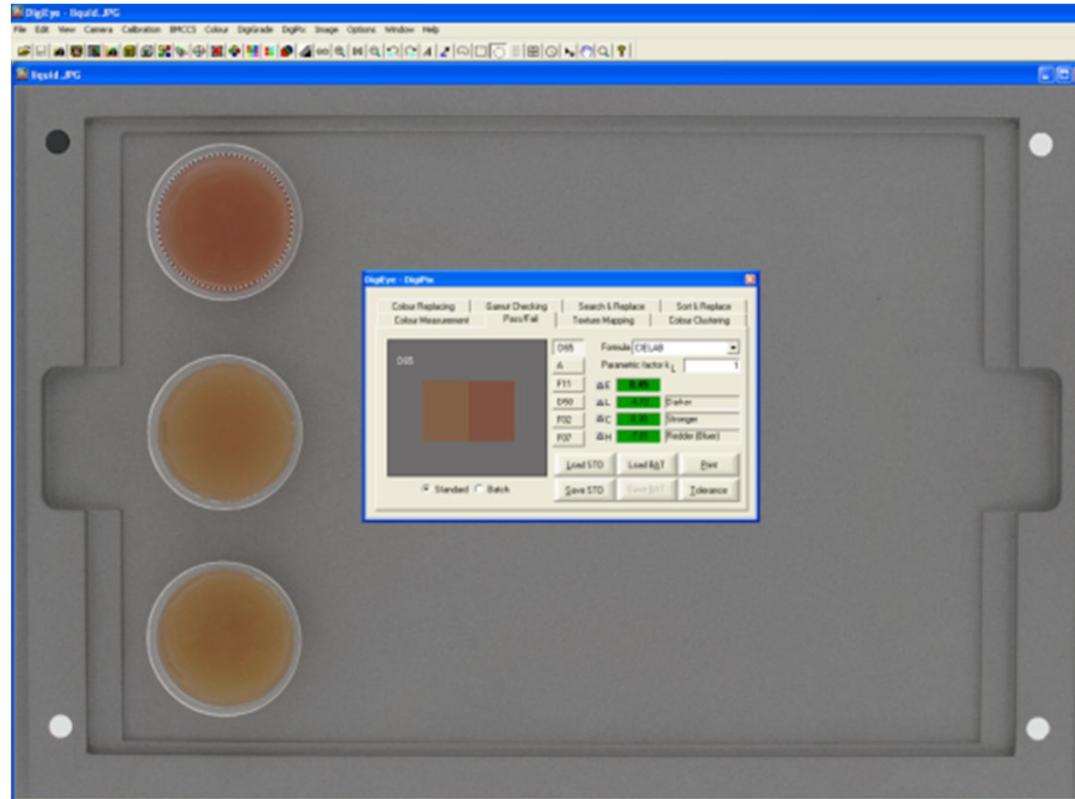
Traditionally very difficult to do instrumentally



- No restrictions due to aperture.
- Less influenced by surface shape & structure than a spectrophotometer
- Sophisticated selection tools – only selecting desired areas
- Not restricted to solid objects

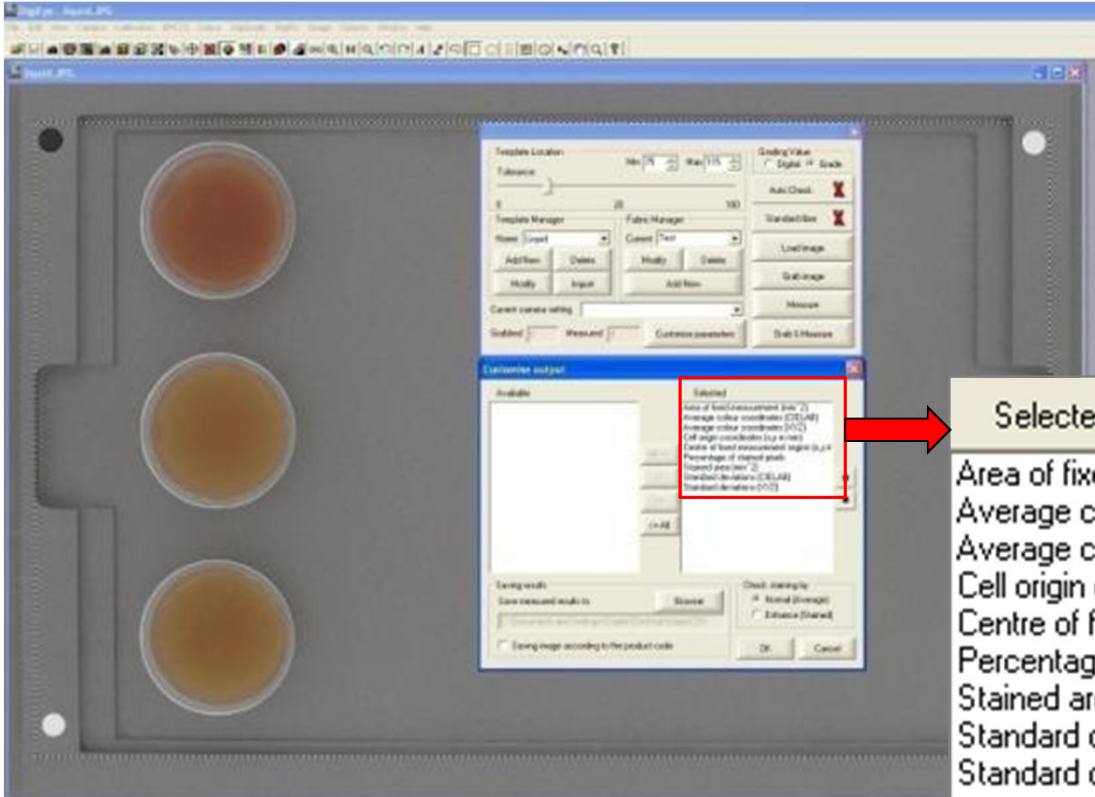
DigiEye Colour Difference Measurement - Liquids

Ideal For Perfumes, Bubble baths, body scrubs & shower gels



- Allows standard/batch assessment at a standard depth.
- Measures the surface, not influenced by suspended particles.
- Allows creation of digital standards – both colour and spectral information.

DigiEye Colour Difference Measurement - Liquids



The screenshot shows the DigiEye software interface. On the left, there is a camera view of a tray containing three circular liquid samples. Overlaid on the interface are two windows: 'Template Manager' and 'Selected'. The 'Selected' window lists various properties that can be extracted from the measurement. A red arrow points from the 'Selected' window to a detailed list of properties.

Selected

- Area of fixed measurement (mm²)
- Average colour coordinates (CIELAB)
- Average colour coordinates (XYZ)
- Cell origin coordinates (x,y in mm)
- Centre of fixed measurement region (x,y in mm)
- Percentage of stained pixels
- Stained area (mm²)
- Standard deviations (CIELAB)
- Standard deviations (XYZ)

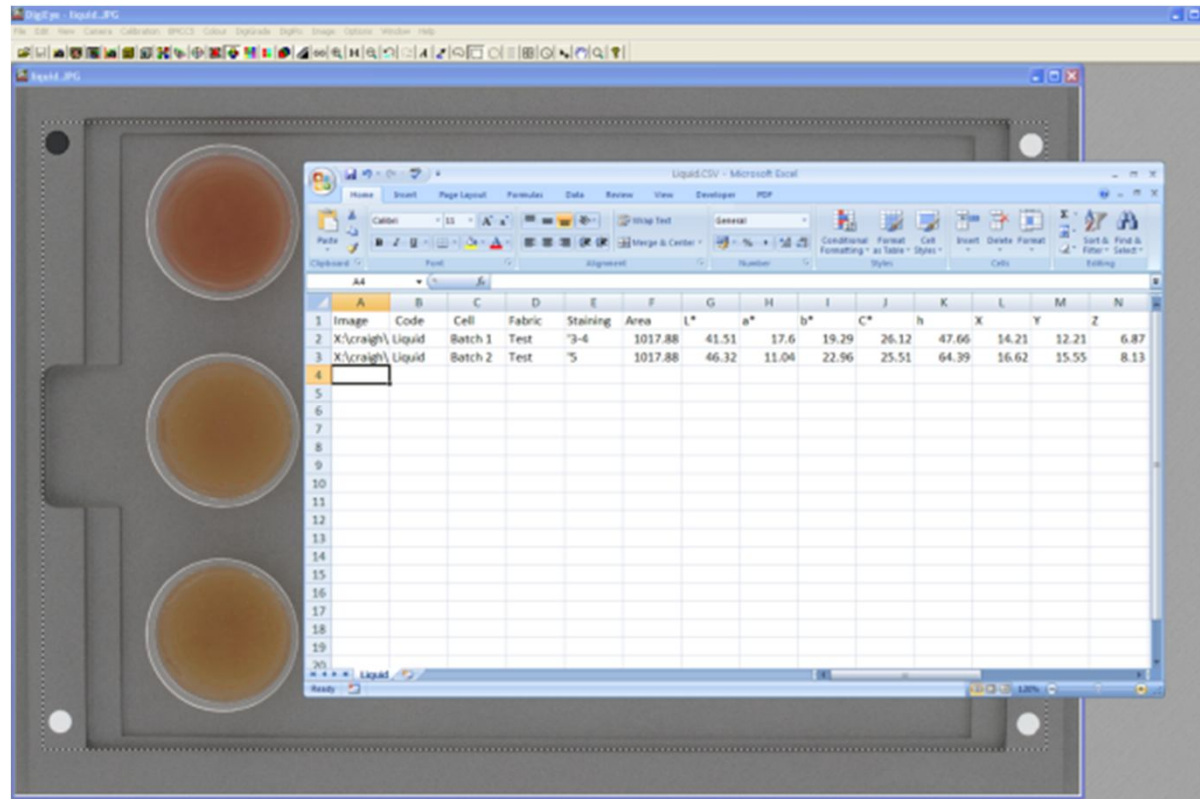
- Allows Multiple samples to be measure automatically using a location template.
- A variety of properties can be extracted – see the list above.

DigiEye Colour Difference Measurement - Liquids

Batch 1

Standard

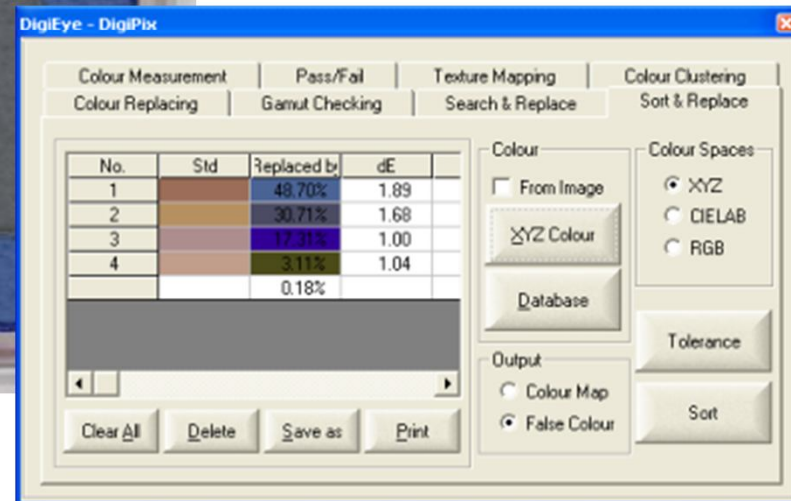
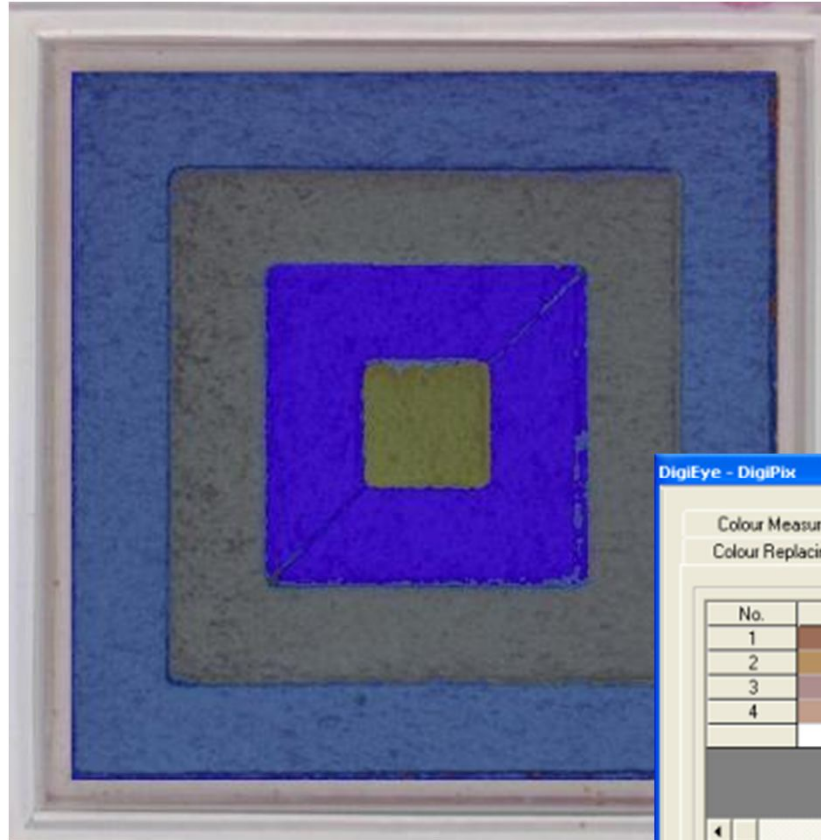
Batch 2



- Results exported directly to a CSV file.
- 100 samples in one measurement has been achieved using this method

DigiEye Percentage Distribution

DigiEye can be used to calculate the percentage distribution of surface characteristics

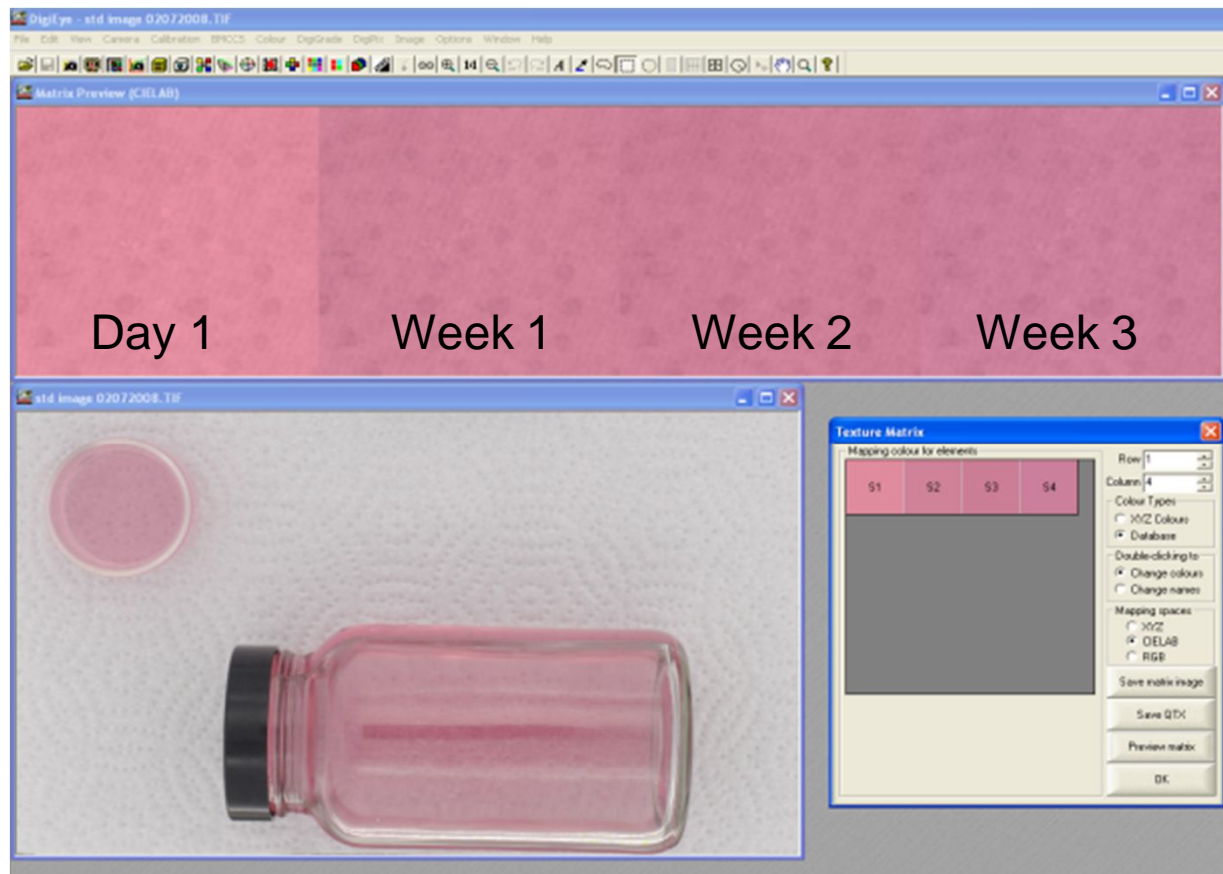


| No. | Std | Replaced by | dE |
|-----|-----|-------------|------|
| 1 | | 48.70% | 1.89 |
| 2 | | 30.71% | 1.68 |
| 3 | | 17.31% | 1.00 |
| 4 | | 3.11% | 1.04 |
| | | 0.18% | |

- Colour
- Components such as scrubbing beads
- Defect analysis

Colour Stability

- Naturally coloured products area transient by nature
- Using DigiEye can help to track this change – Visually and Instrumentally



DigiEye Illumination

Illumination can be either diffuse or angled depending on application



Diffuse Illumination

Flattens the images. Ideal for colour measurement



Angled Illumination

Highlights glossiness. Ideal for accurate appearance

Product Design & Visualisation

- DigiEye can be used for product development and for Digital printed standards
- Accurate recolouring of product and packaging to reduce development time



The DigiEye System

Manufactured in the UK by VeriVide Ltd



Registered under BS EN ISO 9001 Certificate No. 3393.

VeriVide Limited. Quartz Close
Warrens Business Park
Enderby, Leicester. LE19 4SG
United Kingdom

Tel: **+44 (0) 116 284 7790**

Fax: **+44 (0) 116 284 7799**

Email: **enquires@verivide.com**

www.verivide.com/digieye

www.digieye.co.uk

